

Abstracts
Invited speakers

IS-001

Addressing barriers to access to sexual and reproductive health care

Dorothy Shaw

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Objective: To explore successes and barriers that influence access to sexual and reproductive health services for women.

Barriers to sexual and reproductive health begin with the life context of the woman. Women are vulnerable to gender-based violations including cultural practices such as sex selection, female genital mutilation, child marriage, discriminatory feeding and education. Lack of education and poverty are major barriers. Services are not geared to young people who form almost half of the world's population; young women have the highest rates of HIV infection.

In 2007, the United Nations General Assembly added a new target to MDG 5 on maternal health – to "Achieve by 2015 universal access to reproductive health".

The indicators include: Contraceptive prevalence rate, adolescent birth rate and unmet need for family planning. With maternal mortality rates globally unchanged over 20 years, implementing the right to access contraception is overdue.

The health care worker shortage remains the most critical barrier to achieving access to sexual and reproductive health. Strengthening health systems includes training, recruiting and retaining health care workers; adequate communication and referral systems; innovations such as task shifting and competency based training; clean water and sanitation; availability of adequately equipped facilities and drugs; no point of care costs for emergency care for maternal child health; transport; best practices and evidence based essential services for reproductive health care. It also involves education at the community level.

Conclusion: Partnerships with others in civil society can remove barriers to sexual and reproductive health services.

IS-002

Women's Health in a Global Perspective

Peter Hornnes

Hvidovre University Hospital, HVIDOVRE, Denmark

The health of women varies throughout the World among regions and countries but also within countries. The issues are ample, but inequality and disrespect are common factors.

Many countries have attained dramatic declines in maternal and infant mortality over the last decades, but some especially in Sub Saharan Africa are left virtually

without progress. This not entirely due to lack of resources, as significant progress has been made elsewhere in the developing world with only very limited investments in education and low-costs pharmaceuticals as misoprostol and magnesium sulphate.

Sub Saharan Africa is also faced with the awesome problem of obstetrical fistulas occurring at a rate of up to 2 per 1.000 deliveries, in many cases in teenage women pregnant with or without their consent. It is estimated that 2–4 million women suffer from this complication to lack of appropriate obstetrical and gynaecological care.

Pregnancy and delivery should be intended choices; therefore effective contraception and the option of abortion should be universally available. In contrast, many countries and religions in all regions of the World oppose or prohibit contraception and abortion forcing women to seek illegal and dangerous assistance.

In all countries violence – whether sexual or not – is a wide spread threat to women, and in almost all countries inequalities can be demonstrated in health variables when socio-economic or ethnical factors are considered. In some regimens, fundamentalists have imposed specific restrictions for female education and employment or even access to the world outside the home.

Thus, women's health does not only pose challenges to health professionals but it is a matter pertinent to society as a whole.

IS-003

Maternal mortality with emphasis on post partum haemorrhage (PPH)

Roland Strand

Kvinnokliniken, ESKILSTUNA, Sverige

The globally most common complications of pregnancy and childbirth will be discussed as well as the direct and indirect causes of maternal mortality. Focus will be on post partum haemorrhage (PPH), which contributes to around 1/4 of all maternal deaths.

Problems of definitions and the difficulties of measuring and assessing blood loss will be presented. The conditions for comparing studies will be elucidated by an African example of a PPH study using cholera beds.

The time factor, the principles of Emergency Obstetric Care and the concept of Active Management of the 3rd stage of Labour and their effect on PPH will be discussed.

Uniject, a disposable device for routine administration of oxytocin, has been used in Angola's biggest delivery ward. This study, its results and conclusions will be presented

Different alternatives of "the tamponade test" will be described as well as the medical and surgical principles for treating PPH.

IS-004

HIV/AIDS and sexual and reproductive health and rights – what are the links?

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The spread of HIV continues largely unabated in most countries, and millions continue to become newly infected or die of AIDS each year. The socioeconomic impact is tremendous and there is no vaccine in sight. Since 2003, a massive roll-out of antiretroviral therapy (ART), at an enormous cost, has been taking place in low and middle-income countries; this greatly challenges fragile health systems that often face human resources shortages or lack the equipment and medicine to meet the needs of their populations.

One challenge to consider is how the roll-out of ART can be linked to sexual and reproductive health efforts and thereby strengthen this part of health systems; linking synergistically to family planning/pregnancy care/STI care/youth services – instead of it leading to separate, vertical programmes.

A second challenge is the rights aspects in localized epidemics. The primary modes of HIV transmission are through heterosexual contact – including with sex workers – sexual relations between men, or through injecting drug users. Men in prison are also at particularly high risk. Are these groups and their needs in focus; are their rights being respected; and is their active involvement invited?

Thirdly, in generalized epidemics, stigma and confidentiality for all counselled/tested/infected individuals rapidly become an issue as well as the right to access to reproductive health and HIV care. Still, only a minority of African pregnant women, for example, are being tested and provided with the means to prevent vertical transmission.

Today, RH specialists like gynaecologists and midwives are often not involved in HIV/AIDS work, even in countries with generalized epidemics. This talk will highlight when, why and how to be involved – and give an update on the core linkages, effectiveness issues and rights issues that are at stake.

IS-005

How can ob-gyn societies be useful partners in twinning?

Charlotta Grunewald

No abstract by authors choice

IS-006

Congenital Anomalies of the Reproductive Tract

Marc Laufer

Children's Hospital Boston, BOSTON, United States of America

This plenary lecture will address normal embryonic development of the Mullerian system and the evaluation/diagnosis of gynecologic congenital anomalies. In addition appropriate surgical and medical treatment will be reviewed and long-term psychosocial, sexual, and reproductive issues will be addressed.

IS-007

Efficacy of HPV vaccines. Who should get them?

Nubia Muñoz

Emiritus professor at the National Cancer Institute of Columbia, Columbia / Lyon, France

Cervical cancer remains the second most common cause of cancer deaths among young women in Europe despite the availability of secondary prevention programmes in many countries. Recent studies have reported excellent efficacy and safety of human papillomavirus (HPV) vaccines. Successful implementation of HPV vaccination programmes will offer a unique opportunity to combine primary prevention with the existing secondary prevention programmes for cervical cancer. In September 2006, a European product licence for Gardasil® was granted. In March 2008 vaccination has been recommended in 14 European countries and partially or fully funded in 12 of these countries. The recommendations have been quasi unanimous for a starting age of 11–12 years for young girls, but different catch-up programmes have been recommended. However, effective implementation is required if HPV vaccination is going to fulfil its promise and this requires facing some challenges, such as the acceptance by the public and healthcare professionals. Some insights into this challenge and possible solutions were provided by results from a survey in 16 EU countries recently undertaken by IPSOS. Moreover, despite the excellent safety and efficacy profile of Gardasil®, we need results from long-term follow-up studies to confirm its effectiveness and safety in practice to the public as well as healthcare professionals. This presentation will give an update of recommendations and funding status in Europe and will discuss these challenges for effective implementation of HPV vaccination in Europe. This new era of HPV vaccination offers great promise for reducing the incidence of cervical cancer and its precursor lesions.

IS-008

Short and long term consequences of HPV vaccination

Jorma Paavonen

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HPV vaccines are safe, well tolerated and highly immunogenic. HPV vaccines are almost 100% effective against high grade cervical, vaginal, and vulvar intraepithelial neoplasias caused by the vaccine HPV types in unexposed women. However, the overall population impact of the vaccines in sexually active women is lower since the vaccines do not have therapeutic effect. Implementation of HPV vaccination is a great opportunity to reduce HPV disease burden globally. Short term consequences include decreasing abnormal pap smear findings, less need for invasive procedures such as colposcopy biopsy and less need for surgical procedures such as cervical conisations. The most important long term consequence is prevention of anogenital cancers. In Nordic countries phase 3 and phase 4 HPV vaccination trial populations and unvaccinated control populations will soon be available for cancer registry follow-up. This will provide the first results of the effectiveness of the vaccines in cancer prevention in just few years. In the primary prevention of HPV disease by vaccination, the most important key variables include age of vaccination, vaccination coverage in the population, potential cross-protection against related HPV types, duration of immune response, cost-effectiveness of the vaccination in countries with screening programs, and finally post marketing surveillance of the long term safety of the vaccines.

IS-009

Should HPV testing be the primary test in screening programmes?

Philip Davies

European Cervical Cancer Association, France

No abstract by authors choice

IS-010

Current and future indications of HPV testing

Joakim Dillner

Lund University, MALMÖ, Sweden

HPVbased triaging of ASCUS and CIN1 smears is an established indication of HPV testing that has in Sweden been implemented in a randomised fashion, randomizing hospitals to either colposcopy of all women with ASCUS/CIN1 or to colposcopy of all

women (overall 3319 women were enrolled in to the trial). Triaging using Hybrid Capture found CINII+ in a similar proportion of women compared to colposcopy of all women, while only referring 76% of the women.

Post-treatment follow-up using HPV-testing has been evaluated in several follow-up studies and is now a recommended policy.

The primary HPV screening has been evaluated in randomised trials. The method gives longer duration of protection, but at lower specificity, indicating that it will be useful but that its use should be restricted to organised programs.

Finally, the HPV vaccination era will necessitate the launch of effective HPV surveillance programs as an essential component of appropriately implemented HPV vaccination policies.

To contribute to improving quality of laboratory services for effective surveillance and monitoring of HPV vaccination impact, WHO has initiated a global HPV LabNet. The LabNet facilitates implementation of standardized, state-of-the-art HPV laboratory methods by introducing international standards and proficiency testing in order to make results comparable across laboratories worldwide. The LabNet is also intended to form the basis for development of a global network for HPV surveillance by using standardized and harmonized laboratory methodologies in order to provide sound data to policy-makers.

IS-011

Implementation and evaluation of multiprofessional skillstraining in obstetrics.

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Objective: To implement and evaluate a simulation-based training-programme.

Design: Descriptive research. Study-period: June 2003–2006.

Material: A total of 156 and 201 doctors, midwives, auxiliary nurses and nurses in the Obstetric Department, Rigshospitalet, Copenhagen were eligible in each of two training periods, and 94% and 96% participated. Data were obtained from questionnaires, tests, the Danish Medical Birth Registry and the Hospital administration.

Intervention: Simulation-based training in management of four obstetric emergencies. Main Outcome Measures: Questionnaires on perceptions on training, how stressful and unpleasant procedures were considered, scores of confidence and a written objective test were applied before, just after and 9–15 months following the training. The influence and change of work-routines were assessed. Registry data on obstetric emergencies and on staffs sickleave were accounted.

Results: 92% of the staffmembers had a positive attitude towards the training. Management of shoulder dystocia, preeclampsia and neonatal resuscitation were considered less stressful and unpleasant after training. Scores of confidence for all the trained skills improved significantly. A significant association between confidence in neonatal resuscitation and numbers of correct answers in an objective test was found, but there was no association between years of work experience and numbers of correct answers in the test. More than 90% of staffmembers found training to have influenced their work. The need for organisational changes in the department became evident and the necessary changes were implemented. Sick leave amongst midwives diminished significantly.

Conclusions: Comprehensive evaluation of a mandatory simulation-based programme demonstrated impact on the individual and the organisational level.

IS-012

The SaFE Study: a randomised controlled trial of obstetric simulation training

Joanna Crofts

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The SaFE study was commissioned by the UK Department of Health to compare multi-professional clinical and teamwork obstetric simulation training in local hospitals and at a simulation centre. Participants (45 doctors, 95 midwives) from six hospitals were randomized to one of four multi-professional obstetric emergency training interventions: (i) one day local hospital clinical training (ii) two day local hospital clinical and teamwork training, (iii) one day simulation center clinical training, or (iv) two day simulation center clinical and teamwork training. Senior obstetricians, midwives and anaesthetists from each hospital ran training in local hospitals having first attended a 'Training the Trainers Day'.

Performance was evaluated with 185 questions on obstetric emergency management and three videoed simulated obstetric emergencies (eclampsia, post-partum haemorrhage and shoulder dystocia) conducted in each of the participating hospitals. All evaluations were conducted pre-training and 3 weeks, 6 months and 12 months post-training. In 48 days of evaluation

475 MCQ papers (87,875 questions), 93 eclampsia, 93 PPH and 450 shoulder dystocia simulations were completed, and subsequently analysed.

All training improved clinical knowledge [1], management [2, 3], team working [3] and communication with the patient-actor [4]. Clinical skills were retained for up to one year following training [5]. There were minimal differences in performance between those trained in local hospitals and those trained at the simulation centre, or between those who received specific teamwork training and those who did not [2, 3]. However, shoulder dystocia training using a high fidelity mannequin was more effective than training using low fidelity mannequins [2]. Training in local hospitals using patient-actors improved communication with the patient more than simulation centre training using computer-controlled full body mannequins [4].

An overview of the results of the SaFE Study will be presented together with research and training lessons learnt from conducting this multi-centred, multi-professional randomised controlled trial of obstetric simulation training.

IS-013

Research into Obstetric Training – 'What are the Active Ingredients of Effective Training?'

Tim Draycott

Southmead Hospital, BRISTOL, United Kingdom

Obstetric training needs to improve: pre-training knowledge and simulated performance have been demonstrated to be sub-optimal for practicing obstetricians and midwives on both sides of the Atlantic and poor teamworking exacerbates these deficiencies. This unfortunately manifests as unnecessarily poor perinatal outcomes for mothers and their babies.

There have been numerous recommendations made about how obstetric training should be conducted including local fire drills, aviation based Crew Resource Management (CRM) and the use of sophisticated simulation technology but until recently there has been very little research into the effect of these training methods, particularly their effect on perinatal outcomes.

In the last 3 years there have been a number of studies investigating Obstetric training which have described improvements in knowledge, simulated performance and communication after training. There have also been unit based reports of reductions in staff absence due to sickness, reductions in litigation and improved perinatal outcomes, after training.

However, not all of the studies have demonstrated improvements in outcome. MOET and ALSO, two large obstetric emergency training courses, have described improvements in participant confidence but none have

demonstrated any improvements in outcome after their introduction. Moreover, two large obstetric units in the UK have demonstrated reductions in brachial plexus injuries after training for shoulder dystocia whereas a 3rd unit described an increase in injuries after their training was introduced.

Similarly, a recent large randomised trial of aviation CRM based training in the US failed to demonstrate any improvement in either in either real life outcome or process measures, possibly because managing a labour and delivery are qualitatively different from flying a plane.

Obstetrics may be a special case, different even to other medical specialties, and require specially designed training: I will review the current literature, including the SaFE study, to identify which training methods appear to be effective and generalise these to determine the 'active ingredients of effective training' to inform obstetric training in the future.

IS-014

Introduction

Ove Axelsson

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Ultrasonographic photographs and videos of fetuses are nowadays offered to pregnant women on a strictly commercial basis. Thus, the examinations are performed without any medical indication. Is this new phenomenon anything for us as professionals to care about? This question will be elucidated and discussed from a safety perspective. How sure can we be that fetuses exposed to ultrasound are not affected?

In later years, 3- and 4-D ultrasound examinations have been used in an increasing extent. The images are sometimes stunning and it is easy to be fascinated. But, what about the clinical value? Has 3- or 4-D ultrasound anything to offer that can not be achieved by 2-D ultrasound? And what about the safety issues? These subjects will be discussed and commented upon.

IS-015

Epidemiological studies on safety

Helle Kieler

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Background: Prenatal ultrasound might be beneficial and safe to use in the medical context, but the question is whether it is safe enough to be used for fun

Objectives: To give an overview of the present scientific knowledge concerning adverse affects of prenatal ultrasound in humans

Methods: Epidemiological studies on prenatal ultrasound and possible short and long term adverse effects to the child were assessed

Results: The published studies have focused on malignancies, fetal growth, growth in childhood, and neurological development including cognitive functions. Most studies have found no increased risks of adverse effects of prenatal ultrasound. However, some studies have reported an association between ultrasound and nonrighthandedness/lefthandedness in males

Conclusions: Though the reported findings are mostly reassuring one should bear in mind that the extent and exposures of prenatal ultrasound has increased compared with what the subjects in the reviewed studies were exposed to. A continued effort to follow-up on possible adverse effects of prenatal ultrasound is essential.

IS-016

Animal studies on ultrasound bioeffects

Kjell Salvesen

National Center for Fetal Medicine, TRONDHEIM, Norway

Investigations with laboratory animals indicate that nonthermal interactions of ultrasound fields with tissues can produce biological effects. In general, tissues that are known to contain gas bodies (eg. airfilled lung or intestines) are particular susceptible to damage from exposure to ultrasound.

Studies with laboratory animals indicate that the interaction of ultrasound with tissues containing microbubble contrast agents can produce bioeffects in the cardiovascular system in vivo, including hemolysis, capillary rupture, endothelial damage and cardiac arrhythmias. No studies have investigated microbubbles and ultrasound exposure in fetal tissues in vivo.

Several studies on different animal models using diagnostic obstetrical ultrasound equipment have been published. A study from 2006 reported disturbed neuronal migration in mice. When exposed to ultrasound for a total of 30 minutes or longer during the period of neuronal migration, a small, but statistically significant number of neurons failed to acquire their proper position. This was probably a non-thermal, non-cavitational effect due to radiation force, microstreaming or shear effects on cellular walls. The extrapolation of this finding to the human fetal brain is disputable

IS-017

Safety recommendations

Ove Axelsson

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For methods used for screening procedures safety aspects are of special importance. Ultrasound in pregnancy for examination of fetuses is such a method.

The responsibility for safety issues lies nowadays on the users, doctors and midwives. The ALARA (as low as reasonably achievable) principle is a generally accepted guideline. The system "output display standard" means that every ultrasound machine should have two index values, thermal index (TI) and mechanical index (MI) on its screen. These indices give an estimation of possible biological effects and can be seen as a guide for the user. Values not over 1.0 are generally regarded as safe, although the time of exposure must also be taken into account. Unfortunately, we, the users, seem to have a low interest and lack of knowledge of this system. This is a potential hazard since today's equipments can produce high output intensities. Moreover, research in this field is sparse. The British Medical Ultrasound Society (BMUS) have recommendations including TI and time of exposure. Several other societies have issued recommendations, which are accessible on the web. In general, these recommendations state that a medical indication is required to perform an ultrasound examination of a fetus, which means that keepsake examinations are to be avoided.

IS-018

Possible advantages of 3 and 4 D ultrasound in obstetrics

Elisabeth Epstein

Clinical sciences, Lund, LIMHAMN, Sweden

The current clinical standard for routine ultrasound screening is currently 2D ultrasound. However, after almost 10 years of use 3D ultrasound systems are no longer a rarity. By introducing powerful computers into the ultrasound systems the technical development using 3D and 4D ultrasound is rapidly evolving, continuously opening new possibilities but also increasing the demands on the operator. There is a wide range of areas within fetal medicine where 3D and 4D ultrasound could confer an advantage for example in understanding fetal anatomy and behavior, in the diagnosis of fetal malformations, in volume measurements, in the assessment of fetal growth, and in fetal-maternal bonding. There is scientific evidence that 3D ultrasound provide additional information in the evaluation of facial-, skeletal malformations, and neural tube defects. Within several other areas 3D and 4D have shown promising results. Three-dimensional images may facilitate the recognition of the fetus, but there is no conclusive evidence that it improves fetal-maternal bonding. The role of 3D ultrasound as a screening tool still remains to be elucidated.

IS-019

Cytoreduction for Ovarian Cancer – Are Advanced Techniques of Any Use for the Patients?

William Cliby

Mayo Clinic, ROCHESTER, MINNESOTA, USA

This presentation will examine the use of abdominal surgical procedures to enable optimal or complete cytoreduction in cases of epithelial ovarian cancer. Often these procedures have been referred to as 'radical' or 'extended' procedures because of their perceived complexity and risk of complications. However, the procedures are not different than those performed routinely in the pelvis, merely applied to the upper abdomen, or the procedures are those commonly done by general surgeons (e.g. splenectomy). The objectives of the presentation will be to allow participants to: 1) be able to justify from the literature the performance of these procedures to reduce volume of residual disease; 2) be able to critically assess the most common rationalizations cited for NOT performing such procedures; 3) be able to preoperatively identify the small number of patients, who because of medical comorbidities, are at highest risk of complications and poor outcomes in whom such surgeries are relatively contraindicated. Gynecologic surgeons cite many reasons for inability to achieve optimal cytoreduction: most of which can be addressed by programmatic instruction, specialization of care and centralization of care within high volume surgical centers. I will use published examples demonstrating both successful implementation of strategies to improve rates of cytoreduction and improvement in survival after implementation of such measures. Our own data has very clearly demonstrated the morbidity of such procedures and identified the key patient characteristics associated with complications: this should be the basis of patient selection for alternative approaches of initial therapy.

IS-020

Ovarian cancer – Centralization of surgical treatment

Bjørn Hagen

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The aims at primary surgery for ovarian cancer are 1) comprehensive staging and 2) maximal tumour volume reduction. To achieve both aims demands skill and experience which are beyond those required for general gynaecological and obstetrical surgery. Therefore centralization of ovarian cancer surgery to subspecialty units of gynaecological oncology is increasingly

advocated. Optimizing the surgical effort in advanced disease in order to obtain minimal or no macroscopic residual disease is of particular importance since residual disease after surgery is the only prognostic factor that can be changed by treatment. As opposed to cervical and endometrial cancer, pelvic lymph nodes do not represent a primary metastatic station compared to paraaortic nodes. Thus, whenever there is indication for lymphadenectomy in ovarian cancer, either for staging or therapeutic purposes, such treatment should be performed in centers capable of performing both pelvic and paraaortic lymphadenectomy.

IS-021

Prognostic markers, has anything happened during the last 25 years?

Claus Høgdal

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Yet Another Bloody Prognostic Indicator – YABPI ?. This more than 10 years old sentence from an editorial represent the attitude to prognostic markers for many Gyn-oncologists. Since the first report 25 years ago of CA125 in ovarian cancer (OC), a wave of new promising prognostic and predictive OC markers have been reported. However, despite years of research and hundreds of reports on tumor markers in OC, the number of markers that have emerged as clinically useful is pitifully small. This realization has enlightened the importance of strengthening translational medicine, which is a branch of medical research that attempts to more directly connect basic research to patient care. Presently, this realization fits very well with the extending number of new promising targeted treatments which are emerging these years. If targeted therapy has to hold its promises, prognostic/ predictive markers will become even more necessary in the future to select the patients for individual targeted therapies. The spectrum of prognostic markers in OC is broad covering clinical variables, as well as biochemical and molecular tumor markers in blood and tissues. In this historic review covering the last 25 years will the most persistent and promising of these markers and their possible future role in translational medicine be presented.

IS-022

New treatment modalities

Mark Baekelandt

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No abstract by authors choice

IS-023

Estrogen and Cognition

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Cognitive difficulties are often associated with menopause. As female sex hormones, especially estrogen, have complex effects in the central nervous system, it is plausible that changes during menopause may cause, or at least contribute to, dysfunction in numerous brain functions, including cognitive performance. Estrogen receptors are found in numerous brain areas, which are involved in cognition. Sex-steroids have an effect on several neurotransmitter systems, like cholinergic-, serotonergic-, dopaminergic- and noradrenergic systems. Thus it has been assumed that the decline of cognitive functioning could be delayed or even reversed with exogenous estrogen/estrogen progestin (HT) administration in postmenopause.

HT has been associated with better cognitive performance, including attentional and memory performance. The most evident advantage is expected in verbal functions, which are sexually dimorphic, favoring women. However, the HT effects are ambiguous, since many studies have not been able to confirm the benefits. Generally, the studies with short-term HT have yielded more positive outcomes than those examining long-term treatment. A turning point in HT research was the publication of the Women's Health Initiative Memory Study (WHIMS), which reported adverse effects on global cognitive functioning and increased risk for cognitive decline. Our studies with long-term HT treatment (six years) resulted that HT had no effect on cognition, either better or worse.

Female sex hormones have rather robust effects in the central nervous system, but it is not exactly clear what their practical implications are regarding cognitive performance. It should be carried in mind that the main indication for HT is alleviation of climacteric symptoms, not prevention of cognitive decline. Taken together, if women need HT around or after the menopause they should not expect great improvement in cognitive functioning, but no fear against the decline due to HT is necessary either.

IS-024

Progesterone and progestagens influence on memory and learning

Torbjörn Bäckström

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Metabolites of sex- and stress hormones seem to induce cognitive impairment. The sex-steroid medroxyprogesterone, given as postmenopausal hormone therapy, double the dementia frequency in 5 years. The progesterone metabolite allopregnanolone inhibits learning in rat studies. Chronic production of cortisol and/or long-term medroxyprogesterone treatment to aged women gives irreversible cognitive damages. During stress the production of both cortisol and allopregnanolone increase in parallel. Cortisol metabolites increase the effect of allopregnanolone on the GABAA receptor. The progesterone metabolite allopregnanolone induce high activity in the Gamma Amino Butyric Acid-A (GABAA) receptor and this activity is involved in dementia development and cognitive impairment. The neuroactive steroids induce permanent cognitive impairment via activating the GABAA receptor. Chronic long-term exposure by all GABAA receptor agonists, e.g., benzodiazepines, barbiturates and alcohol, give permanent memory and learning impairment. In addition allopregnanolone hamper memory-related cholinergic action involved in Alzheimer's disease. GABAA receptor subunit alpha5 is mainly localized in the hippocampus, i.e., in the region for learning and memory. Blockade of the GABAA receptor subunit alpha5 increased learning and memory. An allopregnanolone antagonist is shown to antagonize the learning and memory disruption of allopregnanolone both in receptor pharmacological studies in vitro and in vivo in studies with rats using the classical learning and memory model Morris Water Maze.

IS-025

Testosterone treatment in women

Angelique Flöter Rådestad

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The expected postmenopausal lifetime of women in the western world is about 30 years. Hormones, such as estrogen and progestogen, may affect the quality of postmenopausal life and have been well studied. Androgens act on numerous tissues in the body, however little is known about their biological function in women and the possible effects of androgen insufficiency on women's health.

Testosterone in women derive from direct ovarian production or from peripheral conversion of adrenal androgen precursors. Therefore loss of adrenal or ovarian function results in androgen deficiency. Oophorectomy reduces by half the levels of testosterone in serum and may be associated with sexual problems and a decrease in psychological well-being. Several studies show positive effects of testosterone treatment on psychosexual function and physical as well as psychological well-being in women. Androgens may also have positive metabolic effects on bone and body composition.

According to a Cochrane review in 2005 there is evidence that adding testosterone to estrogen/progestogen therapy has a beneficial effect on sexual function in postmenopausal women. For pre- and perimenopausal women evidence is lacking. However there was a significant reduction of HDL cholesterol associated with the addition of testosterone to estrogen/progestogen regimens.

Current testosterone replacement options differ between countries and so far only the testosterone patch has been approved by EMEA (European Medicines Agency) in 2006 for the treatment of sexual dysfunction in oophorectomised women.

However, the definition of female androgen insufficiency, as provided by the Princeton consensus statement is being debated because the lack of a well-defined clinical syndrome and normative data on serum testosterone levels across the life span. The clinical guideline by the endocrine society in 2006 were against generalized use of testosterone because the indications are inadequate and long-term safety studies are lacking. Currently, testosterone therapy should be reserved for women with androgen deficiency due to low serum androgen levels and matching clinical signs and symptoms

IS-026

Morbid obesity – a silent killer?

Jøran Hjelmæsæth

Morbid Obesity Centre, TØNSBERG, Norway

Obesity, measured as body mass index (BMI) ≥ 30 kg/m², is a serious public health challenge. It has been argued that obesity may replace smoking as the leading cause of death and cancer in the near future. Subjects with a body mass index (BMI) ≥ 40 kg/m² or between 35 and 39.9 kg/m² plus at least one obesity associated comorbidity, are characterized as morbidly obese. In the United States, the prevalence of BMI ≥ 30 kg/m² doubled from 1986 to 2000, whereas the prevalence of BMI ≥ 40 kg/m² increased 4-fold. Today, the prevalence of morbid obesity is about 5% in the US and 2% in Norway. Approximately 2 out of 3 morbidly obese subjects are female.

Morbid obesity has been associated with an 80- to

100-fold increased risk of type 2 diabetes and 10- to 30-fold increased risk of obstructive sleep apnoea. In addition, several other obesity associated disorders such as cardiovascular disease, pulmonary disease, polycystic ovarian syndrome, anxiety and depression are frequently observed in morbidly obese persons.

Several large scale epidemiological studies have shown that morbidly obese white men and women have a 2- to 3-fold increased risk of death as compared to normal weight controls. The high mortality seems to be explained mainly by coexisting comorbidities such as type 2 diabetes and hypertension. The major cause of death is cardiovascular disease. Recently published prospective studies have shown that weight loss after bariatric surgery is associated with improved long term survival and marked improvement of obesity related disorders.

IS-027

Obesity and reproduction

Tom Tanbo

Rikshospitalet University Hospital, OSLO, Norway

Fat tissue is necessary for induction and maintenance of reproductive competence in women. Obesity is associated with early puberty, and elevated leptin levels seem to have a permissive effect on the pubertal process and pubertal growth. A threshold blood level of leptin in postpubertal girls and adult women seems necessary for establishment of normal menses. Leptin seems to facilitate GnRH secretion by increasing GnRH pulsatility in a dose dependent manner, resulting in LH and to a lesser extent FSH release from the pituitary. Ghrelin also seems to function as a metabolic modulator of the gonadotropic axis, with predominantly inhibitory effects in line with its role as a signal of energy deficit. These effects likely include inhibition of luteinizing hormone (LH) secretion

In adult women there is a U-shaped association between BMI and relative risk of anovulatory infertility. In severe underweight women a condition of hypogonadotropic hypogonadism similar to that observed in prepubertal girls is seen, while obesity is associated with the polycystic ovary syndrome and insulin resistance. In addition to anovulatory infertility, obesity increases early miscarriage and recurrent miscarriage rates. In assisted reproductive technology obesity results in higher doses of gonadotropins needed, fewer oocytes retrieved, a lower pregnancy rate and higher miscarriage rate compared to normal weight women. Studies on weight loss through life style modification have indicated that improvements in fertility occur with a modest weight loss of 5–10%.

IS-028

Overweight and pregnancy

Tore Henriksen

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Background: Overweight is increasing among women of childbearing ages.

Objective: To give a brief overview of the main (patho)physiological changes in overweight pregnant women and outcomes of their pregnancies.

Methods: Medline and Embase were searched between 1980 and 2007 for the terms obesity or overweight where each of the two was combined with relevant obstetrical terms.

Results: Obesity is more than high BMI (kg/m^2). It is accompanied by profound metabolic, endocrinological, vascular and inflammatory changes, all of which are features of metabolic syndrome. The physiological adaptation to pregnancy shares several of the characteristics of metabolic syndrome. Thus, in obese pregnant women stress factors of metabolic syndrome are augmented by those occurring physiologically in pregnancy (insulin resistance, enhanced inflammatory activity, hyperlipidemia). The pathogenesis of pregnancy complications like preeclampsia, gestational diabetes, fetal growth disturbance (macrosomia and IUGR), intrauterine fetal death and thrombosis, all involve factors related to metabolic syndrome.

Besides these short term complications there is accumulating evidence that children of mothers who were obese during pregnancy have increased risk of obesity, diabetes and cancer later in life. Thus, the current epidemic of obesity among women of childbearing ages has long term aspect in terms of health of the next generation.

Conclusion: There is ample evidence that the epidemic of obesity among young women contributes significantly to several pregnancy and delivery complications in current obstetrics, complications that are preventable.

IS-029

Preeclampsia

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No abstract by authors choice

Organization of training and integration of skill training in the curriculum on a local, regional and national level

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Background: Our specialty faces challenges in terms of training residents faced with mounting complexities and advances in the vast discipline of obstetrics/gynecology. This results in a need to identify new approaches to development of surgical skills both in residency but also for gynecologic surgeons in practice

Objectives: Review the present situation for learning in Canadian residency programs and present successes and challenges for training of surgical skills in residency and practice at a local, provincial and national level. Focus on a preceptorship project for physicians in practice.

Methods: A prospective chart review of all hysterectomies performed for benign disease was conducted from July 1, 2007 to December 31, 2007 at St. Michael's Hospital, an academic tertiary gynecology centre. The review followed a six-month period during which all hysterectomies were considered for a MIH approach and preceptors with advanced surgical training were available to assist all gynecologists. The proportion of MIH and the odds ratio [95% CI] of MIH post-intervention to pre-intervention were calculated and compared to the corresponding measures from the intervention period to assess sustainability.

Results: During the study period, 178 hysterectomies were performed for benign disease. Resistance to change was encountered with 1 of 17 surgeons (5.9%) declining to participate. Post-intervention, 64.6% of hysterectomies were MIH versus 56.0% during the intervention and 35.6% pre-intervention. The OR for MIH performance post-intervention compared to pre-intervention was 3.30 [2.22, 4.89] while the corresponding OR for the intervention compared to pre-intervention period was 2.30 [1.57, 3.38] demonstrating no attrition in MIH performance.

Conclusions: Our surgical preceptorship program did yield a sustainable increased ratio of MIH to AH during the post-intervention period. Individual resistance to practice change was identified in a small percentage of participants, revealing barriers to minimally invasive surgery which supersede training issues. Further research is required to determine the long-term sustainability of our preceptorship program prior to recommending large scale preceptorship to improve regional rates of MIH. However, our results suggest that surgical preceptorship holds promise in enhancing rates of minimally invasive hysterectomy.

Simulator training and assessment in laparoscopic gynaecology.

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Objective: To present and to discuss the current knowledge on validation of Virtual Reality Simulators for skills training and assessment in laparoscopic gynaecology.

Design: Review of the literature on Virtual Reality Simulators in gynaecology.

Investigations included: Reviews, Prospective cohort and Randomised Controlled Trials.

Outcome: Assessment studies: Construct and discriminative validity of surgical performance in basic skills as well as procedural training modules. Transfer of skills from simulator to operating room (predictive validity). Impact of Virtual Reality skills training on operative performance, surgical errors and operating time in real operations.

Results: Virtual Reality Simulators can be construct and discriminative valid, thus the simulators can be used for objective assessment and feed-back in laparoscopic skills training. Virtual Reality Simulators can also be predictive valid, thereby make skills obtained by simulator training transferable to real operations, increasing the performance level and decreasing the error-rate of novice surgeons.

Conclusion: Mandatory simulator training should be considered in the gynaecological surgical curriculum. Trainees ought to pass a criterion level before performing laparoscopically on humans. Finally Virtual Reality simulators could be considered as a useful tool for continues medical education (CME) for specialists occasionally performing laparoscopy.

The surgical curriculum; an evidence-based approach

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No abstract by authors choice

IS-033

Eclampsia and Acute Fatty Liver of Pregnancy: The study of rare disorders of pregnancy using the UK Obstetric Surveillance System (UKOSS)

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Background: Rare disorders of pregnancy, including 'near-miss' severe maternal morbidities, are difficult to study, under researched and hence clinical practice is rarely based on robust evidence. The UK Obstetric Surveillance System (UKOSS) is a national collaboration developed specifically to allow study of such conditions. The aims of these studies were to identify national, population-based cohorts of women with eclampsia and acute fatty liver of pregnancy (AFLP) and to document accurately the incidence, management and outcomes of the conditions.

Methods: Cases were identified through the UKOSS monthly mailing to all hospitals with consultant-led maternity units in the UK between February 2005 and August 2006.

Results: 214 women with eclampsia were identified; an estimated incidence of 27 cases per 100,000 maternities (95% confidence interval (CI) 24–31). Only 37% of women had established pre-eclampsia in the week before their first fit; 99% were treated with magnesium sulphate. No women with eclampsia died.

The estimated incidence of AFLP was 5.0 cases per 100,000 maternities (95%CI 3.8–6.5), based on the identification of 57 cases in 1.1 million maternities. One woman received a liver transplant and one woman died (case fatality rate 1.8%, 95%CI 0–9.4%). There were seven deaths among 67 infants (perinatal mortality rate 104 per 1000 births, 95%CI 43–203).

Conclusions: The incidence of eclampsia has decreased significantly in the UK since 1992, following the introduction of management guidelines for eclampsia and pre-eclampsia. The incidence of AFLP is lower than documented by earlier hospital-based studies, but maternal and neonatal outcomes are better than previously reported, possibly related to improved ascertainment through UKOSS.

IS-034

European Obstetric Survey System, EUROSS – The Nordic perspective

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High quality obstetrics is characterized by a delicate balance between a low rate of common interventions and minor complications on the one hand, and rare

serious events on the other. Ideally, the rate of caesarean section should be as low as possible without jeopardizing the life of mother and infant, and not so high that it imposes a significantly increased risk of serious adverse outcomes in subsequent pregnancies.

Based on a recent initiative from the UK (UKOSS) we have launched a European initiative (EUROSS) to perform short-term controlled surveys focusing rare serious risk factors and adverse outcomes that do not posit the existence of routine registration at a national level. The EU did not fund the project in a first round – what are the alternatives?

In the Nordic countries we analyse the quality of obstetrics based on information from routine registration to the Medical Birth registries. Three recent examples from the Scandinavian countries set focus on the issue of validity when it comes to serious adverse complications and outcomes such as maternal death, uterine rupture and placenta percreta. In conclusion, the quality of reporting of rare severe events seriously weakens the conclusiveness of the studies.

In the future, a first step is to agree on definitions and how to report the rare serious adverse risk factors and events to the medical birth registers and to implement the use of criteria and definitions. A subsequent Nordic validations project that highlights the regional differences in obstetric practise focusing on rare serious adverse outcomes is needed. The next step is a planned Nordic workshop with obstetricians and participants from the Birth Registries.

IS-035

Experiences from a center for pregnant women with heart disease

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Heart disease in pregnancy is now the commonest overall cause for maternal death in the UK and renders diagnostic and management challenges in clinical decision making. In the main this reflects the growing incidence of acquired heart disease in younger women related to poor diets, smoking, alcohol and the growing epidemic of obesity as well as an increasing number of migrant women with undiagnosed heart disease (often rheumatic heart disease).

In Denmark it is assumed that some 400 women with a recognized heart disease become pregnant every year. The prevalence is increasing due to better treatment and follow-up of especially congenital structural heart defects causing more women with repaired structural defects to reach adulthood.

In October 2003 a multidisciplinary center for pregnant women with heart disease (congenital and

acquired) was established at Rigshospitalet, Copenhagen. The purpose was to centralize the pre-pregnancy counseling, the monitoring and treatment as well as the follow-up of these patients in order to provide a more integrated clinical set up for these patients before, during and after delivery. The center is run by nurses, midwives, cardiologists, anesthetists, and obstetricians.

More than 300 women have now attended the center. We will share our experiences from this center at a clinical and organizational level. Through case stories we will discuss advantages and pitfalls with regards to setting up a unique center like this. We will also present results from a medical technology assessment of the center carried out in 2003–2005 focusing on patients as well as staffs level of satisfaction, clinical outcome and cost effectiveness.

References:

Saving Mothers' Lives – Reviewing maternal deaths to make motherhood safer 2003–2005 (ISBN: 978-0-9533536-8-2) CEMACH

Søndergaard L et al. Graviditet og hjertesygdom. Ugeskr Læger. 2003 Sep 22;165(39):3717-20.

Søndergaard, L et al. Sammenhængende monitorering og opfølgning af gravide med hjertesygdom. København: Sundhedsstyrelsen, Center for Evaluering og Medicinsk Teknologivurdering, 2006 Serienavn 2006;6 (11).

IS-036

Hysterectomy for life-threatening peripartum haemorrhage: Study of a 'near-miss' event

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Background: The study of 'near-miss' events has been advocated to complement confidential enquiries into maternal deaths. Peripartum hysterectomy is usually undertaken in cases of life-threatening obstetric haemorrhage and may therefore be considered a 'near-miss' event. The aim of this study was to identify women undergoing peripartum hysterectomy in the UK and to describe risk factors, management and outcomes of the associated haemorrhage.

Methods: A population-based case-control study was undertaken using the UK Obstetric Surveillance System (UKOSS) between February 2005 and February 2006.

Results: 315 women underwent peripartum hysterectomy to control haemorrhage, an incidence of 4.1 cases per 10,000 maternities (95% confidence interval (CI) 3.6–4.5). The main risk factors were previous caesarean section delivery (OR 3.5, 95%CI 2.4–5.3) and maternal age over 35 (OR 2.4, 95%CI 1.7–3.6). The risk associated with previous delivery by caesarean section was higher with increasing numbers of previous caesarean deliveries. The most commonly

reported causes of haemorrhage were uterine atony (53%) and placenta accreta (39%). Women were managed with a variety of different therapies prior to the hysterectomy. Two women died; case fatality 0.6% (95%CI 0–1.5%).

Conclusions: For each woman who dies in the UK following peripartum hysterectomy, more than 150 survive. Peripartum hysterectomy is strongly associated with previous caesarean delivery and the risk rises with increasing numbers of previous caesarean deliveries. The associated haemorrhage is managed in a variety of ways and not universally according to existing guidelines. This national prospective study provides the evidence needed to fully counsel women about the risks of primary caesarean section.

IS-037

Cervical ripening

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Cervical priming before surgical abortion is especially beneficial for women with cervical anomalies, for young women and for those with advanced pregnancy, as they have a higher risk of cervical injury or uterine perforation. When the use of laminaria was the main method to prepare the cervix, WHO Scientific Group recommended routine priming for duration of pregnancy over 9 completed weeks for nulliparous women, for women younger than 18 years old and for all women with duration of pregnancy over 12 completed weeks.

This recommendation may need to be reviewed as recent research suggests that most, if not all, women may benefit from routine priming of cervix with misoprostol: a WHO study including 4791 women demonstrated that routine priming of cervix with two misoprostol tablets of 0.2 mg administered vaginally 3 hours prior to vacuum aspiration in pregnancies of up to 12 weeks decreased the need for further dilatation of the cervix, shortened the time to complete the procedure and significantly decreased the rate of incomplete evacuation. The use of laminaria now seems to be outdated, as comparative studies report more complications after laminaria than after prostaglandins.

The optimal dose of misoprostol is 0.4 mg: lower doses are less effective and higher doses only cause more side effects. The appropriate interval between vaginal misoprostol and vacuum aspiration is 3 hours, because shorter intervals are not sufficient for full priming effect, even if the dose is increased. The interval may be shortened to 2 hours when misoprostol is administered sublingually. Only the use of mifepristone can compete with misoprostol in efficacy and low rate of side effects, but its high price and the long interval required between the treatment and procedure make it less attractive.

IS-038

Contraception after abortion

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As follicular development is resumed immediately after induced abortion, initiation of effective contraception at the time of an abortion is important. However, the influence of contraceptive use and counseling on the risk of repeated abortion is unclear. In a recent prospective study, specialist counseling and provision of contraceptives did not have an effect on the rate of repeated abortion (Schunmann and Glasier, *Human Reproduction*, 2006). However, in randomized clinical trials the use of intrauterine contraception, initiated at the time of surgical abortion, has been effective in reducing further unintended pregnancies (Pakarinen et al., *Contraception*, 2003).

We analyzed recently risk factors for repeat abortion among a cohort of 1269 women undergoing medical abortion between August 2000 and December 2002 (Heikinheimo et al., *Contraception*, 2008).

Contraceptive use was assessed at the time of follow-up performed at 2–3 weeks following the abortion; intrauterine contraception was initiated at the clinic at the time of follow-up, or within 2 months. The subjects were followed prospectively via the Finnish Registry of Induced Abortions until December 2005, the follow-up time (mean \pm SD) being 49.2 \pm 8.0 months.

In comparison with combined oral contraceptives, use of intrauterine contraception was most efficacious in reducing the risk of another pregnancy termination. In multivariate analyses the hazard ratios (95% CI) of repeat abortion were 0.33 (0.16 to 0.70) among Cu-IUD users and 0.39 (0.18 to 0.83) among LNG-IUS users when compared to users of combined oral contraceptives. The incidence of repeat abortion was highest among women the postponing initiation of contraceptive use.

Thus contraceptive choices made at the time of abortion have an important effect on the rate of re-abortion. Use of intrauterine contraceptives for post-abortion contraception is most efficacious in decreasing the risk of repeat abortion.

IS-039

Medical abortion in late first trimester (9–12 w)

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The initial indication of early medical abortion using mifepristone was pregnancies of < 49 days gestational age, and with more research and experience it was later

on expanded up to 63 days. Further evolution of clinical use of mifepristone was as an additive to prostaglandins in second trimester medical abortion to improve the effect regarding success rate and induction time. As opposed to surgical procedures, the potential of medical methods to be in part performed outside of hospitals (“home abortion”) have more recently been explored. Paradoxically, medical abortion with the combined use of mifepristone and prostaglandins have thus in many centers become available before 9 w and after 12 w. In spite of early reporting of improved effectiveness and acceptability also in late first trimester a decade ago, little have been published so far from other centers on this particular indication.

A review of reported experiences in the literature will be presented. Since October 2005 medically induced late first trimester abortion have been available in our hospital. A brief summary of our experiences so far, will also be presented.

IS-040

Medical abortion in very early pregnancy

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Medical abortion is effective as soon as a pregnancy test is positive and should be provided as soon as the woman has taken the decision to terminate her pregnancy. Patients may present in very early gestation, when no yolk sac or even no gestational sac is visible on ultrasound examination. Consequently an ectopic pregnancy can not be ruled out. Some providers may delay treatment in these cases arguing that diagnosis of an intrauterine pregnancy is a prerequisite to medical abortion.

However this is not the case. We need to take into consideration the very low risk of an ectopic pregnancy and the fact that mifepristone is not a treatment for these cases. But there is no benefit for the patient in delaying treatment. On the contrary, side effects tend to be less important the earlier the abortion is done. Also mifepristone has no negative effect on an ectopic pregnancy. It is therefore suggested to start the treatment in these very early cases after counselling the patient. However diagnosis of the pregnancy and verification of the expulsion of the gestational sac need to be based on hCG testing.

IS-041

Home-use of misoprostol in medical abortion

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Medical abortion using the antiprogestin mifepristone (Exelgyn; Paris, France) combined with a prostaglandin has been available in Europe since 1988 for termination of pregnancy up to 49 days of amenorrhea. In the UK (1991), Sweden (1992) and later on Norway the method was approved up to 63 days of amenorrhea. Today medical abortion is available in around 30 countries. Since the introduction of the method research has focused mainly on the following issues: To find the optimal dose of mifepristone, the optimal type, dose and route of administration of prostaglandin, to increase acceptability of the method and to define the duration of pregnancy for which it can be used.

During this time misoprostol, a prostaglandin E1 analogue has emerged as the most optimal prostaglandin analogue with its effect being dependent on the duration of pregnancy, and on the dose and route of administration.

Home-use of misoprostol would reduce the number of visits and improve access to medical abortion. We evaluated acceptance of home-use of misoprostol among women and their partners.

Women chose home-use of misoprostol because it felt more natural, private and allowed the presence of a partner/friend. The male partners were generally satisfied with their partner's choice of home-use and felt that their presence and support had been valuable.

Our studies further confirm the safety, efficacy and high acceptability of home-use of misoprostol. Home-use of misoprostol allows women more flexibility, privacy and control in their abortions. Detailed counseling, adequate pain management and information and the possibility of getting advice on the telephone are likely to increase acceptability.

IS-042

Is there a 'window of opportunity'

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The astonishing non concordance of WHI and HERS results with observational data chocked the scientific world in 2002. Over the last 6 years a huge database was produced to explain the discrepancy which in fact was true for cardiovascular disease and dementia only.

There is now substantial evidence to suggest that there is a different response in women with and without climacteric symptoms and particularly as with all other pharmacologic agents also with age.

One example is that in the old elderly very low

doses of estradiol, such as those produced by vaginal preparations aiming at mitigation of vaginal atrophy may produce retarded bone loss suggestive of systemic effects. Such results are highly suggestive of altered estrogen pharmacology with age resulting in more pronounced effects.

A huge body of evidence points to the fact that outcomes differ between women starting hormone therapy before or after the age of 60 with favourable results below that age.

Due to altered estrogen pharmacology women above 60 are subject to more pronounced effects mimicking an over dose which seems to be associated with less favourable long term results. This is particularly prudent for cardio vascular events. To further explain this discrepancy the following hypothesis has been launched. As age promotes atherosclerosis it is conceivable that women above 60 have more arteriosclerotic plaques of which some are instable compared to women below 60 if not on hormone therapy.

Estrogen stimulates certain matrix metalloproteinases and could hence enhance plaque rupture in non-statin users. Such an effect would be less frequent in women below 60 and in women using HT provided they started in conjunction with their menopause.

Given our current knowledge it seems that benefits of hormone therapy outweigh risks in women starting hormone therapy prior to the age of 60. It should be emphasized that general effects may not be applicable in a given single subject.

IS-043

Alternative treatment from an evidence based perspective

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Background: The majority of women going through the menopause experience symptoms, especially hot flashes. Estrogen therapy long was considered to be the first line treatment for vasomotor symptoms, and at the turn of the century almost half of the Scandinavian women used hormone therapy for some years. However, after publication of large studies about effect and side effect of estrogen (especially Women's Health initiative and Million women study) and the negative interpretation of the results, many women are reluctant to use estrogen. The use of hormones has declined dramatically, and to-day only 10–15% of postmenopausal women in Norway chooses estrogen for their menopausal complaints. Evidently there is a need for non-estrogenic treatment. Studies from Sweden and Norway have disclosed that almost half of the menopausal women have tried some kind of alternative treatment.

Aim of the study: to find out what works, and what does not work concerning alternative treatment for menopausal symptoms from an evidence based perspective.

Methods: The databases PubMed, Cochrane Library, BMJ clinical evidence, EMBASE, AMED (Allied and Complementary Medicine) were searched for specific terms related to menopause and different treatment options. Only randomised placebo-controlled studies were evaluated concerning alleviation of vasomotor symptoms.

Results: The pharmaceutical drugs investigated were SSRI/SNRI, clonidine and gabapentin and they disclosed to exert mild to moderate effect on menopausal symptoms. Concerning botanicals, the reports about cohosh differ, but there is some evidence that it might have a moderate effect. Phytoestrogens such as soy and red clover appear to have at best only minimal effect on menopausal symptoms.

Conclusion: There is an increasing interest in alternatives treatment for menopausal symptoms in women who have contraindications or are unwilling to use estrogen. There are several treatment options, but the effect is not as striking as with hormones. It should be kept in mind that the alternative botanicals not always are tested for manufacturing consistency and for short and long-time safety.

IS-044

Guidelines for HT from an international perspective

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The European Agency for the Evaluation of Medicinal Products (EMA) has through statements on the appropriate use of postmenopausal hormone therapy (HT) December 2003 pointed to the favourable benefit/risk balance in the treatment of climacteric symptoms that adversely affect quality of life. The EMA emphasised, however, that the minimum, effective dose and the shortest duration should be used. The background data were those published from the Heart and Estrogen/progestin Replacement Study (HERS) in postmenopausal women with CHD, the Women's Health Initiative (WHI) study (E+P and E only arms) and the Million Women Study (MWS). Subsequently, a re-analysis of the original data of the WHI (E+P arm) and the results from the E only arm of the WHI study have informed about reduced risk of breast cancer and a possible preventive effect on CHD in young postmenopausal women. Moreover, careful review of randomized controlled trials indicates that the risks of HT including breast cancer, stroke and venous thromboembolism are similar to other commonly used agents and rare; less than one event per 1.000 women.

These data are together with the overall information from early postmenopausal women supportive for a rehabilitation of HT based upon individualized management of each candidate. The challenge is to deliver high quality science and avoid recycling of previously presented and maybe misleading research. To-day, five years after the release of the original WHI E+P report, the clinicians' main goal is to provide safe and effective relief of climacteric complaints, and advice on all aspects of climacteric medicine. In most cases benefits will outweigh any of the risks pertaining to those years where HT exposure is clinically needed.

IS-045

Pathophysiology of severe PPH and general management

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- several thick intravenous lines
- arterial line early enough
- warm the patient and all intravenous fluids/blood products
- administer Ringer solutions and colloids 1:1 (6% HES 130/0.4 less than 50 ml/kg/24 hr)
- keep the systolic blood pressure higher than 90 mmHg and maintain continuous diuresis
- RBC are usually required when the bleeding exceeds 1.5–2 litres
- in case of ongoing bleeding and haemoglobin less than 60 g/l, administer type-specific uncross-matched RBC
- if haemoglobin decreases below 40 g/l and you have to wait for type-specific uncross-matched RBC, administer 2–4 units of O RhD negative RBC
- while ordering/before administering FFP and platelets, draw blood samples for platelet count, fibrinogen, PT or TT (INR), and APTT
- also consider D-dimer and AT-3
- if you suspect HELLP/HUS, consider haemolysis (determine LD, haemoglobin, red blood cell fragmentation)
- if the ongoing bleeding exceeds 3 litres, administer 3–4 g of fibrinogen
- administer 4–6 units of FFP to every 6 units of RBC (or according to PT or TT/INR and APTT)
- administer platelets according to the platelet count – usually 8–12 units at a time
- if the platelet count is below 150 E9/l already before the bleeding (in about 7% of the parturients), order platelets earlier than usually
- aim to establish the following levels: haemoglobin 70–100 g/l; platelet count at least 70 E9/l; PT less than 1.5 x upper normal range or INR less than 1.5;

APTT less 1.5 x upper normal range; and fibrinogen at least 1–2 g/l (or even higher)

- remember frequent determinations of haemoglobin, avoid values higher than 100 g/l
- if the bleeding exceeds 4–5 litres and/or APTT is more than 60 s, administer 1000 IU of FVIII/VWF concentrate
- if the bleeding exceeds 6–7 litres, administer 1250 IU of FXIII concentrate
- if the bleeding exceeds 6–7 litres, also consider rFVIIa concentrate, but always remember the importance of fundamentals (surgery, RBC, fibrinogen, platelets, FFP, Ca++) – rFVIIa is rarely needed in PPH
- determine the blood gas analysis frequently and correct the low Ca++ (severe acidosis is avoided by intensive treatment of the PPH)
- in case of abundant after bleeding/oozing, administer tranexamic acid 1 g IV every 6 hours for 24 hours

IS-046

Placenta Accreta

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Placenta accreta is an abnormally firm attachment of the placenta to uterus due to the absence of decidua basalis and incomplete development of Nitabuch's membrane.

There are three types of accreta: accreta is attached directly to the superficial layers of myometrium (80%), an increta invades the myometrium (15%) and a percreta penetrates through the myometrium (5%). Risk factors include: prior cesarean delivery, placenta previa, other uterine surgery, eg myomectomy, D+C, Asherman's syndrome and advanced maternal age. Ultrasound findings with placenta accreta: thinning and distortion of uterine serosal-placental interface, color-flow into myometrium, flame hemorrhage and swiss cheese appearance of placenta. Color Doppler imaging aids in detection of bladder invasion. The results of multiple studies evaluating MRI efficacy are mixed with a false-positive rates of up to 20%. MRI features suggestive of accreta include: uterine bulging, dark bands on T2W imaging and heterogeneous signal intensity.

At delivery prepare for the worst: consent for cesarean hysterectomy, pre-delivery placement of catheters for embolization of pelvic vessels, packing of the lower uterine segment with subsequent removal of the pack in 24 hours, interrupted sutures of the lower uterine segment on the serosa of the uterus. Blood products and clotting factors should be readily available, anesthesiologist present, if SVD, bring to OR for possible laparotomy, hysterectomy offers the best chance for survival and will minimize morbidity

If uterine preservation is important, four treatment options are available: remove placenta and oversee uterine defects, localized resection and uterine repair, curettage of uterine cavity or leave placenta in situ.

IS-047

New methods in treating severe postpartum hemorrhage (PPH)

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Postpartum hemorrhage (PPH) with blood loss more than 1000 ml occurs in 1–2% of deliveries. Uterine atony is the most frequent cause (70–80%). A proposed algorithm for treatment of severe PPH is the mnemonic: HAEMOSTASIS:

- H Ask for Help
- A Assess patient and resuscitate
- E Establish etiology + Ensure availability for blood
- M Massage uterus
- O Oxytocin + Misoprostol + Ergometrine + Prostaglandin
- S Shock garment + Shift to theatre
- T Tamponade (balloon or uterine packing)
- A Apply compression sutures (B-Lynch or others)
- S Systematic pelvic devascularisation
- I Interventional radiologist
- S Subtotal or total abdominal hysterectomy

A literature review of studies of conservative surgical treatment of PPH reveals success rates of B-Lynch or other compression sutures (90%), arterial embolisation (91%), arterial ligation (84%), uterine balloon tamponade (84%) and activated factor VIIa (80–85%). The dilemma in PPH is to choose between less invasive methods or to lose time before advanced surgery. The concept of the "Golden hour" is introduced. The "rule of 30" and the shock index may also be helpful concepts in a clinical situation.

IS-048

The changing panorama of contraceptive use in the Nordic countries

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Considerable changes have occurred in society during the last 40 years which are reflected in the ever changing panorama of contraceptive use in the Nordic countries. Today the vast majority of young people are sexually active many years before they wish to have children and the number of children they eventually

have is often restricted to 1 or 2. These changes have only been made possible by the availability of modern family planning techniques. A large number of new, effective contraceptive techniques have been developed and introduced during the same time period. The number of methods available today is far greater than forty years ago.

Contraceptive choice has changed over time and varies also according to the age of the user. Even though there are many similarities between the Nordic countries there are differences in the use of contraception between countries. For instance the use of intrauterine methods is less common and the use of the combined oral contraceptive pill is more common in Denmark compared to several of the other Nordic countries.

The use of contraception, in particular the use of combined oral contraceptives, in some countries has at times changed dramatically almost over night as a result of alarming reports in the media.

Society has also changed radically in other respects. Today the Nordic countries are much more multi-ethnic than was the case 40 years ago and this is also reflected in a variation of contraceptive use between different ethnic groups.

IS-049

The use of LNG-IUS in nulliparous women

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Intrauterine devices (IUDs) have not been regarded the contraceptive method of first choice in nulliparous women. Fear for pain, bleeding problems and pelvic inflammatory disease (PID) and thus, effects on future fertility have limited its use. However, re-evaluation of earlier studies shows that underlying cervical infection at the time of insertion or high-risk sexual behaviour are the factors behind PID and IUD use, not the IUD itself. Levonorgestrel-releasing intrauterine system (LNG-IUS) is an alternative for intrauterine contraception with high contraceptive efficacy, reduction of menstrual pain and bleeding, and lowered risk of PID compared to copper IUD.

Most studies of intrauterine devices have included mainly parous women. Results from the use of LNG-IUS in nulliparous women have been encouraging. Risk of PID or expulsion does not differ from that in parous women. Continuation rate after one year has been over 80%, better than with oral contraceptives. Contraceptive efficacy is high. It has been shown that the risk of repeat abortion is lower in women choosing LNG-IUS than in women starting oral contraceptives after induced abortion.

Especially young women who often have a need for long-term contraception could benefit from an effective, safe contraceptive method without regular

remembering, with simultaneous reduction of menstrual problems often present at young age. A special group of women that also could benefit from the use of LNG-IUS are disabled women requesting therapeutic amenorrhea

Before insertion, careful counselling about the effects of LNG-IUS on patterns of bleeding is essential. After the insertion, threshold to contact family planning services must be kept low. In young women, information about STDs and their prevention is also important.

IS-050

Menstrual cycle suppression. An endocrine treatment and a modern solution to a modern problem

Leslie Miller

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The menstrual cycle is associated with both benign and malignant conditions unique to women. Modern women are choosing to limit their years spent pregnant or lactating and this increases their exposure to menstrual cycles. Menstruation is essential for human conception but not for contraception. Reversible suppression with continuous use of the combination oral contraceptive (OC) can prevent both ovulation and menstruation without the loss of bone density typical to high dose progestin use. However, irregular bleeding is common initially with continuous OC use. Adjusting the dose and/or progestin type for the individual based on clinical response as with other endocrine treatments such as thyroid disease may be more important than the use of branded OC products. If one accepts the premise that a monthly bleeding week is unnecessary with OC use then a seasonal withdrawal week for bleeding is also nonsensical and associated with irregular bleeding. Continuous OC use with time and the appropriate dose will produce the more predictable pattern, albeit that of reversible amenorrhea. With lower ethinyl estradiol dose OC formulations the safety of continuous or daily use should be comparable to cyclic OC use. But the complete elimination of bleeding will increase the iron and hemoglobin of women to levels found in men and could theoretically increase the risk for cardiovascular disease. Blood donation may be an effective alternative to monthly bleeding. The menstrual cycle is responsible for significant morbidity in modern women and it is reasonable to offer reversible suppression.

Hormonal contraception and risk of venous thromboembolism. Dose reduction matters

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The specific contribution of estrogen dose, progestagen type, progestagen only pills and hormone-IUD for the risk of venous thromboembolism (VTE) is still debated or un-clarified.

Aim: To assess the risk of VTE in current users of different types of hormonal contraception, with specific attention on OC regimen, estrogen dose, progestagen type and route of administration.

Material and methods: All Danish women 15–49 years old were followed from January 1995 through December 2005. From the National Registry of Medicinal Products Statistic daily update on any prescription redeemed on hormonal contraception was recorded. By linkage to the National Registry of Patients information on previous VTE, cancer or ongoing pregnancy was achieved, and these women excluded. All first ever events of VTE during the study period were included. Potential included confounders were age, calendar year, education and medication for heart diseases, hypertension, hypercholesterolemia, and diabetes.

Results: A total of 10.4 million women-years were enrolled, 3.25 million women-years of these on OC. A total of 4,213 events of VTE were recorded, 2,045 of these in current users of OC. Compared with non-users, current users of OC had a rate ratio (RR) of VTE decreasing with duration of use: <1 year: 4.17 (3.73–4.66), 1–4 years: 2.98 (2.73–3.26), and >4 years 2.76 (2.53–3.02) ($p < 0.001$). The risk also decreased significantly with decreasing dose of estrogen. The RR for progestagen only pills, low dose was 0.59 (0.33–1.03), for high dose 1.12 (0.36–3.49), and for hormone-IUD 0.90 (0.64–1.26).

With OC with levonorgestrel as reference, and with a fixed dose of estrogen and the same length of use, the adjusted RR for OC with norethisterone was 0.98 (0.71–1.37), with norgestimate 1.19 (0.96–1.47), desogestrel 1.82 (1.49–2.22), gestodene 1.86 (1.59–2.18), drospirenone 1.64 (1.27–2.10) and cyproterone acetate of 1.88 (1.47–2.42).

Conclusion: The risk of VTE in current users of combined OC decreases with duration of use and by decreasing estrogen dose. For the same dose of estrogen and the same length of use, OC with desogestrel, gestodene or drospirenone implied a higher risk of VTE than OC with levonorgestrel. Progestagen only pills and hormone-IUD did not confer any increased risk of VTE.

Why are European laws on reproduction so similar?

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It's obvious that as far as reproduction is concerned, its scientific approach, knowledge and strategies are of crucial importance. These different enhancements are published in peer-reviewed journals. Taken into account the scientific validity of different procedures, one could expect that from a scientific viewpoint these treatments are acceptable and can be applied to patients.

Several items can be notified, such as in-vitro fertilization, intracytoplasmic sperm injection, preimplantation genetic diagnosis, preimplantation genetic screening, embryo cryopreservation, oocyte preservation and intra-uterine insemination. Of course this list is not exhaustive.

Several attitudes of society can be notified. Either a society will not accept certain procedures, such as for instance preimplantation genetic diagnosis, either they do. It's almost impossible to understand why certain therapies are not accepted by some societies.

A given society will decide on democratic rules. If for instance in Germany 60% of the members of the Parliament are against preimplantation genetic diagnosis, it will be forbidden. It's remarkable that the minority of 40% who have good arguments will not be allowed to apply preimplantation genetic diagnosis in case it's needed.

If one analyzes the different European laws, it's extremely remarkable to notice that all European laws are different. As an example Italy can be presented. In Italy the principle of in-vitro fertilization is accepted, but it's only allowed to inseminate three eggs. Cryopreservation of embryos is forbidden.

In France, cryopreservation of oocytes is forbidden. In Germany, in-vitro fertilization with donor sperm is forbidden. In Norway, preimplantation genetic diagnosis is forbidden.

Table: Overview of 14 European countries.

	Allowed	Forbidden
IVF/ICSI	14	0
Epididymal sperm	14	0
Testicular sperm	13	1
Egg donation	11	3
Sperm donation	13	1
PGD	11	3
PGS	7	7

These examples demonstrate that there is absolutely no unanimity as far as European laws are concerned. It clearly shows that the different philosophical

approaches to human life are expressed by different voting results in the European countries.

The consequence of these differences is straightforward. Patients who cannot be treated in their own country because their law forbids a particular treatment are obliged to leave this country. This has installed a cross border reproductive care, so-called medical tourism. At this stage there are no data published about the amplitude of cross border medical care. One can imagine that thousands of patients seek treatment in the countries where it's allowed. The backside of this approach is that only patients, who have the financial modalities to leave their country for treatment, can apply. The social cultural and linguistic consequences cannot be denied. Unfortunately, there is no solution foreseeable since all different opinion makers and members of the Parliament from the different countries are convinced that they have the correct law and the correct implementation of scientific reproductive research.

Conclusion: it's remarkable to observe that all European laws are different initiating the practice of cross border reproductive care.

IS-053

It is a mistake to limit public funding of assisted reproduction.

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Fertility care is considered to be expensive. Whenever an example of costly medical procedures has to be given, IVF is brought up. There is more to this than costs however. Effectiveness of the treatment is one thing, the joy of having children is another. As is the burden of having to get them by means of assisted reproduction. Still, costs and profits have to be balanced. At the societal costs side of getting children through IVF are not only the factual costs of an IVF treatment cycle (or better: cycles), but also pregnancy related costs and the costs incurred by the resulting child, neonatal (intensive) care costs, childhood, education, teaching & training till active participation in the workforce. Finally, for each new citizen there are the retirement provisions at the other end of life, after 65. At the societal profits side there are the productivity gains any given individual will bring to society once (s)he has entered the workforce. We have been able to calculate that, at a maternal age of 30, the total costs of a successful IVF (= achievement of a pregnancy) are Euro 20,097, the costs of the pregnancy itself amount up to Euro 2,453, and neonatal costs are 1,825. Thus, the total societal costs of one successful IVF live birth average Euro 20,097 at the age of 30. This figure increases slightly, to Euro 27,844 at the age of 35, but

steeply thereafter. At the age of 40 one successful IVF live birth will cost society almost Euro 50,000, and at the age of 45 Euro 600,000. This presentation with detail the costs (Euro 1.6 million) and benefits (Euro 1.8 million) of a statistical life and put them into perspective. In an affluent society such as Western Europe, there is no economical reason to limit the number of IVF cycles to be reimbursed.

IS-054

Genetic counselling: psychosocial issues and decision making

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In this presentation, I will focus on psychosocial issues and decision making in relation to two contrasting genetic counselling situations: antenatal screening for congenital abnormality and hereditary breast and ovarian cancer.

Antenatal screening

We recently undertook a study to identify the ways in which prospective parents can be supported to make informed decisions about antenatal screening. Parents who are offered antenatal screening are often unprepared for decision making and uninformed about the conditions for which screening is available. The pressure to provide information about many issues early in the pregnancy limits the opportunity for thought and discussion. In addition, fear of litigation may influence health professionals in their approach to offering screening. Informed parental consent in these circumstances is not assured, making further decision making about diagnostic testing (after a high risk screening result) more complex.

Hereditary breast and ovarian cancer

Individuals who seek genetic counselling advice about breast and ovarian cancer are often motivated by a conviction of their increased risk. The family cancer stories are generally well-known and contribute to a feeling of vulnerability to the condition. In these cases, a risk assessment that confirms a low risk can be difficult for the individual to accept. While screening is an option, the decision to have a genetic test or take prophylactic measures is tempered by the individual's need for certainty, self-image, family support and reproductive status.

The provision of psychosocial support, information and appropriate counselling in these situations will be discussed.

IS-055

Heritable gynecological cancer

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Gynecological cancers tend to cluster in families, some more than others. Mendelian (monogenic) transmission of ovarian cancer in families was first described in the 1950s. Several hereditary cancer syndromes have now been defined, including the Hereditary Breast Ovarian Cancer Syndrome (HBOC) and the Lynch syndrome (HNPCC), but other more rare cancer syndromes such as the Cowden syndrome are also part of the clinical spectrum.

The cancer syndromes are characterised by increased risk for several cancers. In HBOC is breast cancer the most frequent cancer but the risks for ovarian cancer and cancer in the Fallopian tubes are also increased. In HNPCC there is increased risk for colorectal cancer, endometrial cancer, ovarian cancer and other cancers.

Many of the genes responsible for the cancer syndromes have now been identified whereby genetic testing for a cancer predisposition is increasingly becoming part of a routine clinical setting.

Today it is possible to test the BRCA1 and BRCA2 genes in HBOC, and the MLH1, MSH2 and MSH6 genes in HNPCC. Even if the pedigree is very suspicious of a cancer syndrome, it is not always possible to identify the responsible gene. But if a mutation in such a gene is identified in a family all the close relatives can be offered predictive genetic testing.

If the pedigree or a genetic test reveals an increased cancer risk it is mandatory to offer that person a clinical surveillance program. The surveillance can either be regular clinical screening or prophylactic surgery dependent on the efficiency of these options and of course of the person's wishes. The purpose is to decrease the cancer mortality and hopefully to prevent cancer occurrence in these high risk individuals.

IS-056

Combined risk assessment for fetal aneuploidy with nuchal translucency and biochemical markers. The Danish experience, before and after the guidelines from Sundhedsstyrelsen

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Background: In September 2004, the Danish National Board of Health issued new guidelines for prenatal screening and diagnosis recommending that all women be offered a risk assessment for Down's syndrome, and

prenatal diagnostic testing be reserved for those women having a risk above 1:250 at term. The aim of this new policy was to reduce the proportion of pregnancies having an invasive procedure and to increase the detection rate of Down's syndrome.

All 15 Danish counties decided to implement first trimester combined screening, consisting of a biochemical test (the double test) and nuchal translucency scanning. This policy was introduced successively from 1 October 2004 to 1 June 2006.

Results: The number of invasive procedures was nearly halved from 2002 to 2006, and as the number of pregnancies was relatively stable around 65,000 per year, the invasive testing rate declined from 10.3% in 2002 to 4.8% in 2006. The proportion of chorionic villus sampling increased from 51% to 69% during the same time period.

At a national level the detection rate of Down's syndrome was 87% and the false-positive rate 3.9% among the 40,815 women who were screened in 2005.

Conclusion: It was possible over a rather short time period to change the pattern of invasive prenatal testing and halve the proportion of women having a CVS or amniocentesis. Even though screening was performed in as many as 19 centres, it was possible to obtain national detection and false-positive rates comparable to those from studies or referral centres.

IS-057

Depression and anxiety during pregnancy – prevalence and obstetric outcome

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Background: Depressive and anxiety disorders are common health problems, affecting women at least twice as often as men. Studies on pregnant women have often been performed on small samples, more seldom using diagnostic criteria adhering to the Diagnostic and Statistical Manual of Mental disorders, fourth edition (DSM-IV).

Aims and methods: The aims were to estimate the point prevalence of mood, anxiety and eating disorders, based on DSM-IV criteria, in an unselected population during the second trimester of pregnancy. The Primary Care Evaluation of Mental Disorders (PRIME-MD) was used for assessment of psychiatric disorders. From October 2nd, 2000, to October 1st, 2001 all women attending the second trimester routine ultrasound screening at two different hospitals in northern Sweden were approached for participation in the study. After delivery, data were extracted from the women's medical records.

Results and conclusions: Of the 1555 women in the study population, 220 (14.1%) had one or more PRIME-MD diagnoses. Living single, low socioeconomic status,

smoking, multi-parity and a body mass index (BMI) of 30 or more were significantly associated with a psychiatric diagnosis. Women with depression and/or anxiety more often suffered from nausea and vomiting during pregnancy, were more often on sick-leave, and they visited their obstetrician more often than healthy subjects. Also, they were more commonly delivered by elective caesarean section, had an increased use of epidural analgesia and experienced a longer duration of labor. Severe complications of pregnancy, delivery and the early postpartum period were not affected by antenatal depression and/or anxiety.

IS-058

Violence against women may influence childbirth

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Violence against women is defined as 'Any act of gender-based violence that result in, or is likely to result in physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life' UN 1993¹.

The term abuse is often applied when violent acts are part of a pattern, as in child sexual abuse and when women are exposed to violence by their intimate partners.

Type of abuse, age of victim at exposure, relationship to perpetrator are among the factors influencing effects on health. One phenomenon which just recently has been explored is re- victimization within health care². Victims of childhood abuse might perceive their experience with health care as being abused. This again might influence the interaction between the patients with history of abuse and health care workers. A situation in which such interaction might influence decision making is in childbirth. Victims of child abuse are more likely to suffer from fear of childbirth, but unrelated to that are also at risk for instrumental delivery. In order to develop routines which might prevent the risk for re-victimization, an EU funded project is ongoing, the BIDENS study³, in which the relationships between abuse experience and mode of delivery is explored.

1. United National General Assembly. 1993.
2. Swahnberg K, Wijma B, Wingren G, Hilden M, Schei B. BJOG. 2004
3. Belgium, Iceland, Denmark, Estonia, Norway, Sweden (BIDENS).

IS-059

Fear of childbirth and the wish for a caesarean

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Background: Fear of childbirth has been reported in 5–10% of pregnant women. Caesarean section on maternal request is a much debated issue, partly linked to pregnant women's fear of vaginal birth. A large part of the women in Sweden requesting a caesarean have undergone an emergency caesarean previously. Fear of childbirth and wishing a delivery by caesarean, also in nulliparous women, are associated with certain personality traits and other psychosocial variables such as childhood abuse.

Hypotheses: Fear of childbirth has increased. Wishing a caesarean is associated with fear of childbirth.

Methods: A questionnaire including the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) was completed by 1632 pregnant Swedish-speaking women in 2006.

Results: The level of fear of childbirth had increased compared to in 1981 pregnant women who completed the W-DEQ in 1992–3 ($p < 0.0001$). The number of women with a very intense fear – tocophobia – had doubled. A previous complicated delivery was strongly associated with fear of the next birth. A preference for caesarean section was reported by 7.3% of the women. Wishing a caesarean was associated with fear of childbirth ($p < 0.0001$); 51% of those women who wanted a caesarean were intensely afraid of birth.

Conclusion: Fear of childbirth has increased in pregnant Swedish women since 1993. Many women who would prefer a caesarean are intensely afraid of birth. When a woman demands an obstetrically unnecessary caesarean it is a signal of possible mental and/or social problems that need attention. Information about the risks of the operation is not enough.

IS-060

Fear of childbirth can be treated and cesarean section avoided

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The worldwide rising rates of cesarean sections have generated a vivid discussion among obstetricians. However, the reasons for women to request a cesarean have not usually been opened to question. Several studies have shown that behind the request for cesarean there very often lies fear of vaginal childbirth.

There are other studies focusing on the treatment for fear childbirth. In several of them, it has been shown fear of childbirth is treatable and a fear-related

request for cesarean may be withdrawn after an opportunity has been offered to discuss, and obtain support, information, or psycho education relating to fear of childbirth. The intervention can be comprised by group sessions or by individual sessions with either obstetrician, midwife, psychologist, or psychotherapist. Regardless of the intervention protocol or the intervention provider, 50–85% of women who in the beginning requested a cesarean as the mode of childbirth could withdraw their request and prepare themselves to the normal vaginal childbirth.

The Nordic countries differ from many developed countries in cesarean rates and in diagnosing and treating fear of childbirth. This is, to our understanding, due to both permissive atmosphere on labors wards, and the history of 10 to 20 years of studying and treating fear of childbirth as well as accepting the fear of childbirth as a reason for specialist consultation. If fear of childbirth is diagnosed early enough during pregnancy, and treated with someone of the different options, unnecessary caesarean section without medical indication can be avoided.

IS-061

Diet and lifestyle of women of childbearing age – Impact of cod liver oil consumption on maternal health, birth outcome and breast milk composition and associations between diet, lifestyle and weight gain in pregnancy

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It is a commonly held notion that excessive pregnancy weight gain contributes to increased obesity rates in women. Simultaneously adequate weight gain is of high importance for optimal birth outcome as birthweight is strongly associated with maternal weight gain, and higher birthweight has been associated with less risk for several diseases in adulthood, even in Iceland, where birthweight is among the highest in the world. In this prospective study questionnaires on diet and lifestyle were filled out early and late in pregnancy and data collected from maternity records. Results suggest that the composition of macronutrients may have an impact on weight gain, but women especially have to avoid increasing their energy intake too much and should limit their sweets consumption. Additionally, increased milk consumption in late pregnancy was associated with increased likelihood of gaining both optimal and excessive weight, depending on the amount consumed. Smoking cessation doubled the risk of excessive weight gain, but this association was no longer significant after adjustment for dietary and other confounding factors. Excessive weight gain following smoking cessation may be prevented through healthier dietary habits, most profoundly through increased fruit

and vegetable consumption, but consumption of these food groups was lowest among former smokers.

Consumption of liquid cod liver oil increased the odds for developing hypertensive disorders in pregnancy, after adjusting for confounding factors. A u-shaped curve was found for the association of the amount of n-3 LCPUFA with hypertensive disorders, suggesting that high doses of n-3 LCPUFA may increase the risk. However, healthy women consuming liquid cod liver oil early in pregnancy gave birth to heavier babies. Considering the special physiological function of DHA in early human life regular maternal cod liver oil intake could be relevant for the developing infant. Larger offspring have been related to a lower risk of several diseases in adult life, and therefore the relationship seen between n-3 LCPUFA intake early in pregnancy and larger offspring suggests that maternal cod liver oil use in early pregnancy could also be important for the health of the infant in adult life.

IS-062

Primary fallopian tube carcinoma: occurrence, risk and prognostic factors

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The aim of the study was to clarify the occurrence, etiological and prognostic factors of primary fallopian tube carcinoma (PFTC). We studied the sociodemographic determinants of incidence of PFTC in Finland and the role of chlamydial infections and human papillomavirus infections as risk factors for PFTC. Serum tumor markers were studied as prognostic factors for PFTC. We also evaluated selected reproductive factors: parity, sterilization and hysterectomy as risk or protective factors of PFTC. The risks of second primary cancers after PFTC were also studied.

The age-adjusted incidence of PFTC in Finland increased from 1.2 / 1.000.000 in 1953–57 to 5.4 / 1.000.000 in 1993–97. The incidence rate remained higher in the cities, but the relative rise was higher in rural areas.

Pretreatment serum concentrations of hCG β , CA 125 and TATI were evaluated as prognostic markers for PFTC. Elevated hCG β value, stage and histology were strong independent prognostic factors for PFTC.

Chlamydial and human papillomavirus (HPV) infections were studied in two separate seroepidemiological case-control studies. The incidence of women with positive HPV or chlamydial serology was the same in PFTC patients and in the control group and was not found to be a risk factor for PFTC.

Effects of parity, sterilization and hysterectomy on the risk of PFTC were studied in a case control-study. In multivariate analysis parity was the only significant

protective factor as regards PFTC, with increasing protection associated with increasing number of deliveries. In univariate analysis sterilization gave a borderline protection against PFTC.

Finally, the possible risk of a second primary cancer after a diagnosis and treatment of PFTC in a cohort of 2084 cases from 13 cancer registries followed for second primary cancers within the period 1943–2000 was studied. In PFTC patients, second primary cancers were 36% more common than expected. Significant increases were detected for non-lymphoid leukemia, for bladder cancer, for colorectal cancer, for breast cancer and for lung cancer. The excess of colorectal and breast cancers after PFTC may indicate common effects of earlier treatments or they can reflect the common effects of lifestyle or genetic, immunological or environmental background for the diseases.

IS-063

Biochemical and Epidemiological Studies of Early-Onset and Late-Onset Pre-Eclampsia

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Biochemical and epidemiological aspects of pre-eclampsia were investigated, with the main focus on possible pathophysiological differences between early-onset and late-onset disease.

In pre-eclamptic women poor correlation was found between albumin-creatinine ratio (ACR) in a random urine sample and total amount of albumin in a 24-hour urine collection.

In a cohort of women giving birth in Sweden in 1973–82 we estimated the adjusted incidence rate ratio (IRR) for ischaemic heart disease (IHD) during the years 1987–2001. The adjusted IRR for development of IHD was 1.6–2.8 in woman exposed to gestational hypertensive disease during her pregnancy compared with unexposed women. The higher risk represents more severe or recurrent hypertensive disease.

Before delivery, in early-onset pre-eclampsia (24–32 weeks) there were pronounced alterations in plasma concentrations of soluble fms-like tyrosine kinase 1 (sFlt1) and placental growth factor (PlGF), and also a higher placental 8-iso-PGF2 α concentration and an elevated serum ratio of plasminogen-activator inhibitor (PAI)-1 to PAI-2 compared with early controls. In late-onset pre-eclampsia (35–42 weeks) there were only moderate alterations in sFlt1 and PlGF concentrations, and the placental 8-iso-PGF2 α concentration and PAI-1/PAI-2 ratio were similar to those in late controls. There was a rapid postpartum decrease in sFlt1 concentration in all groups. One week postpartum the sFlt1 concentration was persistently higher, however, in women with early-onset pre-eclampsia compared with early controls.

In conclusion: random ACR cannot replace 24-hour urine collections for quantification of albuminuria in pre-eclamptic women; gestational hypertensive disease, especially severe or recurrent, increases the risk for later IHD; early-onset, but not late-onset pre-eclampsia is associated with pronounced alterations of angiogenesis-related markers and only early-onset pre-eclampsia is associated with placental oxidative stress and an increased PAI-1/PAI-2 ratio, all suggesting a stronger link between early-onset than late-onset pre-eclampsia and a dysfunctional placenta.

IS-064

Total versus subtotal hysterectomy for benign uterine diseases?

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Objective: To compare total and subtotal hysterectomy for benign uterine diseases.

Hypothesis: Due to a Finnish study the subtotal hysterectomy is superior to the total hysterectomy.

Method: Study of incidence rate and method of hysterectomy, survey among gynecologists about treatment for benign uterine diseases, a multi-center randomized trial and observational study comparing total and subtotal hysterectomy among 319 and 185 women, respectively, in Denmark and a meta-analysis of existing trials and studies.

Results: The hysterectomy rate in Denmark is low. The incidence rate of hysterectomy was constant through the years 1988–1998. However, the incidence rate of total abdominal hysterectomy decreased while the incidence rate of subtotal abdominal hysterectomy increased.

A survey among Danish gynecologists confirmed that the preferred hysterectomy method was the subtotal abdominal hysterectomy.

In our randomized trial more urinary incontinent women were found after subtotal than after total hysterectomy. This finding was confirmed in the meta-analysis. In the meta-analysis more women with prolapse were found after subtotal than after total hysterectomy. The finding in our randomized trial of longer operation time and larger per-operative bleeding was confirmed in the meta-analysis. Between 5 and 22% of the women having a subtotal hysterectomy suffered from vaginal bleeding after the hysterectomy.

Conclusions: Total hysterectomy is recommended as the abdominal hysterectomy method for benign uterine diseases, although the mechanism behind the results is not fully understood. However, it is suggested that it could be due to increased bladder neck mobility following lack of suspension of the cervical stump.

Portal and umbilical venous distribution in the human fetus

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Knowledge of the venous perfusion of the human fetal liver is fragmentary and mainly limited to the umbilical circulation. Current ultrasound technology makes it possible to study blood flow noninvasively and to give new insights into the developmental changes during gestation.

Aims: The general aim of the study was to map the hemodynamics of the venous supply to the fetal liver in humans. In detail: to establish longitudinal reference ranges for ductus venosus flow velocities and waveform indices (paper I), to establish a technique for direct flow measurement in the main portal stem and study its development during the second half of pregnancy (paper II), to assess the flow velocity pattern in the left portal vein (paper III), and to determine the distribution of venous blood supply within the liver and explore the impact of maternal and fetal factors (paper IV).

Material and methods: After informed written consent, 160 women with low-risk pregnancies were recruited to a longitudinal study according to a protocol approved by the Regional

Committee for Research Ethics (REK-Vest 04/3837). 4–5 ultrasound examinations, each lasting 60 minutes, were done at four weeks intervals between 20 and 40 weeks of gestation. At each session the inner diameter was measured in: 1. the intraabdominal portion of the umbilical vein, 2. the ductus venosus, 3. the main portal stem, and 4. the left portal vein. In the same vessels, time-averaged maximum flow velocities were measured by Doppler ultrasound. Volume blood flow was calculated and normalised for fetal weight. Mean and percentile curves were constructed using regression analysis and multi-level modelling. The impact of maternal and fetal factors on liver blood flow was investigated by deviance statistics.

Results: The established longitudinal reference ranges for ductus venosus flow velocities and waveform indices allow the calculation of conditional percentiles, which are narrower and commonly shifted compared to those of the entire population (Paper I). Blood flow in the main portal stem was pulsatile in 99%. Both diameter and flow velocities doubled during the observation period. Correspondingly, blood flow increased throughout gestation, and so did flow, normalised for fetal weight (Paper II). Flow velocities in the left portal branch increased throughout gestation. We found pulsatile flow in 69%, usually directed towards the right lobe. However, intermittent flow reversal occurred during respiratory movements, and continuous reversal in 8% of the observations close to term (Paper III). Total venous liver flow increased throughout gestation, while

normalised flow decreased. Lobe specific flow distribution was stable during gestation directing 60% of the total venous liver flow to the left and 40% to the right lobe. The umbilical vein was the dominating venous blood source, but the portal fraction grew during the last trimester. Venous liver flow and its components were related to birthweight, while lobe specific flow and fractional flow distribution to the lobes were related to pregnancy weight gain (Paper IV).

Conclusion: We have established longitudinal reference ranges for all components of venous liver supply and the ductus venosus in the human fetus. The reference ranges for ductus venosus velocimetry are appropriate for serial measurements, especially when conditional terms are applied (Paper I). The present established technique of assessing flow in the main portal stem had a high success rate and could be used to show an increasing hemodynamic importance of the main portal stem towards term (Paper II). The umbilico-portal watershed is usually situated in the right liver lobe, but may shift towards the left portal vein even in circulatory uncompromised fetuses. The time-averaged maximum flow velocity is suggested for the evaluation of the umbilico-portal watershed (Paper III). The relationship between venous liver flow and birth weight may indicate a link between liver perfusion and fetal growth. The growing portal fraction of the total venous blood flow signifies the high circulatory priority given to the splanchnic circulation close to term. The relationship between low pregnancy weight gain and the distributional shift in favour of left liver lobe perfusion may be part of an adaptation to various intrauterine environments (Paper IV).

IS-066

Prenatal screening for fetal aneuploidy in the first trimester. Nuchal translucency and biochemical markers

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There have been major shifts in Down syndrome (DS) screening in the US from 2001 to 2007. In a 2007 survey all MFM specialists screen for DS and the percent screening in the first trimester using PAPP-A, hCG and nuchal translucency (NT) has increased from 27.9% to 94.9%. Standardized techniques for measuring NT result in higher detection rates (DR) for Down syndrome (DS), trisomy 18, trisomy 13, and Turner's syndrome. Improved detection of DS at lower false positive rates (FPR) occurs when NT is combined with biochemical markers. NT is also useful to evaluate multifetal gestations. Optimal time for NT is 12–13 wks, although it is valid from 10 4/7 to 13 6/7 weeks. Training is required and specific guidelines must be followed. This

results in DS DR of 72% at an FPR of 5%. In addition, 74.8% of trisomy 18 cases, 72% of trisomy 13 cases, 87% of Turner's syndrome cases, 59% of triploidy cases, and 55% of other significant chromosomal defects were detected. Among first-trimester fetuses with increased NT, approximately one third will have chromosome defects with DS in 50% of these. Combining NT, serum markers (PAPP-A, hCG), and maternal age is a very effective DS screen. This approach is called combined screening. These DR are comparable to the second-trimester quadruple screen. 'Integrated' screening uses both first and second-trimester markers to adjust the age-related risk of a child with DS, however results are reported after both first- and second-trimester tests are completed. In the FASTER trial the DR was 94–96% at a 5% FPR.

IS-067

Prenatal screening for structural malformations in the first trimester

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With advancements in ultrasound equipment obstetricians have been able to detect structural malformations earlier and earlier during pregnancy. It is now possible to detect many major, life threatening or debilitating malformations in the first trimester making screening for these conditions a real possibility. Detection of severe CNS malformations, skeletal and abdominal wall malformations and some genitourinary malformations should be fairly straight forward at this early gestation using the modern high resolution ultrasound equipment available. The diagnosis can usually be made transabdominally but the vaginal route can be of added benefit, especially in the obese patient. During the years 2002–2007 13,158 ultrasound examinations were performed as part of a first trimester screening programme for fetal aneuploidies in Iceland. This resulted in the detection of 50 aneuploidies but also 40 severe structural malformations. The severity of these structural malformations is reflected in the fact that 34 of these pregnancies were terminated, 1 miscarried and 5 were carried to term. The suspected conditions were confirmed by post mortem examination in all cases and additional defects/abnormalities were detected in some cases. There were 4 live born babies with abdominal wall defects and 1 with femoral aplasia. It is now possible to detect cardiac malformations at 13–14 weeks and certainly at 16 weeks in high risk cases, such as those with a prior history of cardiac malformations or increased nuchal translucency. Spinal defects are still difficult to detect at this early gestation so the 20 week scan should not be abandoned.

IS-068

Pathophysiology of preterm birth

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Preterm birth (PTB) (<37 weeks of gestation) is the leading cause of perinatal mortality and morbidity in the industrialized world. Infants are born preterm after spontaneous onset of labour (PTL) or rupture of the membranes (PPROM), or after induction /caesarean section for maternal and/or fetal complications.

Spontaneous PTB is regarded as a syndrome with multiple etiologies like infection/inflammation, uteroplacental ischemia/hemorrhage (vaginal bleeding), stress and uterine overdistension (e.g. multiples, polyhydramnion). In addition, risk factors include previous PTB, smoking, work in standing position/night shifts, periodontal disease, uterine anomaly, presence of bacterial vaginosis, and low maternal BMI. The best clinically available predictors of PTB are a short cervix and elevated cervicovaginal fetal fibronectin. Subclassification based on subgroup, risk factors and outcome of the predictive test is probably important as some preventive treatment strategies like progesterone is effective in cases with a previous PTB or a short cervix but not in twin gestation.

Intrauterine infection is a frequent (25–40%) cause of spontaneous PTB, accounting for the majority of PTBs in low gestation. Ascending microbes are believed to elicit cytokine-dependent intrauterine inflammation leading to preterm contractions and/or a fetal inflammatory response syndrome (FIRS). Pathogen-associated molecular patterns (PAMPs) on microbes are recognized by TOLL-like receptors (TLRs) as part of innate immunity. Most TLRs mediate MyD88- and NFκB-dependent synthesis of cytokines and anti-microbial proteins. Data suggest that these receptors are important in PTB: TLRs are expressed in cervix, placenta, decidua and amniotic epithelium and some are upregulated in preterm labour and in chorioamnionitis, TLR dependent cytokines and anti-microbial proteins are produced in preterm labour and predict both PTB and chorioamnionitis, a polymorphism (Asp299Gly) associated with impaired TLR4 function is more common in infants born preterm than term and activation of TLR4 in mice induces PTB. Our experimental data also suggest that TLRs are involved in development of brain injury in fetuses exposed FIRS.

Increased understanding of the involvement of TLRs could lead to the discovery of novel preventive or therapeutic strategies for PTB or its consequences.

Clinical management of preterm birth

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Preterm birth (PTB) is the major cause of neonatal mortality and morbidity in the developed world.

Despite huge efforts in preventing PTB the rate has increased during the last twenty years, primarily due to the increasing rate of multiple gestations following assisted reproductive treatment and deteriorating maternal health.

Administration of progesterone to women with a high pregestational risk of PTB seems promising, and there is evidence for the use in women with prior spontaneous preterm delivery.

Precise initial assessment of preterm labor (PTL) before treatment is of paramount importance and several diagnostic tools are available. Solid evidence supports the use of tocolysis in the initial treatment to postpone or even stop PTL in order to advance fetal lung maturation and, if necessary, to refer the fetus in utero to a tertiary center with neonatal intensive care for extreme prematurity. Timely treatment will reduce neonatal mortality and morbidity

Antibiotics reduce the risk of chorioamnionitis in the case of preterm premature rupture of membranes (PPROM), but the use in treating PTL is still controversial.

The perfect tocolytic that is uniformly effective with complete fetomaternal safety does not exist. However, the selective oxytocin receptor antagonist Atosiban is now the tocolytic drug of choice in the preventive/active treatment of PTL. Maintenance (> 48 hrs) tocolysis (MT) might be beneficial in selected cases of very preterm labour where fetal compromise and infection has been ruled out. New results from a small series of patients in PTL treated with MT (Atosiban – in combination with antibiotics and nonsteroidal anti-inflammatory drugs) are presented at the NFOG 2008 congress and seem more than promising.

When it comes to mode of delivery in very PTB, evidence is sparse. There are no significant differences in neonatal outcome, but a significantly higher risk for the mother by caesarean section compared to vaginal delivery.

New trends in handling male infertility – Male infertility tests in the era of ICSI. Are genetic tests coming

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The era of sperm and egg membrane-fusion appeared for the first time some 600 million years ago when sexual reproduction with gametes evolved.

Natural fertilization, insemination and IVF all need the dual support of the sperm as (1) a messenger cell and (2) its messages.

With ICSI, a new era of man-induced evolution appeared for the first time less than twenty years ago where (1) all messenger functions were by-passed by the injecting embryologist. Messenger functions comprise well-shaped spermatozoon, progressive swimming, passage of the cumulus cell matrix, binding to the zona pelucida, exhibition of acrosome reaction and hyperactivated motility, binding and fusion with the vitelline membrane. All these functions became superfluous in the ICSI perspective. Thus, ICSI – as a technique- only calls for (2) the sperm messages.

The known sperm messages are (a) an intact haploid genome with adequate imprinting securing the possibility for a fertile child and healthy grandchildren to come, (b) a centrosome for the very first until the very last mitosis and other centrosome based mechanisms (motile cilia function) of the child, and (c) some male factors initiating the development of the “embryonic-feeding-spoon” of his child, the placenta.

According to WHO and ESHRE SIG Andrology, every infertile man should be investigated including semen analyses and the search for causes should end in a diagnosis as a base for treatment.

The technique of ICSI opens a short cut since the pure presence of some spermatozoa makes ICSI technically possible, but the short cut, although rational at first sight, narrows our perspectives. All couples presented for ICSI do have their individual history of infertility. If the reason for the infertility is ignored, then the medical profession cannot elucidate the long term consequences.

Left unexplored, another consequence for the medical society is that we cannot gain more knowledge for improved treatment of those 50% who remain childless after termination of further ICSI attempts. Moreover we gain little information on why the successful 50% went home with their baby.

Few, tired and ugly spermatozoa, i.e. oligo-asthenoteratozoospermia is not the diagnosis. These are symptoms caused by various etiological mechanisms that should be explored, understood and open new approaches to therapy.

Presented with a man who has a semen sample with oligo-/a-, astheno-terato- zoospermia one question

is whether the producer, the man, suffers from a constitutional problem that could be transferred to the next generation or an acquired condition. When all spermatozoa reveal similar morphological or functional defects it undoubtedly speaks in favour of a constitutional problem, i.e. the immotile cilia syndrome, globozoospermia, but there are still traits to be revealed among the hitherto unexplored men. And as a consequence more conditions of genetic origin is to be added to our knowledge and compiled into the diagnostic arsenal. Meantime, an observing mind and the pedigree, are powerful instruments during the work up of the man, to reveal de novo and hereditary traits.

The population of men where poor semen results rule out ordinary IVF, constitute a subgroup of men with increased incidence of impaired integrity of their sperm DNA as revealed independently by TUNEL, COMET and SCSA. Again, the assays reveal "symptoms", i.e. something seems wrong, but they do not separate between prevailing strand-breaks or a vulnerability of the sperm nucleus for strand-breaks induced by the reproductive tract, sperm handling before and within the assay.

From a holistic perspective the ultimate goal of reproduction is the healthy grandchild fostered by a fertile son or daughter.

Strand-breaks in the sperm DNA can be repaired by the ooplasm. If not, a child with chromosomal deletion may arise. The repair could be complete or result in balanced or unbalanced inversions and translocations. A balanced translocation in the child always bears the risk of a grandchild with chromosomal aberration and affected development.

Thus, it is important to have knowledge of conditions resulting in sperm DNA strand breaks and to be able to identify such damage. Then, it would be possible to treat the man or to bypass the problem by selecting sperm less prone to DNA damage.

Mutagenic destruction of mitochondrial DNA is a condition that limits our lifespan. Native mtDNA in the oocyte seems to be the evolutionary way for family eternity, by which every new generation can start off with fresh mitochondria.

Mutagenic deletions of mitochondrial DNA would be at favour to propagate among cells often undergoing cell division. This means that a mtDNA deletion in spermatogonia finally would lead to an metabolic exhaustion of processes involved in spermatogenesis and would be manifested by e.g. oligo-, astheno- teratozoospermia. Thus, genetic characterization of sperm mtDNA could be a future tool to estimate whether spermatogenesis in the testis suffer from inadequate mitochondrial functions.

The centrosome is a self-replicating organism within our cells. It can organize tubulin-threads by which chromosomes are handled during mitosis and meiosis and organize other motile threads organized in cilia like the sperm flagellum. The sperm carries two of which one is reactivated directly after fusion and brings oocyte genome close to the male genome.

When "the genetics" of the centrosome is revealed it could offer us tools for diagnosis and methods for selection of subpopulation of functional spermatozoa.

Clinically important aneuploidies like trisomies 8,13,18,21, Turner syndrome X/O, and Klinefelter syndrome – male with one or more extra X-chromosomes, females with one or more extra X-chromosomes and males with an extra Y-chromosome are all different outcomes of impaired disjunction of chromatids. The failure can be caused by chromatids sticking to each other and by failure of the centrosome-derived tubulin-threads at mitosis and meiosis. Genetic probes identifying specific chromosomes (FISH = fluorescence in situ hybridization) could be used to diagnose men with increased risk for aneuploidy, whether constitutional alone or augmented by exposition. In the latter case, avoiding exposition would be preventive.

A technique that expose the sperm nucleus to high energy light (i.e. induced fluorescence or UV-light) would increase the risk of DNA strand breaks. Therefore such a technique would not be appropriate to use for selection of spermatozoa. For the same reason, sexing of human sperm, using fluorochromes and exposure of human sperm to day light involves by definition a risk for inducing strand breaks.

A man presenting with the immotile cilia syndrome, globozoospermia, with azoospermia or oligozoospermia, could suffer from uni- or bilateral agenesis of the Wolffian duct structures and is often carrier of at least one gene for cystic fibrosis. If so, the risk to transfer one gene to the child is 50%. Genetic search for the most common genes in the population area in the female partner will be the basis to estimate the risk for a severe condition in the child to be.

Men with dystrophia myotonica eventually undergo testicular fibrosis with declining results in semen analyzes, but often after the period when fathering children. The disease is autosomal dominant with a 50% risk of transferral. To now, it is not known to what degree germinal CTG repeat expansions are produced during spermatocytogenesis in man which would increase the risk for a more severe disease in the child and call for either genetic diagnosis of selected sperm or in the post-fertilization period.

Male aging is also related to polygenetic diseases as schizophrenia and monogenetic diseases as osteogenesis imperfecta in the children. Diseases caused by a de novo mutation in the sperm with a paternal risk frequency of 1 per million means that 100 spermatozoa out of 100 million in the samples carries the trait. With increasing age there are more sperms carrying the trait. It is important to realize that the increased risk of selecting a carrier sperm is of no significance for the individual man whereas the globally increasing age of men fathering their first child gives a quantitative load on the health care systems in our society. Sperm selection and diagnostics based on knowledge of the genetic causes would be one way to cope with the

demographic shift to elder fathers. The other way would be to adjust our way of living to given physiology, i.e. to start family building at younger age.

The sperm also carries small RNA molecules at the base of its head. Their roles in the successful fertilization and early embryonic development are still to be studied.

Future knowledge could result in tools for diagnosis, explaining male infertility and negative outcome of fertilization and also help in selection of subpopulations of functional spermatozoa.

The epigenetic coding effectuated during spermiogenesis determines which genes should be readable or not from the sperm genome when entering the oocyte. This coding is comprised by adding or subtracting compounds to the DNA or to the histones. Sperm DNA has specific DNA methylation patterns. In addition, certain parts of the genome does not incorporate DNA-inactivating protamines but still carries epigenetic modulated histones attached to the DNA.

It seems plausible that new "epigenetic tools" telling about the normal and abnormal epigenetics of the sperm would help us understand reasons for male infertility, failure of embryonic development and affected children and be of value for selection of subpopulations of functional spermatozoa.

Our knowledge about the physiological and pathophysiological mechanisms resulting in a normal messenger cell with intact messages, i.e. a functional spermatozoon is still sparse. The empirical way to increase our knowledge and to get tools for diagnostic, causal- and preventive- medicine is to fully investigate the men before going to ICSI. These tools would also help us to evaluate the long term consequences of our work and to widen the horizon towards the goal of healthy grandchildren.

IS-071

Are sperm tests vanishing?

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Introduction of the Intracytoplasmic Sperm Injection (ICSI) in infertility treatment has switched the focus from investigating the male to treating the childlessness problem by using assisted reproduction techniques (ART). For that reason may have asked about the value of performing detailed semen analysis, including assessment of concentration, motility and morphology, since the predictive value of such tests in relation to the outcome of ART, has been rather limited.

However, the answer to the question if semen tests are vanishing or not, depends on what type of information we wish to obtain. The alarming reports on deteriorating male reproductive function call for not only treating by ART but also trying to uncover the causes of poor sperm production, in order to develop

strategies for preventing and cause-related therapy of male subfertility. In this context semen analysis plays a central role. New ways of evaluating sperm characteristics, including the tests for assessment of sperm chromatin integrity have provided new information about the sperm function and possible causes of dysfunction. These tests have also shown to provide additional information in selecting the right type of ART treatment showing that looking for new ways of assessing semen quality may not only become an important step in clarifying, preventing and treating causes of male subfertility but also add to improvements within the area of ART.

IS-072

Cryopreservation of testicular tissue

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Young boys who face gonadotoxic treatment due to cancer before puberty may lose their fertility in adult life. Boys with cryptorchidism often have similar fertility problems later on in life despite having orchiopexy performed at a young age. In parallel to the cryopreservation procedures performed with ovarian tissue, which has already worldwide resulted in life birth of at least five children following transplantation of frozen/thawed tissue, it has been suggested that cryopreservation of testicular tissue containing spermatogonia could be a way of preserving fertility in young boys who have not yet entered menarche and therefore do not produce spermatozoa. If the testis tissue is harvested before gonadotoxic treatment or early in life when there is still germinal cells present in the testis, the idea would be to use the spermatogonia present in the frozen/thawed tissue in adult life. Purified populations of spermatogonia or pieces of tissue could be transplanted to the testis or to the seminiferous tubules in adult life. The transplanted spermatogonia could then give rise to a new stem cell population that could result in spermatogenesis and production of spermatozoa. The technique has already proven successful in animal models but there is currently no experiments being performed in humans.

The authors own results with development of a method for cryopreservation of testicular tissue will be presented along with the current status of this field. Furthermore, the surgical procedures used for harvesting testicular tissue will be described.

IS-073

Anatomy of the pelvic floor

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Objective: Describe clinical and surgical anatomy of the female pelvic floor to prepare the participant for the lectures to follow in this plenary session.

Methods: The clinical description of pelvic floor support will be described through a discussion of the Pelvic Organ Prolapse Quantification (POPQ) classification system using examples. In addition a short description of functional abnormalities of the female pelvic floor will be presented with updated International Continence Society definitions. Anatomy of the perineum and anal sphincter complex will be reviewed in detail using anatomic drawings and ultrasound images where indicated. Finally the surgical anatomy of the pelvic floor will be presented using anatomic drawings with particular attention to the obtruator fossa with overlying musculature/vasculature and the retropubic space.

Results: Following this presentation participants should be prepared to better appreciate the follow-up lectures on: Epidemiology of pelvic floor dysfunction, Repair of perineal lacerations following obstetrical injury, Sling surgery to correct incontinence, Surgical implants to correct pelvic organ prolapse and complications from these procedures.

Conclusion: This lecture will serve as a starting point for a plenary session aimed at assisting the Obstetrician/Gynecologist in furthering their appreciation of obstetrical injuries and pelvic floor dysfunction and its surgical treatment.

IS-074

Epidemiology of female urinary incontinence and prolapse – the impact of pregnancy and delivery

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Pregnancy and childbirth are well-known risk factors for urinary incontinence among young and middle-aged women. The role of these risk factors for pelvic organ prolapse has been examined to a lesser extent.

Most epidemiological studies support the finding that pregnancy is an inherent risk factor for incontinence later in life, ie. that even women who have delivered by C-sections only will have a higher risk than nulliparous women. For the vaginal delivery, the main body of the epidemiologic literature supports the conclusion that the vaginal delivery is a strong risk factor for incontinence, especially for stress type. The relationship between urinary incontinence in pregnancy

and the subsequent vaginal delivery, and its consequences for urinary incontinence later in life, deserves more attention. The risk of long lasting incontinence for women who experience post partum incontinence has to be investigated further. However, the very concept of post partum incontinence is confusing, as it contains a mixture of different conditions; declining pregnancy incontinence, incident incontinence after the vaginal delivery, and incontinence of prepregnancy origin. There is a need to differentiate between these conditions in future research.

The literature on the association between pregnancy, delivery and prolapse is limited. However, vaginal delivery seems to be even more strongly related to prolapse than to urinary incontinence.

More epidemiological studies should be performed, following cohorts of women in pregnancy and after delivery. The prognosis of women who become incontinent in pregnancy or post partum should be investigated in long term studies.

IS-075

Teaching doctors to diagnose and repair perineal lesions

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Obstetric anal sphincter injuries (OASIS) occur in 1.7% of woman in centres where mediolateral episiotomies are practised compared to 12% in centres practising midline episiotomy. Unfortunately it has been shown previously that up to half of OASIS are not recognised by the accoucher¹. Inadequate training of doctors and midwives in perineal and anal sphincter anatomy is believed to be a major contributing factor².

The morbidity associated with perineal trauma depends on the extent of perineal damage, technique and materials used for suturing and the skill of the person performing the procedure. It is therefore important that practitioners ensure that procedures such as perineal repair, are evidence-based in order to provide care which is effective, appropriate and cost-efficient.

In view of this we initiated the first international hands-on workshop on the management of OASIS to educate obstetricians in perineal and anal sphincter anatomy and techniques of repair of OASIS. The Sultan anal sphincter trainer model was developed in response to the need for training. With the decline in forceps deliveries and reduction in trainees working hours, trainees acquire less experience in the repair of perineal suturing. In addition the occurrence of OASIS is unpredictable and unplanned. Training and testing on commercial models may be helpful in enhancing the acquisition of technical skills. The advantage of inanimate models includes availability and portability. In addition to the model, we use the pig anal sphincter to help the participants dissect and identify the layers of

the anal sphincter. We hope that the traditional culture of "see one, do one, teach one" will be abandoned. For further details please refer to www.perineum.net.

References

1. Andrews V, Sultan AH, Thakar R, Jones PW. Occult anal sphincter injuries – myth or reality? *Br J Obstet Gynaecol* 2006; 113:195–200.
2. Sultan AH, Kamm MA, Hudson CN. Obstetric perineal trauma: an audit of training. *J Obstet Gynaecol* 1995; 15:19–23.

IS-076

Teaching midwives to diagnose and repair perineal lesions

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Background: More than 80% of primiparous women sustain an injury that is surgically repaired after vaginal delivery. It is the responsibility of the midwife to diagnose extends of trauma and repair labia lacerations, vaginal mucosa and perineal lacerations of 1st or 2nd degree including episiotomies. Trials have documented that postpartum perineal pain is correlated to the suture technique, the suture material and extend of trauma.

Evidence and clinical reality

Research is currently performed by Danish midwives on how to improve perineal sutures and pain relief during perineal repair. As a part of this process, we recognised that most midwives have never received formal training in basic surgical skills, correct anatomical classification of lacerations or optimal application of analgesia.

How can we optimise training in clinical skills?

Midwifery schools should develop a curriculum which includes basic surgical skills and hands-on workshops where models are used to gain competence and routine in suturing. Midwives in a clinical setting often have the opportunity to learn from experienced colleagues. We encourage an "open doors policy" so that we can learn, improve and evaluate our practice as part of an ongoing attempt to improve quality of care in relation to preventing and treating perineal trauma.

Need for multidisciplinary teamwork

Diagnosing perineal trauma correctly and improving surgical skills is a multidisciplinary challenge in obstetrics. Midwives and doctors should join efforts and develop effective learning programs and implement an obstetrical practice where continuous medical education is the "golden standard".

Further information: www.suturprojekt.dk.

Sara Kindberg is a midwife and PhD Student at Aarhus University, Denmark.

IS-077

Obstetrical lesions and the importance of quality of primary repair

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Despite primary repair after Obstetric anal sphincter injuries (OASIS), up to 59% of women continue to suffer from impaired faecal continence. This may reflect poor technique or inadequate training in anatomical identification of the sphincter. Using anal endosonography persistent anal sphincter defects were identified in 40 to 91% of women following primary end-to-end repair.

The following principles should be adhered to:

The repair should be performed only by an experienced doctor. Ideally repair should be conducted in the operating theatre with good lighting, appropriate equipment and aseptic conditions. In the presence of a fourth degree tear, the torn anal epithelium should be repaired with interrupted or continuous Vicryl (Polyglactin) 3/0 sutures. The internal anal sphincter should be identified repaired separately from the external sphincter using mattress 3-0 PDS sutures. If the external sphincter is partially torn then an end-to-end repair should be performed. However if it is completely torn a better result can be obtained if an overlap is performed by an experienced doctor. The perineum should then be reconstructed as with an episiotomy repair. Intravenous antibiotics should be initiated and continued orally for up to 5 days later. Lactulose 15mls twice daily should be taken for 7 to 10 days.

References:

- Sultan AH, Thakar R, Fenner D. *Perineal and anal sphincter trauma*. London: Springer. 2007
- Fernando RJ et al. Repair techniques. A randomized controlled trial. *Obstet Gynecol* 2006;107(6):1261-8.
- Website: www.perineum.net

IS-078

Gynecological examination of children and adolescents

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In pediatric and adolescent gynecological evaluation of a child there are some considerations of the child's concerns. Time should be spent describing the examination process and preparing the child for what will take place. Examiner's caring and relaxed attitude is needed to reassure the child. Often the parents are more anxious than the child and the parents may need

even more reassurance. Prepubertal children usually want parent or caregivers to accompany them during the examination, whereas adolescents usually require that parents not to be present. The child should not be forced to gynecological examination, because a negative experience may influence her attitude towards her genitals and reproductive health.

In pediatric and adolescent gynecology, the examiner should be familiar with the changes in female genital anatomy from birth till the end of puberty. It is important to know the normal anatomical and hormonal variations and findings during growth and puberty. The examination positions and techniques vary depending on a girl's age.

In prepubertal girls, genital evaluation is generally limited to a visual inspection of the external anogenital areas. Internal specula examination or vaginoscopy is not routine in prepubescent girls or in virgin pubertal girls, but would be indicated if abnormal vaginal bleeding, vaginal foreign objects or acute internal injuries are suspected. Vaginal or anal digital examination is needed only rarely. The genital examination is performed by gentle separation by lateral spreading and by anterior traction of the labia majora that allows the hymen to open and the hymenal orifice, vulvar area and the outer third of the vagina to be visualized. Colposcopy is needed to evaluate the anogenital findings in child sexual abuse cases.

The transabdominal ultrasonography with a full bladder is often well suited in evaluation of the pelvic structures of a child and an adolescent. The uterine shape and dimension ratio changes between the corpus and the cervix throughout childhood and puberty. Also pelvic ultrasonography is an excellent non-invasive method in evaluating the size and structure of the ovaries.

IS-079

Chlamydia infection – a worry for the young women or for the gynecologist?

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Each year nearly 100 000 men and women are diagnosed with genital C trachomatis infection in the Nordic countries. A strategy of identifying, testing and treating women at increased risk for cervical chlamydial infection has been associated with a 50% reduced risk for pelvic inflammatory disease (1). PID may impair tubal function and thus predispose for infecundity later in life.

Most of our knowledge of harmful effects of genital C trachomatis infections are generated from case-control designs of PID patients or patients having post-abortual infection. These infections are rare events; and their potential of reducing fertility has been exaggerated on

belief in contrast to hard data. A similar analogy is justified for conclusions drawn from antibody studies of C trachomatis infection among cases of infertility and ectopic pregnancy using women giving births as controls.

Prospective follow-up studies of cohorts being screened for C trachomatis and fertility outcome later in life have been conducted in Denmark and Norway. Cumulative incidences of ectopic pregnancy are low, whereas birthrates are high (2, 3). Adjusted for age at first test and parity, the hazard ratio (RR) was 1,8 (1,3-2,6) for a diagnosis of ectopic pregnancy among test-positive versus test-negative women in the Norwegian study. There was no difference in cumulative birth rates among test-positive and negative women (3).

Counseling of women with a C. Trachomatis-positive test result should focus on completing treatment, partner notification and the fact that an asymptomatic diagnosed infection followed with treatment is innocent for impairment of fertility.

IS-080

Trends in adolescent abortion and pregnancy rates in the Nordic countries

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Sexual health for adolescents is based on three components: Recognizing sexual rights, sexuality education and counselling, and confidential high quality services. Contraceptive strategies need to include prevention of both sexually transmitted infections and pregnancies. There are many similarities in the society of the various Nordic countries. However, there are surprisingly big differences in adolescent abortion and pregnancy rates, which are interesting to compare and important to learn from. Age specific abortion and delivery rates are calculated per 1000 women by dividing the number of abortions respectively deliveries of women in a specific age group, in this report 15–19 year olds, by the total number of women in this age group.

Abortions among 15–19 yrs, average 2004–05

Denmark.....	15,8
Finland.....	15,3
Iceland	17,9
Norway.....	15,6
Sweden	24,4

Live births among 15–19 yrs, average 2004–05

Denmark.....	5,7
Finland.....	10,5
Iceland	14,1
Norway.....	8,2
Sweden	5,8

Sweden has much higher abortion rate among adolescents than the other Nordic countries, and this is evident also for adult women. In Norway, adolescent abortion rate decreased continuously since 2000, but this trend turned up in 2006 to 16,3. In Finland, the abortion rate has continued to decline, and the preliminary data for 2007 is 13,4. Delivery rates show a different pattern, an adolescent pregnancy is more likely leading to a live birth in Iceland and Finland than in the other Nordic countries.

Differences in pregnancy rates can be related to cultural traditions, extent of sexuality education, and provision of contraception.

IS-081

A model for providing contraception and other services for adolescents

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Background: Sexually transmitted infections (STI) and unplanned pregnancies are the main consequences of adolescent sexual risk behaviour. There is at present a trend towards more risky sexual behaviour including more sexual partners and less frequent use of reliable contraceptive methods

Accurate information, regarding sexual practices and contraceptive use among young people, is crucial for the development of relevant prevention programs.

Special clinics for adolescents, youth centres, have developed in Sweden since 1970. They are open for girls and boys from the early teens to the age of 23. The work at the centres mainly consists of preventing unwanted pregnancies, STI:s and psychological and social disorders, but also involves questions about lifestyle in order to visualize attitudes, strengthen self-esteem and influence behaviour.

Midwives have a major role in the centres and they work closely together with social workers/psychologists and doctors.

Conclusion: Easy access to effective and safe contraceptive methods as well as availability to qualified health care providers are factors that have a potential to increase sexual and reproductive health among young people. Dedicated clinics for adolescents may serve as good examples of community settings where this can be performed.

IS-082

Etiology and pathogenesis of PMDD/PMS

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Depression and anxiety often affect women in relation to menstrual cycle. There is a very close temporal relation between the luteal phase of the menstrual cycle and symptom development in PMDD/PMS. The symptom starts at the time of ovulation, increase in parallel with the rise in serum progesterone during the luteal phase, reaches a peak during the last 5 premenstrual days. The symptoms decline and disappear 3–4 days after the onset of menstrual bleeding. During the postmenstrual phase there is a period of well being closely related to the estradiol peak. This suggests that there is a symptom-provoking factor produced by the corpus luteum of the ovary. This is further supported by the fact that in anovulatory cycles, spontaneous or induced, when a corpus luteum is not formed the symptom cyclicity disappears. Further evidence for progesterone or metabolites as provoking factor is that postmenopausal women taking sequential estrogen/progesterone HT receive negative mood symptoms similar as in PMDD/PMS. It is not progesterone itself as treatment with the endocrine progesterone receptor antagonist mifepristone (RU486) failed to reduce the physical or behavioral manifestations of PMS. Thus to understand progesterone-induced adverse mood effects, it is important to note that progesterone is to high degree metabolized to allopregnanolone (3-OH-5-pregnan-20-one) acting as agonists on the γ -aminobutyric acid-A (GABAA) receptor complex in the brain. The GABA transmitter system is the major inhibitory system in CNS. Reports in humans and animals indicate that in sensitive individuals allopregnanolone can induce negative symptoms with irritability/aggressiveness and depression. Strong effect is induced in 3–6% of individuals and moderate symptoms are induced in 20–30% similar prevalence as of PMDD/PMS among women in reproductive age, 3–8%, and 25–35%.

IS-083

Treatment of premenstrual dysphoric disorder

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Many treatments have been suggested as possible therapies for severe premenstrual symptoms (premenstrual dysphoric disorder, PMDD). However, only a few treatment strategies have consistently been proven effective.

There is now very good evidence to support the use of selective serotonin reuptake inhibitors (SSRI) in the

management of severe premenstrual syndrome. SSRIs are highly effective in treating physical as well as behavioral symptoms and are also effective also when given intermittently, i.e. during the luteal phase. In fact, some studies suggest that intermittent treatment might be even more effective than continuous treatment. However, for many women the side effects of SSRIs, especially the sexual dysfunction, are intolerable. Decreased libido and other side effects are often the direct cause for termination of SSRI therapy, reflected by the high rate of withdrawal in clinical trials and in follow-up studies of PMDD patients who have been prescribed SSRIs in the clinic.

Induced anovulation has long been known to be a successful treatment for severe PMS or PMDD. However, the usefulness of gonadotropin-releasing hormone (GnRH) agonists is limited by their hypo-estrogenic side effects which in the short run is experienced by the women as vasomotor symptoms but in the long run may lead to bone demineralization. In order to eliminate these side-effects and long-term risks, add-back with a cyclic combination of estradiol and progestagens have been tried in several studies. Although some authors report that the alleviation of PMS symptoms from GnRH analogue treatment is maintained during estrogen and progestagen add-back, others have found women with PMS to be intolerant to progestagens and no efforts have been made to evaluate the optimal add-back hormone replacement therapy in PMDD patients.

Recently, two randomized placebo-controlled trials have evaluated the use of a drospirenone-containing combined oral contraceptive for treatment of PMDD. Following three months of treatment, patients treated with drospirenone plus ethinyl estradiol (20 microgram) reported less severe premenstrual symptoms compared to placebo and less impairment in productivity, social activities and relationships. Long-term studies are needed to validate these findings.

IS-084

What is the best sling for stress urinary incontinence

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The use of rectus fascia sling in 1942 by Aldridge can be regarded as the first modern sling procedure to treat surgically female stress urinary incontinence (SUI). Alternatively, different biological tissue slings have been employed as the source for sling: human allograft cadaveric fascia or dermis, animal xenograft dermis, or intestinal submucosa. Xenografts may potentially carry the risk of transferring infectious agents (prions, other DNA viruses, HIV) and in the course of time the implants appears to be completely replaced by fibroconnective tissue that may have unpredictable clinical outcome in

different materials. Thus there is an obvious need for more permanent sling materials to be developed.

The major advantage of synthetic sling materials is that they are sterile with no risk of transmission of infectious disease, they are more permanent in the course of time, the supply of material is unlimited, the size and shape can be tailored to the surgeons preference and the cost is significantly less compared with biomaterials. However, foreign body reaction, erosion and infection related to the use of these materials is a matter of concern.

Synthetic mesh materials has been classified on the basis of pore size, the material used and the fibre type (Amid Classification I-IV). Several synthetic meshes (polymers) are available today for clinical use: polyethylene (Dacron®, Mersilene® since 1961; Amid IV), polytetrafluoroethylene (Teflon®, Gore-Tex® since 1976; Amid II) and polypropylene (Merlex® since 1962; Amid I). Different sling materials have different biocompatibility properties as well different mechanical properties (eg. elasticity). These properties are clearly associated with different complication rates in clinical series. At this time the most biocompatible material for sling construction is loosely woven or knitted, monofilament, macroporous (pore size > 75 µm) polypropylene.

It is today largely accepted that the support of the mid urethra (The Mid-urethra Concept), rather than elevation of urethra-vesical junction (bladder neck), cure SUI effectively. The development of Tension-free Vaginal Tape, TVT, by Petros and Ulmsten, opened a new era in SUI surgery. Under local anesthesia in day care setting a polypropylene mesh is inserted under mid-urethra via retropubic approach to give sufficient support. Short term cure rates up to 95% can be achieved with low rate of complications. Long term follow-up studies up to ten years have confirmed the maintenance of the good initial cure rates: with strict criteria for cure around 80% cure rates have been published. These studies also confirm the long term safety of TVT.

The blind passage of the TVT needle through retropubic space carries a risk for bladder perforation as well a risk for more severe complications (bleeding, bowel perforation). The transobturator approach (Delorme 2001: out-side in technique; De Laval 2003: inside-out technique) has theoretical advantage of avoiding the entry into the space of Retzius thus not causing the fore mentioned complications.

Recent meta-analysis support this view: the incidence of bladder perforations is higher in TVT; however the rate of vaginal erosions and groin/ thigh pain is higher with TOT approach. In cure rate after short term follow-up there seems to be no difference between the two approaches.

A recent RCT comparing TVT and TVT-O found no difference in cure rates (objective and subjective) between the two procedures after one year follow-up. There was no difference between clinically meaningful complications between the studied procedures.

IS-085

The use of implants in surgery for pelvic organ prolapse – evidence or marketing?

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No abstract by authors choice

IS-086

Emerging complications with novel technologies in pelvic surgery

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Within the last ten years we counted more than 50 different alloplastic slings and meshes for the treatment of urinary incontinence and prolapse without prospective studies or randomized controls. We have to accept that 30 to 40% of the female population suffers from symptoms of incontinence and prolapse, up to 30% have recurrences after previous surgery. More than 2 million slings have been implanted world wide with only about 1% of the patients being operated on in controlled clinical studies, complications are reported as case reports. In our Department within the last 2 years we had surgical repairs of more than 400 women together with innumerable patients with conservative approaches and phone consultations or guidance for patients or colleagues with problems. There cannot be a singleton procedure to have a 100% cure rate – the complex anatomical and functional failure of pelvic floor function cannot be restored with one technique only. Correct selection of the patients by functional and morphological tests should be mandatory – patient wish for the ‘new minimal invasive procedure’ is limited by concomitant pathology recommending another procedure, e.g. extensive paravaginal defect or preexisting overactive bladder without anatomical explanation.

Even though “minimal invasive” the new technologies need a skilled surgeon with experience of at least 35–40 procedures/year. 46% of the surgical complications we had to reoperate were caused by wrong technique, another 40% by a wrong indication.

An adequate experience should be mandatory, the use of meshes in prolapse surgery being still experimental we ask only to perform these procedures within clinical studies.

IS-087

Scientific, ethical and legal implications of introducing new technologies in pelvic surgery

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The massive introduction of new technology in gynecologic surgery approved without any clinical trials before marketing together with the growing body of evidence that patients are being hurt by these products and procedures has disclosed a wide spectrum of related urgent problems which need to be dealt with.

Licensing authorities: Standards of evidence required for licensing surgical devices should be more in line with that required for licensing medicines in regard to safety and effectiveness. The authorities should conduct surveillance once a device is on the market.

Industry should be demanded to produce rigorous clinical evidence on effectiveness and safety before marketing their products.

Physicians: Without adequate data on risks and benefits of new treatments, patients are unable to provide a true informed consent. If sufficient information is not available the proposed surgery may be considered experimental and not standard care which may place the clinician in a potentially difficult medico-legal situation. The surgeon who adopts new surgical principals and materials should be competent and able to manage the academic challenge of conducting and reporting a clinical trial. As final arbiters for the introduction of new medical devices, physicians carry the greatest moral and ethical responsibility.

Health institutions: There are ethical roles for institutions in the introduction of new technologies.

Professional societies: Professional societies such as the ACOG advise clinicians not to adopt new treatments until evidence is available from rigorous randomized clinical trials.

Licensing authorities, device manufactures and clinicians should increase ethical standard to protect the health and safety of patient requiring surgical intervention.

IS-088

Introduction

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No abstract by authors choice

IS-089

'In utero veritas' – Fetal intrauterine androgen exposure and PCOS

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The cause of PCOS is unknown. However, the link to the metabolic syndrome has become increasingly clear. In epidemiologic studies intrauterine environment, measured as size at birth, associate to manifestations of the metabolic syndrome such as obesity, hypertension, lipidemia and cardiovascular disease. Recently, PCOS has also been related size at birth.

Animal studies, in particular studies in monkeys, have linked fetal androgen exposure to adolescent PCOS. Studies in monkeys and observational studies in humans will be reviewed. Possible causes of gestational hyperandrogenism are discussed with special emphasis on placental androgen synthesis as a possible major source of gestational hyperandrogenism. Increased placental androgen release as a final common pathway in all cases of placental dysfunction is discussed.

IS-090

The fertility aspects of PCOS

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Several approaches have been used for the treatment of infertility in women with PCOS. Weight reduction is the first line therapy for obese women, since even 5% weight loss can be effective to restore ovulation. Recent analyses still support the effectiveness of clomiphene citrate (CC) as a first-line medical therapy. Women who do not respond to a daily dose of 150 mg can be considered to be as CC-resistant. Human gonadotropins can be used as second-line treatment. However, since many women with PCOS are insulin-resistant, it is rational to focus treatment attempts on the improvement of insulin resistance and hyperinsulinemia.

The insulin-lowering drug metformin has been shown to improve hyperinsulinemia, insulin resistance and hyperandrogenism in PCOS, as well as to restore ovulatory function in 25–95% of cases and to improve the efficacy of CC. However, these results could not be confirmed in two recent large RCTs comparing the effect of CC and metformin in ovulation induction, and showing no significant effect of metformin on ovulation, pregnancy or miscarriage rates. Thus, the role of metformin in the treatment of anovulatory infertility remains controversial, but overweight or obese women could benefit from the weight-lowering effect of metformin and could still be offered this option.

Although other insulin-sensitizing agents, i.e.

thiazolidinediones, seem to be effective, their safety in the treatment of PCOS is less well documented and they cannot be recommended for women desiring pregnancy. The results of using aromatase inhibitors for ovulation induction have been promising and they may become a useful alternative for ovulation induction. Laparoscopic ovarian drilling is an effective treatment in CC-resistant women, but being an invasive method it should be used only for patients resistant to other ovulation induction methods.

IS-091

When pregnant, then what?

Eszter Vanky

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PCOS has been described already in the 1700 th century, although there are still some controversies how to define the syndrome. It can be seen in all ethnic groups, more in some than in others. New aspects of PCOS have been revealed over the last decades, but many central questions are yet unanswered.

PCOS is a lifelong condition, but the expression and consequences for the women affected can be quite varying. As adiposity increases in society, it will be more prevalent and the symptoms possibly more pronounced. Morbidity associated with PCOS involve most medical disciplines, and represents far bigger a problem than simply assisted reproduction. The demands from the "informed patients" are increasing.

Pregnancy complications in PCOS women are an unrecognised problem for most doctors. I will present current data on the prevalence of different pregnancy complications in PCOS. Recommendations for diet, lifestyle and follow-up during pregnancy will be reviewed. Available data on metformin treatment in pregnancy will be discussed. I will also present preliminary data from an ongoing randomized Norwegian multi-center trial where we treat PCOS women in pregnancy with metformin vs. placebo with pregnancy complications as a primary endpoint.

IS-092

Induction of post term pregnancy – time to reconsider?

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Evidence based medicine have been introduced to the obstetric community for several years.

EBM are integrating knowledge from science, clinical experience and the patients need and knowledge.

There is a overwhelming amount of studies showing that there is an increasing risk of mortality and morbidity when the pregnancy are passing 41 weeks. There are no arguments, for the benefit of the foetus, to be in the intrauterine environment, when the pregnancy is post term.

The discussion in the Nordic countries, concerning post term pregnancy, are mainly if the women should be offered the possibility of induction or surveillance when the pregnancy have reached 41 + weeks of gestation.

In a RCT done by Heimstad et al, the CS rate was 11% in the induction group and 13% in the monitored group, $p < 0.5$. Operative delivery was 12,6% in the induction group and 10,6% in the monitored group, $p < 0.49$. The active second stage of labour lasted significantly shorter in the induction group.

The RCT showed that the mothers (84%) would prefer induction rather than surveillance if they were to go another pregnancy post term. Only two of five women who had surveillance would prefer this option again.

The evidence is convincing for offering the post term pregnant women induction at 41+ weeks of gestation.

The benefit is avoiding or reducing possible morbidity and mortality for the foetus. The risk is a not significant risk of operative delivery. The last and not at least argument is that the women prefer induction rather than antenatal monitoring.

IS-093

Routine induction of labour at 41 weeks gestation: Nonsensus Consensus

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From the mid 1990s obstetric policies on induction of labour in postterm pregnancy have been influenced by

- The Canadian multicenter trial (Hannah 1992)
- The 1999 Cochrane Review
- The 2006 Cochrane Review

In the Cochrane 2006 Review, the conclusion is that labour induction at 41 completed weeks should be offered to low-risk women. The conclusion is based on six perinatal deaths in the expectant group, none in the induction group. This difference is not statistically significant. Moreover, few or any of the deaths can be attributed to the postterm pregnancy itself, nor could most of them have been avoided by earlier induction. There were no differences between the groups for the number of newborns transferred to the NICU or for Apgar scores < 7 after 5 minutes.

Women from the Canadian multicenter trial make up 60% of the women in the Cochrane Review. This trial has been criticized for methodological flaws.

For these reasons, Norwegian national guidelines do

not follow the recommendations given in the Cochrane Review. The Norwegian guidelines will be presented.

Approximately 1000 inductions would have to be carried out at 41 weeks to avoid one perinatal death in the following week, assuming a causal relationship between the death and the duration of the pregnancy. At 41 weeks, 25% of pregnant women are still undelivered. About 80% of them will give birth in the following week. In a clinic with 5000 deliveries per year, routine induction at 41 weeks will mean 975 extra inductions.

IS-094

Management of post-date pregnancy: Today's evidence

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Objective: The objective of this study was to perform an update of earlier reviews of management of postdate pregnancies with inclusion of the most recent published randomised controlled trial (RCT). We compared perinatal and maternal outcomes between elective induction of labour versus expectant management of pregnancies at 41 weeks and beyond. The primary outcome was perinatal mortality.

Methods: We performed a systematic review and meta-analysis. RCTs and systematic reviews published 1980 to November 19, 2007 were identified in PubMed, CINAHL, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effectiveness (DARE) or PsycINFO database.

Results: We found thirteen trials that fulfilled the inclusion criteria for the meta-analysis. Elective induction of labour was not associated with lower risk of perinatal mortality compared to expectant management (Relative Risk (RR) 0.33; 95% confidence interval (CI) 0.10 to 1.09). Elective induction was associated with a significantly lower rate of meconium aspiration syndrome. (RR 0.43; 95% CI 0.23 to 0.79). More women randomised to expectant management were delivered by caesarean section (RR 0.87; 95% CI 0.80 to 0.96).

Conclusions: This meta-analysis illustrates the problem with rare outcomes such as perinatal mortality. No individual study with an adequate sample size has been published. Neither does a meta-analysis based on the current literature solve this problem. The optimal management of pregnancies at 41 weeks and beyond is thus unknown.

IS-095

Induction of labour or serial antenatal fetal monitoring in post-term pregnancy. A randomised controlled trial

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Objective : To compare induction of labour at gestational age 41 weeks with expectant management in regards to neonatal morbidity, and assess the effect of these managements on mode of delivery and maternal complications. Further, we aimed to explore women's attitudes towards post-term pregnancy and induction of labour, and preferences of post-term pregnancy management.

Methods : Between 2002 and 2004, post-term women with singleton cephalic presentation and no pre-labour rupture of membranes were randomized to induction of labour at 289 days or antenatal fetal surveillance every third day until spontaneous labour. Main outcome measures were neonatal morbidity, operative delivery rates and maternal complications. At inclusion women answered a questionnaire about their attitudes towards post-term pregnancy. This was repeated in a follow-up phone interview 6 months later, including questions about their experiences of labour and perspective for future deliveries.

Results : A total of 508 women entered the study, 254 in each management arm. No differences were observed between the groups with regard to the following outcomes: 5-minute Apgar score < 7, umbilical cord pH < 7, prevalence of cesarean delivery or prevalence of operative vaginal delivery. In the induction group more women had precipitate labors and the duration of second stage of labour was more often less than 15 minutes. In the induction group, contractions were reported as more intense and frequent compared to the monitored group. At 41 weeks, 74% of all women preferred to be induced. In the induction group, 74% of women said they would prefer the same management in future pregnancies, only 38% of women who had serial antenatal monitoring would prefer this option again. The majority (84%) reported a positive labour induction experience.

Conclusions : No differences were found between the induced and monitored groups regarding neonatal

morbidity or mode of delivery, and the outcomes were generally good.

Women preferred induction of labour to serial antenatal monitoring beyond 41 weeks. Labours were shorter, and contractions were reported to be more frequent and intense in the induction group compared with the monitored group. However, their experience with labour induction was positive.

**Free
communications**

WOMENS HEALTH FREE COMMUNICATIONS I

WH1

Hormone Therapy and risk of Myocardial Infarction. Effect modification by concomitant medication for diabetes, hypertension, cholesterol and arrhythmia. A National register study

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Background: The randomized Women Health Initiative Study tested the risk associated with hormone therapy (HT) in a postmenopausal population with large age span and high prevalence of cardiovascular risk factors. Possibly the risk of myocardial infarction associated with HT is modified by present risk factors, however discrepant findings have been found.

Objective: The aim of the study was to assess the association between HT and risk of myocardial infarction (MI), with focus on the influence of age and modification from concomitant intake of medication for diabetes, hypertension, cholesterol and arrhythmia.

Design: We followed all Danish women (n=698,098) aged 51–69 during 1995–2001 free from previous ischemic heart disease or cancer. Based on a central prescription registry, daily updated information on HT and concomitant medication was available. National registries provided information on some potential confounders. By Poisson regression analyses rate ratios (RR) were estimated. From the National Registries 4,947 incident MI were identified.

Results: Compared to never users, age stratified RR in women on HT 51–54, 55–59, 60–64 and 65–69 years old were 1.24(1.02–1.51), 0.96(0.82–1.12), 1.11(0.97–1.27) and 0.92(0.80–1.06) respectively. Users of hormones more often used anti-hypertensives but less often anti-diabetics. There were no significant interactions between use of hormones and medication for diabetes and cardiovascular disease.

Conclusion: In a large National cohort study we found a slightly elevated risk of MI in women between 51 and 54 years old, possibly due to missing information about menopausal status. We found no indication that concomitant intake of medication for diabetes and cardiovascular disease modify the association.

WH2

Prevalence of psychological, physical and sexual abuse in a national study in young men and women in Sweden

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Background: WHO has stated that violence is a global public health problem. The prevalence of violence among women has been investigated in several studies, but little is known about the prevalence in young men and women. A Nordic validated questionnaire, the Norvold abuse questionnaire, has been used in several studies in adult women.

Objective: To study lifetime- and 1-year-prevalence of psychological, physical and sexual violence among adolescents visiting youth health centres in Sweden.

Methods: 2250 women and 920 men, aged 15–23 years, attending nine youth health centres in Sweden have answered the Norvold abuse questionnaire. The 10 questions about abuse include detailed questions about psychological, physical and sexual abuse, allowing rough classification from mild to severe abuse.

Results: Taken together psychological violence was more common among young women while physical violence was more prevalent among young men. Whereas 18.4% (CI 16.8–20.0) of the women had ever been exposed to the most severe form of psychological abuse (i.e. death threats), 20.0% (CI 17.4–22.6) of the men had ever been exposed to the most severe form of physical violence. The 1-year-prevalence for young men of mild, moderate or severe physical violence was 27.3% (CI 24.4–30.2), corresponding figures for young women was 18.0% (CI 16.5–19.6). Sexual violence was uncommon among young men while 14.6% (CI 3.1–16.6) of the women had ever been exposed to penetrating sexual violence.

Conclusion: The prevalence of all sorts of violence among young people visiting youth health centres in Sweden was surprisingly high and must be taken into serious consideration.

Risk consumption of alcohol among students in secondary schools exposed to emotional, physical and sexual violence

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Background: Violence is a global public health problem. Few studies have focused on the prevalence in young women and men and very few on the association with consumption of alcohol. Norvold abuse questionnaire has been validated for exposure to emotional, physical and sexual violence and AUDIT to estimate risk alcohol drinking habits.

Objective: To investigate if students exposed to violence have an increased OR for risk consumption of alcohol compared to unexposed students.

Methods: In secondary schools in a Swedish town 1621 girls and 1610 boys (79%) participated in a study. The Norvold abuse questionnaire and the three questions on risk consumption in AUDIT were used.

Results: The prevalence of different forms of violence was high. Risk consumption of alcohol among all students was equal for girls and boys (39 and 38%). Lifetime severe emotional violence was associated with an increased OR for risk consumption among girls, OR 1.7 (CI 1.3–2.3) but not among boys. Lifetime severe physical violence was associated with an increased OR for both girls, 1.8 (CI 1.2–2.6) and boys, OR 2.4 (CI 1.7–3.3). For girls who had ever experienced the most severe form of sexual violence the OR for risk consumption was 2.5 (CI 1.8–3.5) with corresponding figures for boys 3.0 (CI 1.1–8.2).

Conclusion: Emotional violence was associated with an increased OR for risk consumption of alcohol among girls but not boys, whereas physical and sexual violence was associated with increased OR for risk consumption for both girls and boys.

Gynecologic fistula following sexual violence

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Background: During the last 10 years of war in east Congo 3.9 mill have been killed. >40000 women were raped in 2006, and traumatic gynecologic fistulas (TGF) are reported to be frequent.

Objective: Assess the magnitude and characteristics of TGF at a fistula reference centre.

Methods: Retrospective analysis of available recordings for all fistula cases operated in 2006 and 2007. Cases claimed to be caused by rape/sexual violence were compared with those caused by obstructed labour.

Results: 18 (3.4%) of 526 fistulas were considered to be TGF. Three groups:

- I. Direct causal relationship, 5 cases (1%). In two girls, aged 3 and 13, foreign objects were used. Three were gang raped (>5 men), one three weeks post cesarean.
- II. Indirect relationship, 8 women. All were raped in pregnancy and got either mid-trimester abortion (2) or birth of a premature, stillborn baby (6). Instrumental and/or manual interventions lead to iatrogenic fistulas. No signs of obstructed labour. Traumatic placental abruption with fetal death is supposed to be the cause.
- III. Circumstance relationship, 5 cases. Four of these were young girls living as sex slaves in the forest, primiparae and having obstructed labour at term. These are causally obstetric fistulas but related to the abduction and sexual assaults.

Conclusions: TGF is rare, even in a conflict area. The care of these victims is demanding as both rape and fistula have serious physical, psychological and social consequences.

WH5

Injury documentation, forensic sampling and legal outcome in police reported sexual assaults of adult women

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Background: Victims of sexual assaults are offered a forensic gynaecological examination. Physical findings have been linked to outcomes of legal proceedings. However, results are conflicting. Little is known about the impact of documentation and the use of forensic sampling on court proceedings in the Nordic countries.

Objective and Hypotheses: The main objective is to assess whether the documentation of injuries and forensic sampling in sexual assault cases of adult women, impacts whether or not charges are filed in a region of Norway.

Material/Method: We analyzed all police reported cases of adult women who underwent a medical forensic examination at the Sexual Assault Care Centre, at St. Olavs Hospital, Norway, between 1997 and 2003. Information on analyses of forensic samplings and legal outcomes was extracted from police reports. Details about injuries were collected from the patients' medical journals.

Results: Of the 103 cases, anogenital injury was observed in 21 cases, non-genital findings in 52, and forensic samples were analyzed in 29. Charges were filed in 18 and convictions secured in 15 cases. Documentation of non-genital injuries was significantly associated with charges being filed ($p < .05$), while documentation of anogenital injuries was not. In cases where forensic samples were analyzed, significantly more cases were brought to court ($p < .001$).

Conclusion: Significantly more offenders were charged when the police had results from forensic samples and when victims had non-genital findings. Forensic gynaecological examinations, including accurate forensic samplings, are important, as well as rigorous documentation of injuries in cases of sexual assaults.

WH6

Chlamydia trachomatis seroprevalence rates in Finland over two decades

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Objectives: Chlamydia trachomatis is the most common bacterial cause of sexually transmitted infections. The rates of chlamydial genital infections are rising suggesting that prevention efforts have failed. We studied *C. trachomatis* seroprevalence and incidence rates in Finland over time.

Methods: A random sample of 8,000 women with two consecutive pregnancies within five years was selected from the population based Finnish Maternity Cohort serum bank and stratified by calendar year and age. *C. trachomatis* IgG antibodies were determined using standard peptide-ELISA (AniLabsystems, Helsinki, Finland). *C. trachomatis* incidence data was obtained from the National Public Health Institute which receives notifications from physicians and since 1995 from laboratories. *C. trachomatis* incidence rates per 10,000 person-years were extracted in three age group of women (15–19, 20–24, 25–29) during four different time periods between 1995–2006.

Results: A decreasing seroprevalence trend from 1983 to 2003 was seen in the age group under 23 (from 18.8% to 9.2%) and 23–28 (from 18.2% to 12.6%). On the other hand, reported *C. trachomatis* rates increased in all age groups since 1995. The rates were highest in 20–24-year-olds with 1.5-fold increase from 140 per 10000 in 1995–1997 to 203 in 2004–2006. In the youngest age group, the rate increased 1.6-fold. The rates were lower in the age group 25–29 but showed a moderate 1.3-fold increase from 57 to 75.

Conclusion: Consistent decreasing *C. trachomatis* seroprevalence trend over two decades was found in fertile-aged women. The discrepancy between population based seroprevalence rates and rates based on laboratory reports warrants further investigation.

Sexuality, fertility and outcome of pregnancies in adult women with congenital adrenal hyperplasia due to 21-hydroxylase deficiency

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A follow up study in Sweden evaluated the medical, psychological and sexual circumstances of 62 adult CAH women compared to 62 age-matched healthy controls.

Methods: Semistructured interviews were performed in cases and controls and a gynecologic examination was performed in cases. Medical records of treatment including earlier surgery, fertility and outcome of pregnancies were analysed and related to the severity of the disease and the mutation spectrum.

Results: Mean age of the women was 30 years (18–63). Twenty-nine women had salt wasting, 27 simple virilizing and 6 non-classical CAH. Forty-nine women with CAH had undergone reconstructive genital surgery one or several times during early childhood and/or at puberty. Fewer cases than controls were living in heterosexual relations, in particular women with more severe mutations. Former surgery negatively influenced sex life in adulthood. Fewer patients had attempted pregnancy and fewer had born children; twenty-five children were born to CAH women and 54 to controls. Pregnancies were normal except for an increase in gestational diabetes. Outcome of children was excellent and similar to controls. No virilization or malformations were seen. Sex ratio of the offspring differed significantly; 25% boys in the CAH group and 56% in the controls. CAH women had more perimenopausal morbidity than controls.

Conclusion: Type of mutation and operative procedures affects quality of life in adult women with CAH. Pregnancy and delivery rates are reduced compared to controls, mainly due to psychosocial reasons. Outcome of children did not differ from controls

PRENATAL DIAGNOSIS FREE COMMUNICATIONS II

PD1

Invasive prenatal diagnosis in Denmark 2002–2006

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In 2004 the Danish National Health Board decided to recommend routine ultrasound (US) in week 12 with nuchal translucency measurement, combined with double biochemical test to all pregnant women. Those who were found to have a risk of trisomy 21 higher than 1:300 at the time of screening were thereafter offered chorionic villus sampling (CVS) or amniocentesis (AC).

Aim: To explore the change in invasive prenatal diagnostic practice in Denmark during the period 2002–2006.

Material and methods: The study was registry based linking data from two national databases: The Danish Central Cytogenetic Registry collecting all invasive prenatal procedures and diagnoses and The National Registry of Patients (NRP) collecting discharge diagnoses and prenatal procedures from all Danish hospitals.

Results: The number of pregnancies with an invasive prenatal procedure decreased from 6,561 in 2002 to 3,103 in 2006 or with 52.7%. The proportion of CVS increased from 51% to 69% during the same five years, and the proportion of women below 35 years among those undergoing invasive procedures increased from 25% to 52%.

Conclusion: By offering prenatal screening to all pregnant women and focusing invasive prenatal diagnosis we have halved the number of invasive procedures.

PD2

Knowledge and understanding of prenatal screening and testing before and after the introduction of information booklet

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Objective: Pregnant women considering prenatal screening need to have access to accurate information, facilitating informed choice. Uniform information about prenatal screening and testing was not available in Iceland prior to this study. The study aim was to assess general knowledge about prenatal screening and diagnosis among pregnant women attending their first antenatal visit.

Material and methods: An information booklet was introduced as a part of this study. We compared the difference in knowledge and understanding between pregnant women in the intervention group (having access to the information booklet and normal care) (n=142) and women in the control group (normal care) (n= 237).

Results: Women were recruited from five antenatal clinics in Iceland. The age distribution, experience and education of participants were in accordance with the general population. Overall, 63% wanted information from their midwives and 31.7% from a doctor. Most had received information from their gynaecologist (53%) and friends (40%). The majority (60%) wanted both verbal and written information. The intervention group showed better knowledge when asked to explain the tests in their own words (p<0.001), but no significant difference was detected between groups in description of methods used in prenatal screening. When asked about specific disorders (trisomies 13 and 18) women in the intervention group were more knowledgeable (p=.001).

Conclusion: We conclude that Icelandic women have a good basic knowledge of prenatal screening but want more information. There is a need for a better education on specific aspects of prenatal screening and diagnosis for women attending their first antenatal visit.

Improved performance of first-trimester screening for trisomy 21 with the double test taken before a gestational age of 10 weeks

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Background: Previous studies have shown that the variation of PAPP-A is more pronounced earlier in pregnancy, whereas free b-hCG possibly has the opposite characteristic. We hypothesized that taking the double test before 10+0 gestational weeks would be as efficient as taking it after 10+0 weeks.

Objective: To evaluate, if there was a difference in the performance of the screening for trisomy 21, when the double test was taken before or after 10+0 gestational weeks.

Methods: The study included all 96 trisomy 21 cases from January 2004 to December 2007, in a screening program where the double test was measured in gestational week 8+0 – 13+6 and the nuchal translucency was measured in week 11+3 – 13+6.

Results: 86 of the 96 cases were detected in the screening programme, resulting in a detection rate at 90%. Of the 53 who had the double test taken before 10+0 weeks, there were no missed cases (detection rate = 100%) and of the 43 who had the double test taken after 10+0 weeks, there were 10 missed cases (detection rate = 77%). The difference in the detection rates was significant ($p=0.0007$).

There was no difference in the false positive rates or the median maternal age between the two groups, therefore this could not explain our results.

Conclusion: The detection rate for the pregnancies with the double test taken early in pregnancy (< 10+0 weeks), was significantly higher than the detection rate for those having the double test taken later in pregnancy ($\geq 10+0$ weeks).

First trimester screening in IVF/ICSI pregnancies: The significance of gestational dating by oocyte retrieval or crown rump length

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Objectives: To evaluate whether determination of gestational age (GA) by either date of oocyte aspiration (DOA) or crown rump length (CRL) for first trimester screening influences the distribution of serum and sonographic markers and thereby potentially the performance of first trimester screening for chromosomal abnormalities.

Methods: GA was calculated using either DOA or CRL at blood sampling and nuchal translucency (NT) measurement in 729 singleton pregnancies conceived by IVF or ICSI. Weight corrected log MoM marker distributions specific for IVF pregnancy were established using multiple log-regression and compared.

Results: The GA determined by CRL was significantly, albeit slightly, larger with a mean difference of 1.50 days (SD: 2.4 days) than GA determined by DOA ($p<0.001$). Log MoM distributions of free β -hCG and NT showed that CRL GA dating resulted in significantly, albeit slightly, higher mean log MoM values compared to DOA dating. The reverse was the case for mean log MoM PAPP-A. The standard deviations were similar in CRL and DOA GA dating. Estimated by Monte Carlo simulation the use of DOA or CRL for GA dating does not appreciably influence the performance of first trimester screening

Conclusion: In conclusion, we have shown that DOA and CRL are equivalent when calculating GA for first trimester combined screening. However the correct method of GA dating for other purposes (e.g. estimated time of delivery) in IVF/ICSI pregnancies is still an open question.

PD5

ADAM12 is an efficient first trimester maternal serum marker for Down syndrome

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Background: ADAM12 is a glycoprotein synthesised by placenta. ADAM12 has been reported to be a very discriminating first trimester maternal serum marker for foetal Down syndrome. We examined the potential of ADAM12 to improve the classical first trimester biochemical screening based on determination of PAPP-A and hCGbeta in week 8–14. Furthermore, we examined the potential of ADAM12 in reducing the false positive rate of combined serum and ultrasound (nuchal translucency, NT) screening (CUB) for Down syndrome.

Materials and Methods: Serum samples from 503 pregnant women were obtained consecutively from samples referred for biochemical screening in week 8–14. Serum samples from pregnancies with a DS fetus (n = 28) were retrieved from the Prenatal Screening Registry Biobank at Statens Serum Institut, Copenhagen. ADAM 12 was determined using a second generation AutoDelfia ADAM12 Research kit (Perkin Elmer, Finland). The screening performance of ADAM12 alone and in combination with other markers was modelled.

Results: ADAM12 was significantly reduced in DS pregnancies, with a mean log10MoM of -0.1621 (SD: 0.2170), p = 0.00005. The reduction was more marked in DS pregnancies prior to week 10. The use of ADAM12 resulted in an increase of the PAPP-A+hCGbeta screening detection rate (DR) for Down syndrome from 59% to 68% for a false positive rate (FPR) of 3%. When ADAM12 was used with CUB screening a reduction of FPR from 9% to 6% was found for a fixed DR of 91%.

Conclusion: ADAM12 is an efficient maternal serum first trimester marker for foetal DS.

PD6

A new population based term prediction method – evaluation of the FL-based predictions

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Background: Term prediction has traditionally been done with indirect methods, implying that gestational age and a date for the LMP are estimated, mainly on the basis of the biparietal diameter (BPD) measurement. Measuring femur length (FL) appears to give valuable additional information, and FL-based term prediction is also a reasonable alternative when an optimal BPD-measurement is unachievable. A new direct prediction method, eSnurra, is a population based model, including 40,000 ultrasound examinations. eSnurra calculates the median remaining time of pregnancy and is LMP-independent.

Objective: The study was done to evaluate eSnurra on FL-measurements.

Methods: At Stavanger University Hospital, we included 8800 fetal FL-measurements from singleton pregnant women, whose fetus had a BPD in the range 38–60 mm. FL-measurements from the routine scan were applied to predict term according to eSnurra. In the evaluation of the quality of the prediction we assessed these parameters: median difference between the true and predicted date of delivery (bias), proportion of births within ± 14 days of the predicted day, and proportions of preterm (<259 days) and postterm (>295 days) deliveries.

Results: The analyses show that eSnurra performs precisely over the full range of inclusion. The median bias was -0.48 days, and 86.1% of the births occurred within ± 14 days. 4.8% delivered preterm and 3.4% postterm.

Conclusion: Our study confirms that the population based model is robust and performs equally well on a population different from the one used to develop the method. Given equal measurement practice, the method should be applicable nationwide.

Neonatal alloimmune thrombocytopenia (NAIT) in Norway: Under diagnosed with non-screening versus a general screening program. Maternal anti-HLA class 1 antibodies as cause of neonatal alloimmune thrombocytopenia (NAIT) – no longer a myth?

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Background: A recent Norwegian study concludes that screening for NAIT can be cost effective, but implementation of a national screening program is still under debate. In a non-screening situation, anti-HLA class I antibodies are often found in samples analysed on clinical indication. Case reports suggest a causative role of anti-HLA class 1 antibodies in NAIT. However, the association between NAIT and maternal HLA antibodies remains unclear.

Objective: To describe the detection rate for NAIT with focus on the possible relation between maternal HLA antibodies and NAIT.

Methods: We studied 546 cases of suspected NAIT during a 13 year period. The expected number of NAIT was calculated from a recent Norwegian screening study. Detection of anti-HLA class 1 antibodies was done by quantitative ELISA (MAIPA). Optical density (OD) was used to estimate antibody level.

Results: We found 87 cases of NAIT due to anti-HPA1a antibodies, corresponding to 7.8 cases per year. With a NAIT screening program, we expect to detect 52 cases per year. Maternal HLA antibodies were found in 40.7% of all 546 cases, which is significantly higher than the reported 30% prevalence of HLA-antibodies. Neonatal platelet counts was significantly lower in cases where OD for HLA antibodies was high (> 2.5) compared with cases where OD was low-to-moderate ($p = 0.047$, $n = 61$).

Conclusion: The detection rate of NAIT in Norway is only 15% of expected cases without a screening program. Maternal anti-HLA class 1 antibodies as a tentative cause of NAIT deserve further investigation.

Prenatal ultrasound and childhood brain tumours

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Background: An annual increase of childhood brain tumour has been observed the last 30 years, still the aetiology is unclear. During the same time period, prenatal ultrasound scanning has been introduced worldwide.

Objective and hypotheses: The aim with this population based case control study was to analyze the association of prenatal ultrasound and childhood brain tumours according to histological subtype.

Methods: All children, born in Sweden between 1975 and 1984 were eligible for the study. Cases were children, diagnosed with brain tumour before 15 years of age and included in the Swedish Cancer Register. For each case, one control was randomly selected from the Medical Birth Register. Exposure data on ultrasound was blindly extracted from antenatal medical records. Additional information on maternal reproductive history was received from the Medical Birth Register. We used logistic regression to assess risks of childhood brain tumour.

Results: 512 children with brain tumour and 524 healthy controls were included in the final analyses. We found no overall increased risk for childhood brain tumour after prenatal ultrasound exposure (adjusted odds ratio [OR] = 1.00, 95% CI 0.77–1.29). There were only minor differences between the risk estimates for the separate histological subgroups (astrocytoma high/low grade, PNET, ependymoma and germ cell tumour). Number of examinations or gestational age at exposure had no substantial impact on the results.

Conclusion: We did not find any increased risk of childhood brain tumours after exposure to prenatal ultrasound.

ONCOLOGY. FREE COMMUNICATIONS III

ON1

Breast cancer risk in postmenopausal women using estrogen-progestin therapy

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Aim: To evaluate the risk of breast cancer in Finnish women using estrogen-progestin therapy (EPT).

Methods: Women over 50 years using EPT for at least 6 months during 1994–2005 (n = 221,551) were identified from the national Medical Reimbursement Register and followed-up for breast cancer incidence through the Finnish Cancer Registry to the end of 2005.

Results: The use of EPT for 3–5 years was accompanied by an increased incidence of breast cancer compared to the national average: the standardized incidence ratio (SIR) was 1.31; 95% confidence interval 1.20–1.42, and it further elevated to 2.07 (1.84–2.30) after 10 years of use. Continuous use of progestin for ≥ 5 years was accompanied by higher risk (2.44; 2.17–2.72) than the sequential use (1.78; 1.64–1.90). Oral and transdermal EPT use showed similar risk. Norethisteroneacetate (NETA) was accompanied by higher risk (2.03; 1.88–2.18) than medroxyprogesterone acetate (MPA) (1.64; 1.49–1.79) after 5 years of use, while dydrogesterone was not associated with an increased risk. The risk of both lobular and ductal cancer showed an increase in EPT users being higher for lobular type and an increase in lobular type was seen in ≤ 3 years of use (1.35; 1.18–1.53). The risks of localized breast cancer and cancer spread to regional nodes increased similarly.

Conclusion: Use of EPT is accompanied by a significant excess in the risk of breast cancer already within the first three years of exposure. Continuous use carries a higher risk than sequential use, and NETA appears to expose to highest risk.

ON2

HPV genotype distribution and E6/E7 mRNA expression in Norwegian women with cervical neoplasia

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Objective: To compare the prevalence of high-risk HPV in women with high-grade cervical neoplasia (CIN2+) using three different HPV tests, and to study correlation between HPV-testresult and histology grade.

Methods: We included 643 Norwegian women with histological verified CIN2+ (CIN2 in 21%, CIN3/ACIS in 77% and invasive carcinoma in 2%). HPV was detected with: 1) the L1 PCR test AMPLICOR (Roche) which detects DNA from 13 high-risk HPV-types 2) the L1 based PCR test Linear Array (LA)(Roche) which differentiates 37 HPV-genotypes and 3) PreTect HPV-Proofer (Norchip AS) which detects E6/E7 mRNA full-length transcripts from HPV 16, 18, 31, 33 and 45.

Results: High-risk HPV was detected in 97% (639/643); more often by AMPLICOR than by HPV-Proofer (96% vs. 64%, $p < 0.001$). With LA 87% tested positive and 34 different genotypes were detected. HPV16 was most prevalent (51%), followed by HPV31, 33, 52, 18, 51, 58, 45, 39, 56, 35 and 59. With HPV-Proofer, HPV16 was most prevalent (66%) followed by HPV33, 45, 18 and 31. Only HPV-Proofer became more often positive with increasing severity of the neoplasia; E6/E7 mRNA was expressed in 50% of CIN2, in 67% of CIN3/ACIS and in 77% of invasive carcinomas ($p < 0.001$).

Conclusion: High-risk HPV was detected in 97% of women with CIN2+ lesions. AMPLICOR was positive in 96%, LA in 87% and HPV-Proofer in 64%. HPV16/18 was found in 59% of the women. RNA testing correlated better with severity of the lesion and may be a useful biomarker for risk evaluation of progression to cervical carcinoma.

Framingham risk score and the metabolic syndrome in epithelial ovarian cancer survivors: a controlled observational study

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Background: Bilateral oophorectomy has been associated with increased risk of coronary heart disease (CHD) and metabolic syndrome, however, the CHD risk of women treated with oophorectomy for epithelial ovarian cancer has not been studied previously.

Aim: To compare the Framingham risk score and the risk of metabolic syndrome in epithelial ovarian cancer survivors (EOCSs) with women from the general population.

Methods: Among 287 EOCSs treated between 1979 and 2003 and alive in 2004, within standard protocols at the Norwegian Radium Hospital, 189 (66%) participated. Self reported data on demography and morbidity were collected and physical assessments and laboratory measures were obtained. Controls were drawn among women who participated in the Health Study of Nord-Trøndelag County (HUNT-2 study) with fasting blood samples. The Framingham risk score assessing the 10-year risk of CHD was calculated and the metabolic syndrome was defined according to both the International Diabetes Federation (IDF) and 2005 ATP III definitions.

Results: EOCSs had significant increased risk of metabolic syndrome (odds ratio 1.7, 95%CI 1.1–2.8), but not significant increased Framingham risk >10% (odds ratio 0.4, 95%CI 0.2–1.1).

Since the EOCS and control group were not systematically matched for age or other lifestyle and health factors, the risk was analysed using multiple logistic regression with age, education, civil status, smoking, BMI and HRT as additional independent variables. As expected, age, BMI, higher education and civil status showed significant effects in the model.

Conclusion: EOCSs had significant higher risk of metabolic syndrome, but not for developing CHD compared to controls.

Gynecological cancer and urinary incontinence

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Objective: to study urinary incontinence among long-term survivors of gynecological cancer.

Study design: In a population-based cross-sectional design we identified 319 recurrence-free survivors of gynecological cancer and 1276 controls without a history of gynecological cancer. They were all addressed with a 16 pages questionnaire covering issues of quality of life, general health, daily living conditions, natural functions and co-morbidities. After one reminder the response rates were 55% and 41%, respectively, for cases and controls. Urinary incontinence (total, stress, urge and mixed) was in agreement with definitions of the International Continence Society.

Results: Mean relapse-free follow-up time after treatment was 12 years (range 8–17 years) for cases. The prevalence of total, stress, urge and mixed urinary incontinence were 34.3%, 24.0%, 0.8% and 9.5%, respectively. Previous gynecological cancer treatment was not associated with any outcomes of urinary incontinence. Obesity, previous and current use of HRT were associated with total, stress and mixed urinary incontinence whereas increasing parity order was associated with total and stress urinary incontinence. In comparison with single factor analyses, the combination of obesity and parity 2+ had a multiplicative effect on total, stress and mixed incontinence.

Conclusion: Recurrence-free long-term survivors of gynecological cancer are not at increased risk for urinary incontinence.

ON5

Treatment for cervical intraepithelial neoplasia and preterm birth

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Objective: Our goal was to study whether surgical treatment of cervical intraepithelial neoplasia (CIN) is associated with adverse pregnancy outcome, especially preterm birth and subfertility. We also examined the overall trends and risk factors of preterm delivery.

Design: Our study was a register-based retrospective cohort study from Finland. We used the National Medical Birth Register and the Hospital Discharge Register data during 1987–2005.

Main outcome measures: Rate of preterm birth after surgical treatment for CIN. Rate of IVF use in different CIN treatment categories.

Results: Preterm deliveries were classified into moderately preterm (32–36 weeks), very preterm (28–31 weeks) and extremely preterm (less than 28 weeks). Preterm delivery rate increased from 5.1% in the late 1980s to 5.4% in the late 1990s, and then decreased to 5.2% for 2001–05. The proportion of extremely preterm deliveries decreased 12% ($P < 0.01$). The risk factors for preterm birth included multiplicity, elective delivery, primiparity, IVF, maternal smoking, and advanced maternal age.

The risk for preterm birth was increased after any surgical treatment for CIN (RR 1.89, CI 1.75–2.04). The risk was most increased after cervical conizations (RR 1.99, CI 1.81–2.20). Majority of the conizations were laser conizations or loop conizations. IVF births were not increased after conization. IVF and history of CIN treatment increased the risk for preterm birth (RR 3.42, CI 2.18–5.37). However, maternal age and parity explained this.

Conclusion: Preterm delivery rate has not increased in Finland. Any treatment for CIN increases the risk of preterm delivery but not subfertility.

ON6

Human Papillomavirus infection is associated with increased cervical nitric oxide release in the human uterine cervix.

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Background: Human uterine cervix, capable of producing nitric oxide (NO), is frequently infected by human papillomavirus (HPV).

Objective: We studied the relation between cervical NO release and HPV in women.

Methods: Pap smears collected from 297 women were carefully analyzed for typical HPV-changes. Cervical NO release was measured as NO metabolites (NOx) by Griess reaction.

Results: From the 297 women studied 78 had typical signs of HPV infection in Pap smear. This infection was associated with both higher detection rate (89% vs 71%) and higher concentration of NOx (median 22.5 $\mu\text{mol/L}$, 95% CI 14.6–31.9 vs 11.0 $\mu\text{mol/L}$, 95% CI 8.0–16.7) compared to HPV negative group ($P = 0.002$ and $P < 0.001$, respectively), although no significant differences in NOx emerged between various cytological diagnoses. The age, parity, use of oral contraceptives, phase of menstrual cycle, or history of miscarriage or termination of early pregnancy were no factors for HPV-associated increase in the cervical NOx level.

Conclusion: HPV infection is accompanied by the increased release of NO in the human cervix. The significance of this finding remains open but in theory it can be a factor in cervical carcinogenesis.

FETAL SURVEILLANCE

FREE COMMUNICATIONS IV

FS1

Acidaemia at birth related to management of the last two hours of labour

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Objective: Evaluate management of the last two hours of labour in neonates born with acidaemia.

Study population: Out of 28.486 deliveries during 1994–2004, 305 neonates had a pH value < 7.05 in the umbilical artery at birth.

Methods: Case control study. Cases: neonates with an umbilical artery pH < 7.05 and controls: neonates with pH ≥ 7.05 and Apgar score ≥ 7 at five minutes. Obstetric characteristics, fetal heart rate patterns, uterine contraction frequency and oxytocin treatment during the last 2 hours of labour were registered.

Results: In the univariate analysis, ≥ 6 contractions/10 minutes (OR 4.93, 95% CI 3.25–7.49), oxytocin use (OR 2.20 95% CI 1.66–2.92), bearing down ≥ 45 minutes (OR 1.75, 95% CI 1.31–2.34) and occiput posterior position (OR 2.18, 95% CI 1.19–3.9), were significantly associated with acidaemia at birth. In the multivariate analysis, only ≥ 6 contractions/10 minutes (OR 5.33, 95% CI 3.32–8.55) and oxytocin use (OR 1.84 95% CI 1.19–2.83) were associated with acidaemia. Among cases with ≥ 6 contractions/10 minutes, 75% had been treated with oxytocin. Pathological fetal heart rate patterns ≥ 60 minutes occurred in 25.5% of cases and in 8.1% of controls (p < 0.001)

Conclusion: Hyperactive uterine contraction pattern and oxytocin use are the most important risk factors for acidaemia at birth. The higher rate of abnormal FHR patterns ≥ 60 minutes and hyperactive contraction patterns, mostly in combination with oxytocin use, indicate that suboptimal care contributes to acidaemia. Duration of bearing down is less important when uterine contraction frequency has been considered.

FS2

Evaluation and impact of CTG training programmes

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Background: Misinterpretation of pathological CTG tracings is related to birth asphyxia. The analysis of adverse cases in several countries has led to the recommendation that all staff involved in intrapartum care should be given regular CTG training, although knowledge of the impact of such training is limited.

Objective: To study the impact of educational interventions, the literature was reviewed for papers on CTG training. The objectives were to describe educational strategies, evaluation of training programmes and impact of training programmes.

Methods: The Medline database was searched to identify papers on CTG training. The impact of training programmes was analysed using Kirkpatrick's four level approach to evaluation of educational interventions. The Kirkpatrick model operates with four levels: reactions, learning, transfer to educational setting and organisational impact.

Results: Fifteen papers describing and evaluating CTG training programmes were identified. Most papers evaluated on level 1 or/and 2. CTG training has been associated with increased knowledge and interpretive skills, higher interobserver agreement, increased quality of intrapartum care and improved neonatal outcome.

Conclusion: CTG training has been associated with improvement on all Kirkpatrick levels, and might result in improved neonatal outcome. Individual learning does not necessarily have an organisational impact, and it is important to consider other factors in the organisation that might affect the outcome.

FS3

Neonatal resuscitation of asphyctic infants due to obstetrical malpractice in conjunction with labour in Sweden 1990–2005

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Objective: To describe neonatal resuscitation of infants born with the most severe asphyxia, caused by malpractice in relation to labour.

Design and setting: A nation-wide descriptive study in Sweden.

Population: All patients claiming for financial compensation because of suspected medical malpractice in relation to labour during 1990–2005.

Method: 472 case records were scrutinised. We included children with CP, stated brain damage before the age of 28 days, gestational age >33 completed gestational weeks, planned vaginal onset of delivery and suspicion of asphyxia due to malpractice in relation to labour.

Main outcome measure: CP or early death caused by asphyxia due to malpractice.

Results: Preliminary results are that 177 infants were considered to suffer from CP or early death caused by asphyxia due to malpractice around labour. Median Apgar score at 5 minutes was 3, indicating that all infants needed immediate extensive resuscitation at birth. The documentation of the resuscitation was generally poor and incomplete. There were insufficient adherences to current guidelines concerning neonatal resuscitation. The most important shortcomings were delayed start of excessive resuscitation in 19 infants, lack of satisfactory ventilation in 79 infants and, not timely interruption of resuscitation in 38 infants.

Conclusion: There are possibilities of improvement in the immediate neonatal resuscitation within our labour units. The most important contributions may be improving compliance of guidelines concerning ventilation and paging for early arrival of skilled personnel in cases of imminent asphyxia. In addition, documentation of neonatal resuscitation must be improved to enable evaluation with certainty.

FS4

Obstetricians' choice of delivery method in ambiguous cases: Is it influenced by risk attitude?

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Objective: The aim of this study was to test the hypothesis that obstetricians' choice of delivery method is influenced by their risk attitude and perceived risk of complaints and malpractice litigation.

Study design: The choice of delivery method in ambiguous cases was studied in a nationwide survey of Norwegian obstetricians (n=716, response rate 71%) using clinical scenarios. The risk attitude was measured by six items from the Jackson Personality Inventory-Revised.

Results: The proportion of obstetricians consenting to the cesarean request varied both within and across the scenarios. The perceived risk of complaints and malpractice litigation was a clear determinant of obstetricians' choice of cesarean in all of the clinical scenarios, while no impact was observed for risk attitude.

Conclusion: Obstetricians' judgments about cesarean request in ambiguous clinical cases vary considerably. Perceived risk of complaints and litigation is associated with compliance in the requested cesarean.

FS5

Implementation of new intra partum fetal monitoring in a Danish Hospital: Impact on the rate of operative delivery and neonatal outcome

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Background: Several randomized controlled trials (RCT) have reported a decrease of operative delivery rate along with a decrease of intra partum fetal asphyxia with the use of intra partum cardiotocography (CTG) in

combination with automatic analysis of the fetal ECG (STAN). The method was implemented in October 2004 at Rigshospitalet, the University Hospital of Copenhagen.

Methods: Data from all deliveries with a gestational age of 36 completed weeks or more and a fetus in cephalic presentation were included. The rates of operative delivery and umbilical cord pH were studied from 2005–2007 and compared with rates before the introduction of the method.

Results: Between 2005–2007 the number of deliveries increased from 2633/year to 3129/year. Use of STAN for fetal monitoring during labour increased from 22.3% in 2005 to 42.9% in 2007. During the described period, a 22% decrease was observed in the total rate of emergency caesarean section in the studied population. Operative delivery with vacuum extraction for fetal distress decreased by 6%. A 16% decrease of umbilical artery pH < 7,05 was observed during the same period despite a decrease in the use of scalp sampling.

Conclusion: Our results confirm that use of STAN for fetal monitoring during labour, reduces the rate of acute caesarean section without increasing the risk for intrapartum asphyxia.

FS6

Clinical experience with CTG and ST analysis of the fetal electrocardiogram – low cord metabolic acidosis rate at a tertiary care centre

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Background: Intrapartum surveillance with CTG and ST analysis of the fetal ECG (STAN) reduced the frequency of cord metabolic acidosis at birth and operative delivery for fetal distress in two randomized controlled trials.

Objective: To evaluate delivery mode and neonatal outcome after STAN monitoring.

Hypotheses: Intrapartum surveillance with STAN should result in a low frequency of cord artery metabolic acidosis at birth.

Methods: Retrospective study for the period 01.01.2004–31.12.2006, with data retrieved from maternal and neonatal medical records, and from The Medical Birth Registry of Norway. Inclusion criteria: Singleton pregnancies, gestational age \geq 36 weeks, STAN monitoring. Exclusion criteria: twin pregnancies.

Results: During the study period 3236 (22%) of 14804 deliveries were selected to monitoring with STAN. Of those a total of 1159 (37%) had an operative delivery. 247 newborns (7.6%) were transferred to the neonatal intensive care unit. Acid base data from the umbilical artery was available in 2586 (80%) cases. There was a total of 21 (0.8%) cases of metabolic acidosis at birth,

defined as pH<7.05 and base deficit > 12 mmol/l. In 17/21 cases STAN clinical guidelines indicated intervention at median 24 (8–150) minutes prior to delivery. There were four cases of perinatal death (diaphragmatic hernia, N=1; sepsis, N=2; unknown, N=1). 7/3236 neonates had seizures, but only one of those met the criteria for intrapartum asphyxia.

Conclusion: The frequency of metabolic acidosis at birth was low. Provided normal signal quality, STAN clinical guidelines indicated intervention in all cases of metabolic acidosis.

FS7

ST analysis and prevention of hypoxia – the Turku experience

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Background: The aim of intrapartum fetal monitoring is to prevent the occurrence of oxygen deficiency. ST analysis has emerged as an adjunct to CTG providing continuous information on fetal reactions to hypoxia. Indications for using ST analysis may vary, our approach has been to use it in connection with non-reassuring FHR patterns, bringing down the need for scalp-pH sampling.

Objective: As a part of a prospective observational study, analyse the occurrence of metabolic acidosis in the Turku University Hospital cohort monitored with CTG+ST between 2001 and 2007.

Methods: Of a total of 25638 deliveries, 4400 (17.2%) were monitored with CTG+ST. More than 98% of STAN recordings had cord acid base data available, pH<7.05 and BDecf >12.0 mmol/L was used to define metabolic acidosis.

Results: During the last three years and 2040 deliveries monitored with CTG + ST we had only one case with metabolic acidosis (VE for CTG+ST changes, normal neonatal outcome). In the total population, the rate of acidosis (cord artery pH <7.05) have shown a steady decline from 1.5% to 0.7% (OR 0.43, 95%CI 0.27–0.69).

FBS has become rarer and operative interventions have not increased.

Conclusion: ST analysis of the fetal ECG as an adjunct to CTG has over the last 3 years eradicated intrapartum hypoxia as defined by cord metabolic acidosis. In the total population the general acidosis rate has been reduced by more than 50%. These findings meet with our expectations.

FS8

Adverse outcome in relation to use of STAN

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The fetal monitoring method STAN (cardiotocography [CTG] plus ST waveform analysis of fetal electrocardiogram [ECG]) has been widely introduced after randomized controlled trials. A Swedish debate around limitations and relation to adverse outcome has created caution in introducing the method. No national registry of neonatal adverse outcome related to labour exists in Sweden. However, negligence in fetal monitoring has been reported to occur in a majority of pregnancies involved in Swedish patient claims. The aim of our study was to investigate adverse cases in relation to intrapartum monitoring using STAN.

Methodology: All cases from Sweden reported to Neoventa Medical from 2000 to 2001 were analysed retrospectively.

Results: In 65% no antenatal known risk factor was present except duration of pregnancy exceeding 41 weeks (60%). Meconium staining was present in 40% of the cases and in 25%, pyrexia developed during labour. Onset of adverse events occurred during first stage in 65% of the cases.

The absence of ST event was significantly correlated to a length of registration shorter than 100 minutes, absence of variability or unstable heart rate from start of registration, uterine rupture and antenatal brain damage.

Conclusion: Short registration in relation to use of STAN is significantly correlated to adverse outcome.

FS9

Fetal monitoring with CTG in combination with ST analysis vs. CTG alone – a cost-effectiveness analysis

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Background: Oxygen deficiency in the fetus during birth may result in neurological damages leading to cerebral palsy or death. In order to detect fetuses suffering from oxygen deficiency, fetal monitoring with a scalp electrode is used in high-risk deliveries. Cardiotocography (CTG) is currently the most common form of internal fetal monitoring. ST analysis complements CTG with electrocardiography (ECG) of the fetal heart and performs an analysis of the ST interval in the ECG complex. CTG in combination with ST analysis associated with higher equipment costs than CTG alone but has also been seen to reduce the number of fetuses with metabolic acidosis.

Objective: To, in term high-risk deliveries, determine the long-term effects on costs and health of using either CTG in combination with ST analysis or CTG alone.

Methods: The costs and effects of the two interventions were compared in a decision model. Estimates for probabilities, costs and QALY (quality-adjusted life-year) weights were derived from the literature. The connection between metabolic acidosis and cerebral palsy was modelled in order to capture the long-term consequences of the interventions.

Results: The results showed that CTG in combination with ST analysis contributed to a reduction in cases of cerebral palsy. Thus, the use of this method also resulted in savings of costs and gains in QALYs.

Conclusion: When used in term high-risk deliveries and compared to the use of CTG alone, the use of CTG in combination with ST analysis is associated with savings in costs and gains in QALYs.

OBSTETRICS

– FOCUS ON THE MOTHER

FREE COMMUNICATIONS V

OM1

Non invasive observation and presentation of the propagation of uterine electrical activity during labor

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Background: Continuous efforts have been made to find new markers for the prediction of preterm labor. In the work presented we focus on the propagation of uterine electrical activity (electrohysterogram, EHG) in active labor.

Materials and methods: 12 bipolar EHG were recorded composing a 3x4 matrix. For each contraction, the instantaneous EHG amplitude is calculated on each channel. We display these signals as an animated map in order to observe directly the propagation electrical activity in the uterus during contractions. The subjects were healthy women in an active phase of spontaneous labour (n=3).

Results: The instantaneous amplitudes show complex activation patterns (AP). Rotating APs were observed. Activity can originate from any of the borders of the matrix. Ascending propagation was observed but that is opposite to the direction generally thought to be dominant in uterine activation.

Discussion: Our results show surprisingly complex features in the propagation of EHG during the active phase of labor. The expected result was that the uterus was activated in a fairly synchronous manner and that it worked as a whole. Efforts to quantitatively analyze these AP are underway. Correlation of the quantitative characteristics of the propagation to the various other parameters relating to effectiveness of labor may give valuable information to help predict preterm labor.

Conclusion: To our knowledge this is the first time the propagation of uterine contractions has been recorded and presented in this form. The results are surprising and may open new avenues of research into the exact mechanisms of uterine contractions.

OM2

Maintenance Therapy (MT) in Preterm Labour (PTL) – first clinical experiences

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Background: Extreme preterm birth (before 28 weeks of gestation) is the major cause of neonatal mortality and morbidity in the developed world. Conventional treatment for PTL is tocolysis up to 48 hours and steroid treatment for lung maturation. We introduced MT (long term tocolysis with the oxytocin receptor antagonist atosiban, antibiotics and NSAID in combination) in a small selected group of patients in extreme PTL with promising results.

Objective and hypothesis: MT in PTL significantly improves neonatal morbidity – and mortality, and hereby reduces huge healthcare costs.

Methods: Women in extreme PTL between 24 and 28 weeks of gestation, who had not delivered within 48 hours, received continuous MT. Prolongation of gestation, neonatal records and both short- and long term morbidity data was analysed. Data is retrospectively compared to a well-defined corresponding control group. The improvement in morbidity is analysed through health economics- and technology assessment (HTA)

Results: Ten women with fifteen fetuses received MT. Mean treatment duration was 96 (53–214) hours. Mean prolongation of gestation was 19 (3–77) days. One (triplet) died immediately due to severe prematurity complications. One (twin) developed leucomalacia and cerebral palsy. The remaining 13 children have normal development corresponding to their age at 1 to 2 1/2 years follow up. Data from the comparison with a historical control group is currently undergoing HTA.

Conclusion: the effect of MT in extreme PTL seems more than promising. To enable us to draw final conclusions regarding this effect, we suggest a nordic multicenter based randomised controlled trial.

Ultrasound measurements or Bishop score before induction of labor?

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Objective: The Bishop score remains the gold standard for assessing favourability for induction of labor, but it is a subjective evaluation with limitations. The aims of this prospective study were to relate the components of the Bishop score to corresponding sonographic measurements and to assess predictive values for a successful labor induction.

Methods: In 275 women the fetal head-perineum distance was measured through a transverse transperineal scan, and the cervical length, posterior cervical angle and cervical dilatation through a transvaginal scan. The Bishop score was assessed without knowledge of ultrasound measurements immediately after the scans. Correlation analyses were done, and receiver-operating characteristics (ROC) curves were used for evaluation of the probability of a successful vaginal delivery.

Results: By sonographic assessment the cervix was closed in 219 (80%) of the women compared to 58 (21%) by digital assessment. Spearman's correlation coefficient for digital and ultrasound assessment of cervical length was 0.54 ($p < 0.01$), fetal head decent 0.23 ($p < 0.01$) and cervical position/angle 0.03.

The best predictive factors for a vaginal delivery were digital assessment of cervical dilatation with 61%; 95% CI 51–71% ($p = 0.03$) under the ROC curve area, and a combination of ultrasound measured fetal head-perineum distance, cervical length and cervical angle with 67%; 95% CI 56–77% ($p < 0.01$) under the curve area.

Conclusion: The correlation between ultrasound and digital assessments is weak. None of the factors used alone are good predictors of labor outcome. Combinations of factors improve the prediction.

Risk of Cesarean Section after Induction of Labor in Low Risk Women at Term

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Background: When comparing induction with spontaneous labor at the same gestational age the relative risk (RR) of cesarean section (CS) is almost doubled for the induction group. However, in the clinical situation the women can be either induced or expectantly managed.

Objective: To compare the risk of acute CS in women that had their labour induced at different gestational ages with women that were treated expectantly.

Methods: Data of all term, singleton, cephalic deliveries in women of 20–35 years of age were collected in the Danish Medical Birth Registry from the period 1997–2007. Women with previous CS, CS before birth, CS because of pregnancy problems or medical illnesses were excluded. 448,100 women were eligible for the study.

Results: The overall CS rate for nulliparous women was 12.2% and for multiparous women 2.5%. The risk of acute CS in the induction group was reduced with increasing gestational age and eliminated at 40 weeks for nulliparous and 41 weeks for multiparous women.

Table 1: RR of acute CS after induction of labour in specific weeks compared to expectant management

Nulliparous (N=216.809)

37: RR=1.46 * (1.66–1.29)
38: RR=1.26 * (1.39–1.13)
39: RR=1.13 * (1.24–1.03)
40: RR=1,02 NS (1,08–0,96)
41: RR=0,98 NS (0,92–1,04)

Multiparous (N=231.291)

37: RR=2.20 * (2.77–1.78)
38: RR=1.85 * (2.24–1.53)
39: RR=1.60 * (1.93–1.32)
40: RR=1.28 * (1.54–1.07)
41: RR=0,88 NS (0,75–1,04)

* Significant

Conclusion: Induction at 41 weeks can be carried out without the expense of a higher CS rate in both nulliparous and multiparous women.

Risk indicators for dystocia in nulliparous women

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Background: In nulliparous women, dystocia is the most common obstetric problem and dystocia accounts for most interventions during labour. Only few studies have examined risk factors for dystocia.

Objective: To identify anthropometrical-, life style- and obstetric risk indicators for dystocia in nulliparous women in term spontaneous labour with a singleton infant in cephalic presentation.

Methods: A multi-centre cohort study with prospectively collected data within nine obstetric departments in Denmark. Follow up of 2810 nulliparas using data from self-administered questionnaires supplemented with clinical data-records. Regression analyses were used to estimate risk.

Results: Increasing maternal age, small stature (<160cm), prepregnancy overweight (BMI: 25.0–29.9) and a caffeine intake of 200–299 mg/day were associated with increasing risk of dystocia. No association was found between dystocia and alcohol intake, smoking, night sleep and options for resting during the day. Athletics or heavy gardening > 4 hours per week appeared 'protective' for dystocia whereas intensive physical training was associated with higher risk. The following variables, present at admission to hospital, were associated with dystocia during labour: dilatation of cervix < 4 cm, tense cervix, thick lower segment, fetal head above the inter-spinal diameter, and poor fetal head-to-cervix contact. Birth weight 4000–4499 gr and epidural analgesia were also associated with dystocia.

Conclusion: The influence of some life-style factors indicates that there may be avoidable causes of dystocia opening up avenues for prevention. Clinical findings from vaginal examinations at admission are useful in estimating risk of dystocia. The strongest risk indicator was use of epidural analgesia.

Impaired leukocyte influx and high expression of progesterone receptor (PR) and androgen receptor (AR) in postterm failed induction.

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Background: Postterm pregnancy is associated with increased maternal and fetal risks. Onset of labour is an inflammatory process involving hormones and fetal factors. There is a group of postterm women where induction of labour by prostaglandins fails, resulting in caesarean delivery.

Objective and hypothesis: With the hypothesis that post-term women with failed induction (non-responders) have an inadequate inflammatory response we aimed to investigate stromal parameters involved in the process of cervical ripening and compare them to women with spontaneous deliveries at term (controls) and those with successful inductions postterm (responders).

Methods: Eighteen term controls, 13 responders and 10 non-responders were included in the study. Cervical biopsies were taken and analyzed for the degrading enzymes of the ECM (MMP-8 and MMP-9), steroid hormone receptors (ER, PR and AR) and accumulation of leukocytes (CD45) with real-time PCR and immunohistochemistry.

Results: Influx of leukocytes was strongest in responders, thereafter in controls and significantly lower in non-responders. MMP-9, primarily expressed by leukocytes, showed reduced immunostaining in the group of non-responders, whereas MMP-8 showed a similar tendency ($p=0.07$). The PR mRNA as well as PR and AR protein levels were significantly increased in non-responders as compared to responders.

Conclusion: Lower levels of leukocytes and consequently lower levels of MMP-9, reveals an impaired leukocyte migration and thus an inadequate inflammatory response important for the remodelling of the cervix and normal parturition. Whether the cause is primary or secondary needs to be further studied. The finding of the higher expression of AR in non-responders needs further evaluation.

Postpartum perineal repair performed by midwives: a randomised trial comparing two suture techniques leaving the skin unsutured.

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Background: Perineal trauma is a frequent complication to vaginal delivery and more than 80% of primiparous women sustain injury to the labia, vagina or perineum.

Objective: To compare the continuous suture technique for perineal repair with the inverted, interrupted suturing technique.

Design: A double-blind randomised clinical trial. The study population was 400 healthy primiparous women. Inclusion criteria were 2nd degree perineal laceration or episiotomy and normal singleton vaginal delivery at term.

Outcomes: The primary outcome was perineal pain ten days after delivery. Secondary outcomes were wound healing, patient satisfaction, dyspareunia, need for resuturing, time elapsed during repair and amount of suture material used.

Methods: Structured interviews and systematic assessment of perineal healing were performed by research midwives at 24 to 48 hours, ten days and six months postpartum. Pain and wound healing was evaluated using objective and validated scoring systems.

Results: The follow-up rate was 98% for all postpartum assessments. No difference was reported on perineal pain ten days after delivery. No difference was seen in wound healing, patient satisfaction, dyspareunia or need for resuturing. The continuous suture technique was significantly faster (15 min. vs. 17 min, $p=0.03$) and less suture material was used (1 vs. 2 packets, $p<0.01$).

Conclusion: Interrupted, inverted stitches for perineal repair leaving the skin unsutured appears to be equivalent to the continuous suture technique in relation to the outcome measures. The continuous technique, however, is faster and requires less suture material thus leaving it the more cost-effective of the two techniques evaluated.

Maternal mortality in Denmark 2002–2006

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Background: In Scandinavia regular national enquiries into maternal deaths have not previously been performed. The objective of this study was to define a method for identifying maternal deaths in Denmark, classifying and assessing them, identifying substandard care and generating new knowledge that could contribute to further reduction of deaths.

Methods: Deaths were identified by notification from maternity wards and data from the Danish National Board of Health. Medical records were obtained and a national audit-group including obstetricians and midwives classified and assessed all deaths. A maternal death was defined as the death of a woman while pregnant or within 42 days of the end of pregnancy, and maternal mortality ratio as deaths from direct or indirect causes per 100,000 livebirths.

Results: In 2002–2006 a total of 137 deaths during pregnancy and up to one year after the end of pregnancy were identified. Thirtyfive women died during pregnancy or within 42 days. Of these 26 died from direct or indirect causes, leading to a maternal mortality ratio of 8.0/100.000. If suicides were included as indirect deaths the ratio was 9.0/100.000.

The leading causes of death were cardiac disease, thromboembolism, hypertensive disorders of pregnancy, Streptococcus A infections and suicides. Other causes were amniotic fluid embolism, cerebrovascular haemorrhage, asthma, and diabetes.

Conclusion: The method was valid and usable for future assessments. Feedback to clinicians focused on referrals of cases with cardiac disease, early signs of severe infection, transportation of seriously ill pregnant women, involvement of experts, and maternal resuscitation in pregnancy.

OBSTETRICS

– FOCUS ON THE FETUS

FREE COMMUNICATIONS VI

OF1

Antenatal corticosteroids in preterm infants

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Background: Beneficial effects of antenatal corticosteroids (ACS) have been demonstrated in preterm infants. Trials on postnatal administration of corticosteroids have suggested adverse neurological effects and adverse effects on the developing brain have been reported in animals.

Objectives: To assess the benefits of ACS in clinical settings and to evaluate the occurrence of long-term effects.

Methods: Infants born at weeks 24+0 to 33+6 during 1976 to 1997 were included. Exposure to ACS was evaluated at hospital level. Data on hospital ACS routines was based on pharmacy sales, questionnaires and interviews with obstetricians. Outcomes were obtained from national health registers. Logistic regression was used to assess associations with neonatal death, low Apgar score, IRDS, broncho-pulmonary dysplasia (BPD), intraventricular haemorrhage (IVH), retinopathy of prematurity (ROP), CP and epilepsy.

Results: The cohort included 7827 infants of which 5632 were exposed to ACS. After adjustment, exposed infants had reduced risks of IRDS (OR 0.80, 95%CI 0.70–0.92), late neonatal death (OR 0.86, 95% CI 0.57–1.29), BPD (OR 0.87, 95% CI 0.62–1.22), ROP (OR 0.80, 95%CI 0.48–1.32), IVH (OR 0.93, 95%CI 0.67–1.3) and CP (OR 0.82, 95%CI 0.58–1.15). No effect on epilepsy or low Apgar was seen. After gender stratification, males had a higher risk of epilepsy (OR 1.74, 95%CI 0.85–3.55) than females (OR 0.50, 95%CI 0.25–1.03).

Conclusion: The results confirm the beneficial effect of ACS regarding IRDS in clinical settings. No increased risk of negative long-term outcomes could be established except for an increased risk of epilepsy among male infants.

OF2

Placenta previa – a risk factor for small for gestational age babies. A Danish population based study

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Background: Placenta previa has previously been described as a risk factor for low birth weight. Other studies have suggested, that this relation may be the result only of lower gestational age due to early elective or emergency operative intervention. On this background we decided to conduct the present study.

Objective: To describe the relation between the birth weight in babies of mothers with or without placenta previa with adjustment for gestational age.

Methods: Descriptive population based study using data from the National Patient Register linked with the Medical Birth Register covering all deliveries in Denmark from 2001 to 2006.

Results: In total, 373.562 singleton pregnancies was identified and extracted. Of those 1143 babies was born of mothers with placenta previa. These babies had an increased risk of being small for gestational age (RR = 1.7 (95%CI 1.3–2.2)), compared to the babies born of mothers without placenta previa.

Conclusion: These findings suggests that placenta previa is an independent risk factor for small for gestational age babies. This could be the result of intrauterine growth retardation, due to lower segment placental implantation and placental insufficiency. We believe that these babies should be monitored carefully with ultrasonographic fetal weight assessment during pregnancy.

OF3

Systolic myocardial velocity alterations in the growth retarded fetus

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Objective: Quantification of fetal myocardial velocities using color Doppler myocardial imaging has recently been established, but has not been investigated in fetuses suffering from intrauterine growth retardation (IUGR). The purpose of this study was to obtain and compare basal myocardial velocities of the left and right ventricle in normal and IUGR fetuses.

Methods: 39 ultrasound scans from 21 IUGR fetuses (26+1 to 34+6 gestational weeks) and 35 ultrasound

scans from 8 normal fetuses (18+6 to 39+1 gestational weeks) were included.

Velocity data were acquired from the apical or basal 4-chamber view with a 2x2 mm sample area placed at the basal segment of the ventricular walls. The final exam prior to birth in the IUGR group was compared to normal fetuses at 28 weeks of gestation.

Results: Left TV(S) in normal 28 weeks old fetuses was 3.6 (2.80–4.51)cm/sec (mean (95% CI)) and left TV(S) in growth retarded fetuses with flow class 3b was 1.97 (1.38–2.55)cm/sec. $P = 0.001$.

Right TV(S) in normal 28 weeks old fetuses was 3.93 (3.12–4.73)cm/sec and in IUGR fetuses with flow class 3b it was 4.32 (3.70–5.0)cm/sec. $P = 0.36$.

Discussion: The decrease in left ventricular velocity cannot solely be explained by the reduced size of growth retarded fetuses as the same decrease is not seen in the right ventricle. It can be accounted for by the left ventricle taking a decreased proportion of the cardiac output due to retrograde blood flow in the aortic isthmus and increased resistance in the pulmonary circuit.

OF4

Modifiable determinants of fetal macrosomia. Role of life style related factors

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Background: Newborn macrosomia is associated with both short and long term health risks for the infant, and increases the prevalence of birth complications. Parity, maternal age and gender of the child are known variables that influence fetal growth. The purpose of the present investigation was to evaluate prospectively the contributions of modifiable maternal predictors of fetal macrosomia (34200g) which included life style related factors like nutritional intake, physical activity, and plasma glucose values, besides overweight and pregnancy weight gain.

Methods: Five hundred and fifty-three women were followed through pregnancy. Predictive variables were subjected to univariate and multiple logistic regression analysis. Among these were: body mass index (BMI), weight gain, maternal subcutaneous fat (mm), fasting and 2 hour plasma glucose, self reported physical activity before and during pregnancy, and nutritional intake of macronutrients. Gestational age, parity and gender were also included in the model. All continuous variables were dichotomized, using upper quartile as cut point in most cases.

Results: If physical activity was left out from the analyses, BMI, weight gain, plasma glucose and

gestational age were independent determinants of macrosomia. After including low level of pre-gestational physical activity in the model, we found that this was now a significant determinant of delivering a macrosomic infant with an OR=2.9 (95% CI 1.9, 7.3).

Conclusion: The present study indicates that low level of physical activity pre-gestational adds to the modifiable determinants of newborn macrosomia.

OF5

Perinatal outcome of children born to mothers with thyroid dysfunction. A prospective population-based cohort study

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Background: Maternal thyroid dysfunction is suspected to be associated with several adverse perinatal outcomes, and there is need for knowledge from large population-based studies.

Objective: We evaluated the effect of hormonal and autoimmune-mediated thyroid dysfunction on perinatal outcomes such as perinatal mortality, birth weight and placental weight.

Methods: Prospective population-based Northern Finland Birth Cohort 1986 including 9247 singleton pregnancies and their serum samples, which were analyzed for thyroid hormones (thyroid-stimulating hormone [TSH], free thyroxine [fT4]) and antibodies (thyroid-peroxidase antibody [TPO-Ab] and thyroglobulin antibody [TG-Ab]). Mothers were classified according to their hormone or antibody status, with respect to percentiles in the laboratory analyses, and compared accordingly.

Results: TPO-Ab and TG-Ab positive mothers had higher perinatal mortality, but thyroid hormone status was not independently associated with it. The unadjusted and adjusted (for maternal age, parity and body-mass-index) odds ratios for higher perinatal mortality were 3.1 (1.4–7.1) and 2.2 (0.8–5.5) in TPO-Ab positive and 2.6 (1.1–6.2) and 2.1 (0.8–5.4) in TG-Ab positive mothers. TPO-Ab positive mothers had significantly more large-for-gestational-age infants than negative (2.4% vs. 0.8%, $P=0.017$), as did mothers with low TSH and high fT4 compared to mothers with normal hormone status (6.6% vs. 2.5%, $P=0.045$).

Significantly higher placental weights were observed among mothers with low TSH and high FT4, high TSH and low FT4 and TPO-Ab positive mothers.

Conclusion: Autoimmune-mediated thyroid dysfunction seems to be more risky for perinatal death than thyroid hormone status as such. Thyroid dysfunction during pregnancy seems to have effect on fetal and placental growth.

OF6

Danish national controlled cohort study on neonatal outcome of 1267 children born after transfer of cryopreserved IVF and ICSI embryos in 1995 to 2006

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Introduction: The objective of this study was to present neonatal outcome on all children born in Denmark after cryopreservation of embryos over a twelve-year period.

Materials & methods: We included all 1267 children born after frozen embryo replacement (FER) in Denmark from 1995 to 2006. Controls were the 17857 children born after conventional fresh IVF/ICSI treatment during the same period. Neonatal outcome was obtained from The National Birth Registry.

Results: Pregnancy duration was significantly longer for FER singletons (277.1+15 days) vs. the IVF/ICSI singletons (274.7+16 days)($P<0.0001$) and similarly mean birth weight was about 200 gram higher in the FER singletons (3579+625gram) vs. IVF/ICSI singletons (3374+659 gram)($P<0.0001$). Similar differences for singletons were found comparing cryo-ICSI with ICSI and cryo-IVF with IVF. No differences were found comparing cryo-IVF with cryo-ICSI.

The proportion of children with low birth weight was significantly lower in FER singletons (5.0%) vs. IVF/ICSI singletons (8.1%)($P<0.001$). Similarly the percentage of preterm births (<37 weeks) was lower in FER singletons (6.2%) compared with IVF/ICSI singletons (9.1%)($P=0.003$).

Congenital malformations were similar in the overall cryo IVF/ICSI (7.1%) and the IVF/ICSI offspring (8.8%)($P=0.05$) and no significant difference was found comparing cryo-ICSI (9.0%) with cryo-IVF (6.6%)($P=0.2$). In the fresh ICSI and IVF cohort the malformation rate was respectively 9.4% and 8.5% ($P=0.07$).

Conclusion: According to this study, which is currently the largest on FER offspring, these children perform as well as IVF/ICSI offspring after fresh embryo transfer or even better.

OF7

No correlation between rates of caesarean section and perinatal mortality

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Introduction: Crude perinatal mortality rates (PNMR) give limited information about whether the increase in cesarean section (CS) rates leads to a lower PNMR among term non-malformed singleton infants. The relation between CS rates and PNMR in singleton, non-malformed infants with a birthweight ≥ 2500 g in Iceland during 1989–2006 was studied.

Material and methods: Information about gestational length, birthweight, parity, onset of labour and previous cesarean section for all singleton infants with a birthweight of ≥ 2500 g was collected from the Icelandic Birth Registry and maternity case records. Data was obtained for all perinatal deaths of singleton non-malformed infants weighing ≥ 2500 g irrespective of mode of delivery. The CS rates and PNMR were calculated and the relationship evaluated.

Results: The total number of deliveries was 77286 and the mean PNMR 6.3/1000 (range: 3.6–9.2/1000). The overall CS rate increased significantly, from 11.6% to 17.5% ($p<0.001$). In the study period, 73815 single, non-malformed, infants weighing ≥ 2500 g were born and 10193 of these were delivered by CS (13.8%). The CS rate increased from 10.4% to 16.0% ($p<0.001$). There were 133 perinatal deaths among this cohort giving a mean PNMR of 1.8/1000 (range 0.8–4.1/1000), which did not decrease significantly over time or correlate with the CS rate.

Conclusion: Despite a 50% increase in the CS rate during the study period, no reduction of the PMR among infants ≥ 2500 g was found in this population with a prior low perinatal mortality.

GYNECOLOGY

FREE COMMUNICATIONS VII

GY1

Complications following female sterilization in Sweden 1976–2003

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Objectives: To describe complications associated with female sterilization in Sweden.

Design: National cohort study.

Material and methods: Information regarding the number of female sterilizations performed in Sweden between 1976–2003 was obtained from official statistics. Complications reported to the Swedish Patient Insurance Scheme (SPIS) during the same period (n = 637) were evaluated from individual patient records.

Results: A total of 158,112 female sterilizations were performed (77% by laparoscopy, 22% by laparotomy and 1% with colpotomy compared to 83%, 16% and 1% in the SPIS group). The complications reported were pregnancy (n = 334), intestinal injury (n = 88), vessel injury or haemorrhage (n = 84), infection (n = 53), nerve injury (n = 16), urinary tract injury (n = 16), others (n = 58). The overall complication rate associated with sterilizations based on information reported to SPIS was 4.0/1000 sterilizations (pregnancy 2.1/1000, intestinal injury 0.6/1000, vessel injury or haemorrhage 0.5/1000, infection 0.3/1000, nerve or urinary tract injury 0.1/1000, other causes 0.4/1000). In women who became pregnant, the sterilization was correctly performed in 22%, incomplete in 74% and unknown in 4%. Nine percent completed the pregnancy, 65% had an abortion or miscarriage and 26% had an extra uterine pregnancy.

Comment: The reported complication rates are estimates. The rate of non-reporting cannot be assessed, thus, the true rates are likely to be higher.

Conclusion: The rate of reported complications due to sterilization appears to be low and female sterilization is a safe procedure for contraception with a low failure rate.

GY2

Vaginal misoprostol vs placebo before hysteroscopy

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Objective: To evaluate whether 1000 micrograms self-administered vaginal misoprostol is effective for pre-operative cervical ripening in both premenopausal and postmenopausal women, compared to placebo.

Design: Parallel, randomized, double blind, placebo-controlled sequential trial, planned and conducted in strict accordance with the CONSORT statement. The boundaries for the sequential trial were calculated on the primary outcomes of a difference of cervical dilatation $> = 1$ mm, with the assumption of a type 1 error of 0.05 and a power of 0.95.

Setting: Norwegian university teaching hospital.

Patients: Women referred to outpatient hysteroscopy.

Interventions: The women were randomized to either 1000 micrograms of self-administered vaginal misoprostol or self-administered vaginal placebo the evening before outpatient resectoscopy.

Measurements & Main Results: In premenopausal women the mean difference in cervical dilatation was 1.6 mm (95% confidence interval [CI] 0.5–2.7). The mean cervical dilatation was 6.4 mm (SD 2.4) in the misoprostol group and 4.8 mm (SD 2.0) in the placebo group. 88% of premenopausal women who received misoprostol achieved a cervical dilatation of $> = 5$ mm compared to 65% who received placebo. Misoprostol had no effect on cervical ripening on postmenopausal women, compared to placebo.

Conclusion: Misoprostol has a significant cervical ripening effect compared to placebo in premenopausal but not postmenopausal women. 1000 micrograms of self-administered vaginal misoprostol at home the evening before operative hysteroscopy is safe, cheap, easy to use and highly acceptable. There is a risk of lower abdominal pain and light preoperative bleeding with this regimen.

GY3

Factors associated with endometrial polyps in a Danish population

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Objective: To identify factors associated with endometrial polyps (EP).

Material and Methods: A case-control study of 140 women with EP (cases), and 367 controls without EP or other intrauterine lesion was carried out. Forty-six of

the cases came from a population-based study of EP, and 94 of the cases were admitted to the department with EP. Information on potential associated factors was obtained by a validated questionnaire.

Results: Univariate analysis showed a statistical significant association with EP for the following factors: in premenopausal women: not using oral contraceptives (OC) ($p=0.002$), and in postmenopausal women: overweight (body mass index $>25\text{kg/m}^2$) ($p=0.007$); present use of hormone therapy (HT) ($p=0.04$); ever use of HT ($p=0.03$) and hypertension ($p=0.03$). Cervical polyps were not associated with EP. In an age adjusted logistic regression model the following was positively associated with EP: current use of hormone therapy (HT) (odds ratio, 2.81; 95% CI, 1.29–6.13) and overweight (BMI $>25\text{kg/m}^2$) (odds ratio, 2.06; 95% CI, 1.12–3.79) (postmenopausal women). Negatively associated was use of OC (odds ratio, 0.20; 95% CI, 0.06–0.66). Histopathology diagnosed benign EP ($n=137$); polyp with premalignant pathology ($n=3$); and benign polyp with concomitant complex hyperplasia ($n=1$) or endometrial cancer ($n=2$).

Conclusion: Overweight and current use of HT in postmenopausal women were positively associated, while OC was negatively associated with EP. Hypertension and cervical polyps were not associated with EP, when a control group without intrauterine pathology was included in the analysis. EP were infrequently related to premalignant and malignant pathology.

GY4

To avoid adhesion occlusion – Ethicon Intercoat is the solution

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Commonly used adhesion prevention devices either cannot be applied or are difficult to use via laparoscopy. A viscoelastic gel was developed specifically for adhesion prophylaxis during minimally invasive surgery as a site-specific barrier.

Methods: Randomized, third party-blinded, parallel-group design conducted at four centres. Patients (18–46 years old) underwent laparoscopic surgery with second look 6–10 weeks later. Viscoelastic gel coated adnexa and adjacent tissues. Blinded reviews of videotapes were quantified by American Fertility Society (AFS) adhesion scores.

Results: In 25 treatment patients, surgery was performed on 45 adnexa. Coverage of surgical sites at risk for adhesions was typically accomplished with approximately 15 ml of viscoelastic gel which was delivered in approximately 90 s. In 24 control patients, surgery alone was performed on 41 adnexa. Treated adnexa showed a decrease in AFS score (11.9–9.1). In contrast, control adnexa showed an increase in AFS score (8.8–15.8). This difference in second-look AFS

scores (42% reduction) is significant ($P<0.01$). Ninety-three per cent of treated adnexa did not have a worse adhesion score in contrast to 56% of control adnexa. Combining scores into prognostic categories also show significant treatment effect of the viscoelastic gel ($P<0.01$).

Conclusion: Viscoelastic gel was easy to use via laparoscopy and produced significant reduction in adnexal adhesions. It provides benefits to patients undergoing gynaecological surgery.

GY5

The treatment of a tub-ovarian abscesses is usually antibiotics and surgery: What about ultrasound guided drainage?

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Background: Medical treatment, of tuboovarian abscess (TOA), alone is successful in only 34–87.5% of patients with pelvic abscess. Surgical intervention, either laparoscopy or laparotomy with drainage TOA and excision of infected tissue, is normally performed in cases of diagnostic uncertainty or when medical therapy is inadequate.

Objective and Hypotheses: Our purpose was to evaluate the effectiveness and safety of transvaginal ultrasound (TVS)-guided aspiration together with antibiotic therapy for treatment of TOA. In this paper we present the results after TVS-guided drainage of TOA and a follow-up of 4–14 years.

Materials and methods: 302 women, with a mean age of 35 years, were treated for TOA by use of TVS guidance and a 16–18 Gauge needle.

Results: Four hundred forty-nine TVS aspirations were performed on 302 women. The mean age of the women was 40.1 years old, with a range of 15–86 years. Eighteen women (6.0%) were postmenopausal. Most patients underwent only one puncture. No complications were observed.

Conclusion: The present study clearly shows that TVS-guided aspiration combined with antibiotics is effective for treatment of TOA. This treatment regimen has several advantages compared to surgical intervention. TVS-guided aspiration normally takes 15–30 minutes. The procedure is well tolerated, inexpensive, minimally invasive, and it avoids the potential risks associated with general anaesthesia and surgery.

GY6

A Danish National survey on subjective cure, satisfaction and complications 4 years after Tension free Vaginal Tape (TVT)

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Aim: To evaluate subjective cure rate, satisfaction and complications in all Danish women operated with TVT in 2001.

Methods: In cooperation with the Danish National Board of Health, all Danish women with an operation code for TVT in 2001 were extracted from the Danish national patient register. They received a validated tested postal questionnaire in 2005.

Results: 386 questionnaires were sent, response rate was 92%. Mean age was 60 years [range 21–94]. Self-reported serious co-morbidity developed after surgery was 7% (diabetes, thrombosis or cancer). 33% felt subjectively cured, 35% felt much improved and 17% felt improved. 15% felt their incontinence unchanged or worsened. Frequencies of incontinence episodes: never incontinent (35%); equal or > 1 a week (39%); equal or > 1 a day (25%) and all the time (1%).

Incontinence impact on daily living measured by an 11-point scale (0=no impact; 10= great impact): mean 2.9. Satisfaction with the operation procedure measured by an 11-point scale (0=dissatisfied; 10=very satisfied): mean 8.9. 81% of TVT operated women would choose the same treatment again, where 6% would not. Self-reported complications: Self-catherization > 1 month (4%) and vaginal wound (2%). Self-reported re-operations due to complications were 1% and 1% had new incontinence surgery.

Conclusion: Four years after TVT 81% of Danish women were satisfied. Nevertheless only 33% felt completely cured and 35% felt much improved.

GY7

Tension-free Vaginal Tape (TVT) versus Tension-free Vaginal Tape-Obturator (TVT-O) – one year follow-up results of Randomized Clinical Trial.

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Background: During the last decade mid-urethra tapes have become the first line surgical method to treat female stress urinary incontinence. TVT has gained the 'gold standard' status. It is claimed that the transobturator approach offers a safer and better route to insert the mid-urethra slings.

Objective: To compare the 1 year clinical outcomes of the TVT with those of the TVT-O.

Methods: Within a seven-center clinical trial 273 patients with SUI were randomized between the TVT and the TVT-O procedures. 136 patients were treated with TVT and 131 with TVT-O under local anesthesia. 134 TVT patients and 131 TVT-O patients were available at the 1-year follow-up evaluation.

Results: The objective cure defined as a negative stress test was 95,5% in the TVT group and 93,1% in the TVT-O group ($p=0.400$). Leakage measured by 24 h pad test decreased from 44 ± 39 g to 2.8 ± 7.6 g in the TVT group and from 44 ± 48 g to 1.4 ± 3.4 g in the TVT-O group with no difference between groups ($p=0.558$).

Subjective outcome was assessed by validated questionnaires: VAS (Visual analogue scale), the Urinary Incontinence Severity Score (UISS), the Detrusor Instability Score (DIS), the Incontinence Impact Questionnaire (IIQ-7) and the Urogenital Distress Inventory (UDI-6). Significant improvement from pre-operative scores for both groups was seen with no difference between the groups.

Conclusion: Both objective and subjective cure rates are high in both study groups with no significant difference between the procedures at 1-year follow-up.

Posters

P001

Acta Prize Winner – Placental abruption: risk factors and biochemical markers

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Background: Placental abruption is one of the most significant causes of perinatal mortality and maternal morbidity. The etiology is unknown.

Objective: Our aim was to define the risk factors for placental abruption, and to find a biochemical marker which would predict placental abruption.

Methods: Of women who delivered at the Helsinki University Hospital in 1997–2001 (n=46,742), 198 women with placental abruption and 396 control women were identified. Selected biochemical markers tested in subgroups were alpha-fetoprotein (AFP), free beta human chorionic gonadotrophin (β -hCG), soluble endoglin (sEng), soluble fms-like tyrosine kinase 1 (sFlt-1), placental growth factor (PlGF), C-reactive protein (CRP), *C. pneumonia*, *C. trachomatis* and chlamydial HSP60 antibodies. Serum samples were collected in the first or in the second trimester.

Results: The incidence for placental abruption was 0.42%. The prepregnancy risk factors were smoking, uterine malformation, previous C-section, and history of placental abruption. The risk factors during the index pregnancy were maternal and paternal smoking, use of alcohol, placenta previa, preeclampsia and chorioamnionitis. Vaginal bleeding (70%), abdominal pain (51%), and fetal heart rate abnormalities (69%) were the most common clinical manifestations. Preterm labor occurred in 59%, 91% delivered by C-section. The perinatal mortality rate was 9.2%. Serum AFP levels were higher in the abruption group than in the control group ($p=0.004$), but had low sensitivity (29%) and high false positive rate (10%). β -hCG or none of the angiogenic factors tested predicted placental abruption. CRP levels and Chlamydial antibody levels were similar between the groups.

Conclusions: We defined several risk factors for placental abruption. However, more research is needed of specific biochemical markers.

P002

Iceland – Prenatal screening in the first trimester

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Objective: To examine the uptake and results from prenatal screening for fetal aneuploidy and structural abnormalities in the first trimester with ultrasound and biochemical markers.

Material and methods: All women presenting for prenatal care are offered first trimester screening for fetal aneuploidies and structural abnormalities. Ultrasound is performed for evaluation of nuchal translucency and structural abnormalities. Maternal serum markers are evaluated for pregnancy associated plasma protein A (PAPP-A) and the free subunit of β -human chorionic gonadotropin (hCG). Along with maternal and gestational age, the above factors are used to give a combined risk assessment for fetal trisomies.

Results: From January 1st 2002-December 31st 2006 10,007 women presented for prenatal screening with ultrasound and biochemical markers. In 2002 12% of all pregnant women in Iceland attended screening and in 2006 the percentage was 66,5%. The screen positive rate was 3,4% and 80% of those opted for a diagnostic test. A total of 50 cases of fetal aneuploidy were detected, thereof 25 cases of trisomy 21 and 25 other aneuploidy cases. The sensitivity was 88%, specificity 97%, and negative predictive value was 99,9%. Total fetal aneuploidy detection rate was 25/30 (83%). Additionally, 45 cases of structural abnormalities were detected.

Conclusions: The uptake of first trimester screening has gradually increased from 12–67% of all deliveries. Screening results are comparable with similar screening programs elsewhere.

P003

Declining number of invasive procedures for prenatal aneuploidy diagnosis

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Objective: To examine the change in the number and type of operative procedures after the introduction of first trimester prenatal screening in Iceland. Ultrasound with nuchal translucency measurements was first introduced in 1999 and in 2001 biochemical markers were added and a combined risk assessment calculated as modelled by Fetal Medicine Foundation. Before 1999 fetal aneuploidy screening was performed by offering amniocentesis (AC) to all women ≥ 35 years.

Material and methods: A retrospective study was performed and all chorionic villous samples (CVS) and AC's performed at Landspítali University Hospital from 1998–2007 examined.

Results: In 1998 19 CVS's and 475 AC's were performed and in 2007 96 CVS's and 28 AC's.; total procedures 494 vs 124. This represents a 75% reduction in the total number of invasive procedures. The indication for testing in 1997 was maternal age (n=436), anxiety (n= 5), fetal anomalies (n=26) and genetic disorders (n=8). In 2007 the indication for invasive testing was increased risk by combined risk assessment (n=91), maternal age without risk assessment (n=11), fetal anomaly (n=13) and genetic disorders (n=9).

In 1998 14 cases of fetal aneuploidy were detected (14 in 494 procedures) and in 2007 10 cases (10 in 124 procedures). With 1% expected fetal loss rate following a procedure five procedure related fetal losses would have been expected in 1997 and one in 2007.

Conclusions: The introduction of first trimester screening with combined risk assessment for fetal aneuploidy and invasive procedures only offered to those at increased risk has led to a 75% reduction in the total number of invasive procedures.

P004

Maternal serum leptin is not a first trimester marker of foetal Down syndrome

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Background: The serum concentration of leptin is considered to reflect nutritional status. Expressed predominantly by the adipocytes, leptin is also expressed in placenta, which is the major source of both leptin and the leptin receptor in pregnancy serum. As a placenta protein, leptin serum concentrations may be perturbed in Down syndrome (DS) pregnancies. We examined whether leptin is a maternal serum marker for foetal DS in first trimester.

Materials and Methods: Serum samples from 44 pregnant women with a DS foetus and 135 controls in week 8–14 were retrieved from the routine prenatal first trimester maternal serum screening. The maternal serum leptin concentration was determined by immunoassay and the concentrations were converted into multiples of the median (MoM) of controls based on log-regression analysis. The distributions of log₁₀ MoM Leptin was compared in DS and control pregnancies.

Results: Serum leptin increased slightly, albeit significantly, with gestational age in controls ($r = 0.197$, $p = 0.02$). The mean log₁₀ MoM in controls was -0.0486 , with a median empirical MoM of 0.89, and -0.0618 , with a median empirical MoM of 0.80, in DS

pregnancies. This difference was not significant. The log₁₀ MoM leptin values in DS pregnancies did not change with gestational age ($p = 0.32$).

Conclusion: Leptin is not a first trimester marker for foetal Down syndrome. However, as maternal serum leptin has been found to be increased in pre-eclamptic pregnancies and – in some series – reduced in IUGR pregnancies, it may still have a place in prenatal risk assessment.

P005

Need for chromosomal diagnosis in single umbilical artery

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Background:

Fetuses diagnosed with single umbilical artery (SUA) have increased risk of malformations (20%), chromosomal anomalies (6–20%) and possibly intrauterine growth restriction (IUGR). Several publications have documented that chromosomal anomalies are diagnosed only in association with malformations.

Objective and Hypothesis: The objective is to evaluate the pregnant woman's wish of invasive procedure to diagnose chromosomal anomaly despite no malformation has been detected by an expert ultrasound scan. The expectation is that most women choose an invasive procedure.

Methods: A retrospective analysis of the cases of SUA with no other detected malformations from March 2007 to February 2008 was performed, and it was registered if an invasive procedure was undertaken.

All cases of SUA detected had a successive expert ultrasound scan by a superior doctor to diagnose possible malformations. Information was given that:

- Chromosomal anomalies are diagnosed only in association with malformations.
- Not all malformations are diagnosed by ultrasound.
- A 0.5–1% risk of fetal loss follows an invasive procedure.

Results and Conclusions: 15 cases of SUA with no sonographic malformations were registered. 13 women choose to have an invasive procedure undertaken. None had a chromosomal anomaly, and there was no fetal loss.

This short survey exemplifies an important clinical dilemma; the wish of the pregnant woman to be assured that her baby is normal, and the recommendation not to undertake an invasive procedure if isolated SUA is diagnosed.

The pending question is if an expert sonography predicts chromosomal anomaly by detecting all significant malformations.

P006

Title Ascertainment Deficiencies of the Swedish Birth Defects Registry and the Incidence of Cleft Lip/Palate and Spina Bifida in Sweden

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Background: For surveillance of fetal anomalies in newborns the Swedish Birth Defects Registry (BDR) was established 1964 and in pregnancies terminated due to fetal anomalies (ToPs) 1999. It is important that the registry has a good quality including knowledge of ascertainment.

Objective: To estimate ascertainment of newborns and ToPs to BDR and the incidence of cleft lip/palate (CLP) and spina bifida during 1999–2004. Method Registry study including five different registries.

Results: The under-ascertainment to BDR after record-linkage with the Medical Birth Registry (MBR) was 13% in newborns with CLP. The ascertainment of CLP to BDR seems to increase with the severity of the anomaly. The ascertainment of ToPs with CLP could not be estimated. The reported incidence/10,000 births of newborns with CLP was 18.92 and for ToPs 1.17. The under-ascertainment to BDR after record-linkage with MBR was 6% in newborns with spina bifida. The under-ascertainment of ToPs after 18 gestational weeks was 27% in spina bifida. The ascertainment of ToPs before 18 gestational weeks could not be estimated. The majority (70%) of reported ToPs to BDR with spina bifida occurred before 18 gestational weeks. The estimated incidence/ 10,000 births of newborns with spina bifida was 2.41 and for ToPs 3.86. Conclusion The ascertainment to BDR is high for newborns, but probably much lower for ToPs, which has an impact on the surveillance of spina bifida due to high proportion of ToPs. Improvement is necessary concerning the reporting of ToPs due to fetal anomalies.

P007

Obese women have an increased risk for erroneous ultrasound dating in second trimester

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Background: Obesity is reaching pandemic proportions worldwide and it is a risk factor during pregnancy. Ultrasound dating formulae in obese patients might not perform as well as in patients with normal weight. A discrepancy between estimated date of delivery according to last menstrual period (EDD-LMP) and expected date of delivery according to ultrasound dating (EDD-U) among women with increased BMI could be a consequence of erroneous measurement.

Objective: To study the association between EDD-LMP and EDD-U discrepancy and maternal BMI.

Methods: The Swedish Medical Birth Registry (MBR) was used to identify 842,083 singleton pregnancies for which the EDD LMP, EDD U, and maternal Body Mass Index (BMI) in early pregnancy was known. Odds Ratios (OR) were adjusted for year of birth, maternal age, parity, and smoking.

Results: In 25% of all pregnancies, the foetuses were 7 days or smaller at ultrasound examination.

A statistically significant association existed between maternal BMI and discrepancy between EDD-LMP and EDD-U.

Among pregnant women with a BMI 30 or more, the risk of postponed EDD was significantly increased compared to women with BMI 20–24, 9. Women with a BMI > 30 were more often postponed 14 days or more (OR: 1.51; 95%CI 1.46–1.56) and 7–13 days (OR: 1.38; 95%CI: 1.35–1.41). The same risk was observed among women with BMI 25–29.9, but was less pronounced.

Conclusions: High maternal BMI increases the risk for erroneous ultrasound dating. Obese patients may require a lower frequency transducer to image the foetus, with the risk of worse quality of images.

P008

Intervention program for obese pregnant woman

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Background: Obese women have a higher risk for large babies, preeclampsia, hypertension, thrombosis, diabetes, intrauterine death and malformations. 50% of the women with BMI (body mass index) > 30 are delivered by cesarean section. We present a prospective intervention (pilot) study aimed to control pregnancy weight gain and the incidence of cesarean section in obese women.

Methods: Women with BMI \geq 30 were voluntarily included during a first trimester prenatal visit. 20 pregnant woman were included in the program which included: meeting the midwife every fortnight; group meetings; one meeting with a dietician; water gymnastic once a week; and a 30 minutes daily exercise program. If the pregnancy remain normal they meet the obstetrician three times during the pregnancy and 6–8 weeks after delivery. There are two extra fetal ultrasounds, week 32 and 40.

Results: Twenty women have so far been delivered and completed the project. Eighteen had a normal vaginal delivery (90%). Two women were delivered by cesarean section (10%). All women had normally sized babies with apgar scores in the range of 8–10. One woman was diagnosed with mild preeclampsia and one with mild hypertension not necessitating treatment. One baby was born with upper palatine cleft. Fourteen patients (70%) had gained less than 6 kilograms during pregnancy. All women were subjectively pleased with the project.

Conclusion: The intervention program may be successful in helping obese women control weight gain during pregnancy and increase the rate of normal deliveries in obese women.

P009

Delivery complications: The role of lifestyle related factors

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Background: Life style related factors like maternal dietary intake, physical inactivity, over weight and gestational weight gain are modifiable and therefore subjected to intervention.

Objective: The purpose of this study was to examine

relationships between modifiable life style factors and delivery complications.

Methods: A cohort 553 women were followed through pregnancy and delivery. Predictive variables were subjected to univariate and multiple logistic regression analysis. These were divided into modifiable and non-modifiable variables (parity, maternal age, gestational age, gender of child).

Results: Seventy-two percent (399) of the women delivered without serious complications. In adjusted models we found following predictors to be significant for birth complications: Acute caesarean section: birth weight \geq 4200g (OR=3.7, CI 1.7, 3.8), nulliparity (OR=3.5, CI 1.7, 7.2), maternal age (upper quartile) (OR=2.6, CI 1.3, 5.3) and induction of labor (OR=4.8, CI 2.6, 9.1). Operative vaginal deliveries: nulliparity (OR=8.7, CI 3.8, 20), boy (OR=2.2, CI 1.2, 4.1). Perineal lacerations degree 3–4: Low level of physical activity before pregnancy (OR=6.1, CI 1.6, 23), operative vaginal deliveries, (OR=5.1, CI 1.5, 18). Haemorrhage above 1000 ml: body mass index (kg/m², BMI) \geq 30 (OR=4.6, CI 1.2, 18), birth weight \geq 4200g (OR=4.2, CI 1.2, 15), low level of physical exercise before pregnancy (OR=3.4, CI 0.9, 13.4).

Conclusions: Among life style related factors obesity and low level of pre-gestational physical activity were independent predictors of severe obstetric haemorrhage. In addition, low level of physical exercise before pregnancy may be an independent determinant of grade III and IV perineal lacerations.

P010

Maternal metabolic syndrome and macrosomia in healthy Norwegian gravida

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Background: Macrosomia is associated with increased risk of maternal and fetal complications. A continuous relationship between glucose intolerance, macrosomia and pregnancy complications has recently become more evident.

Methods: A cohort of 553 Norwegian women was followed throughout pregnancy to establish influences on birth weight (\geq 4200g) due to nutrition, metabolism, anthropometry and physical activity in relation to glucose metabolism. Peroral glucose tolerance tests were done at week 14–16 and 30–32, paralleled by anthropometry and obstetric data.

Results: Fasting plasma glucose (FPG) increased from 4.2 ± 0.47 mmol/l (median \pm SD) to 4.4 ± 0.49 mmol from early to late gestation, $P < 0.001$; insulin from 28 ± 20.7 pmol to 43 ± 31.3 pmol, $P < 0.001$ and insulin sensitivity index (ISI/HOMA) 5.2 ± 4.57 to 8.5 ± 6.89 , $P < 0.001$. We found large individual variations in insulin

levels during pregnancy and the expected associations between FPG, insulin, ISIHOMA, BMI and fat mass (caliper measurements). There were no significant associations between nutrition, weight gain or FPG and insulin levels. We found associations between FPG, ISIHOMA and macrosomia; these are strongest in late gestation. The women in the highest BMI quartile ($\geq 27\text{kg/m}^2$) with macrosomic children had significantly higher increases in FPG and ISIHOMA from week 14–16 to week 30–32. Similar effects were found if the women were grouped in quartiles based on fat mass. **Conclusion:** Increases in FPG and ISIHOMA during pregnancy are important determinants of macrosomia in overweight gravida; hyperinsulinemia however, does not influence the incidence of macrosomia in the STORK cohort.

P011

A longitudinal study of six humoral inflammatory markers in pregnancy. Relation to obesity

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Background: Obesity is generally associated with enhanced inflammatory activity. Obesity is a well established risk factor for several pregnancy complications like preeclampsia, gestational diabetes and thrombosis, each of which involves inflammatory pathogenetic elements. Furthermore, there is evidence that pregnancy in general is accompanied by a systemic maternal inflammatory response.

It is unknown whether excess adipose tissue produce inflammatory factors that may be effectors in inducing inflammatory pregnancy complications

Objective: Describe longitudinal changes in humoral inflammatory markers during pregnancy in a healthy study population. Relate levels and changes in inflammatory markers throughout pregnancy to maternal first trimester body mass index (BMI).

Methods: 231 were randomly chosen from a cohort of 553 pregnancies. Six inflammatory markers were analyzed at four different time points in pregnancy (MCP, mCRP, IL1Ra, sTNF RII, and IL10).

Results: There is a large, random variation in the cytokine levels. Except for IL10 (and mCRP in last trimester) the markers increased throughout pregnancy. Except for IL10 and sTNF RII, the markers were all positively correlated with maternal BMI. The levels of IL1Ra, MCP, mCRP and IL6 were significantly different in the normalweight (BMI<25) and the obese (BMI>30) group throughout gestation.

Conclusion: There is a significant increase in cytokines throughout pregnancy, except for mCRP, which tend to decrease in late gestation. Maternal obesity is

associated with increased levels of pro-inflammatory cytokines throughout gestation.

Inflammation may thus be a mediator in the development of preeclampsia and GDM in the obese mothers.

P012

Pregnancy outcome in overweight and obese women

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Objective: To examine the frequency of adverse outcome during pregnancy as well as intrapartum and neonatal complications among pre-pregnancy overweight and obese women.

Material and methods: Retrospective cohort study of 600 women divided in 3 groups and outcome compared on the basis of maternal pre-pregnancy body mass index (BMI); 1) 300 normal weight women (BMI 19,0–24,9), 2) 150 overweight women (BMI 25,0–29,9) and 3) 150 obese women (BMI ≥ 30).

Results: Obese women have a significantly increased risk of essential hypertension ($p<0,001$), gestational hypertension ($p=0,03$), pre-eclampsia ($p=0,007$), gestational diabetes ($p<0,001$) musculoskeletal symptoms ($p=0,04$), induction of labour ($p=0,006$) and delivery by cesarean section ($p<0,001$), both emergent ($p=0,012$) and elective ($p=0,008$) compared to mothers of normal weight and overweight. Neonates of obese mothers have significantly higher birth weight ($p=0,004$) have larger head circumference ($p<0,001$) and a higher ponderal index ($p<0,001$) compared with neonates of over- and normal weight mothers. Neonates of obese mothers more often require observation in the neonatal ward compared to neonates of over- and normal weight mothers ($p=0,004$). Newborns of overweight mothers have significantly larger head circumference ($p=0,02$) and are more likely to acquire pneumonia ($p=0,04$) compared with infants of normal weight mothers.

Conclusion: Obesity during pregnancy is associated with considerable risk of maternal and neonatal complications. However, this risk is not significantly increased for overweight mothers. Women of reproductive age need counselling regarding the adverse effects of obesity on pregnancy outcome.

The Effect of Pre-pregnancy Body Mass Index (BMI) and Weight Gain in Pregnancy on Cesarean Section Rate in Spontaneous Labour

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Background: Obesity in pregnancy is increasing with associated problems such as higher cesarean section (CS) rates. The effect of obesity should be seen more clearly in spontaneous labour compared to induced labour, often with associated medical problems, and may have different effects on nulliparous and multiparous women. Pre-pregnancy BMI and weight gain may have different effects on labour.

Methods: Data were retrieved from the labour ward audit system and maternity notes for the years 2004–2007.

Results: Of 1543 women 9.2% were underweight, 27.6% overweight and 17.4% obese. For women with BMI <25 23% had sub-optimal (<12kg), 44% normal (12–18kg) and 33% excessive (>18kg) weight gain. For women with BMI >25 16% had sub-optimal (<7kg), 23.5% normal (7–12kg) and 60% excessive (>12 kg) weight gain.

444 nulliparous women had spontaneous labour with cephalic singleton at term. The CS rate increased from 1.6% for women with pre-pregnancy BMI <20 to 12.5% for BMI > 35.

557 multiparous women had spontaneous labour with cephalic singleton at term. The normal delivery rate was very high 94.6%–96.9% in all BMI groups. 4 out of 307 women with BMI<25 needed CS and only 1 out of 250 with BMI >25.

Pre-pregnancy BMI and BMI at delivery had similar effect on CS rate in labour. Groups with sub-optimal, normal and excessive weight gain in pregnancy had similar CS rate.

Conclusions: Obesity is common in Akureyri. Nulliparous women with high pre-pregnancy BMI are more likely to need CS in spontaneous labour. As excessive weight gain during pregnancy has little effect in this aspect, interventions against obesity must come before pregnancy.

The relation between birth weight and hypertension among Danish nurses with and without a familial pre-disposition to obesity

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Background: The fetal origin hypothesis suggests that birth weight is related to several adult diseases, i.e. hypertension. The causality of the relation has been questioned, among others confounding by socio-economic status at time of birth. We analysed the association between self-reported birth weight and hypertension before and after with detailed confounder control, and in relation to modification of this association by familial obesity and own weight history during childhood and youth.

Methods: In 1999 the Danish nurse Cohort study included 31.642 female above 44 years of whom 76% replied questionnaires on birth weight, weight history (during childhood till 13 years, during teenage years 13–19 years and as 19–25 years old), familial obesity disposition, parents socioeconomic status and presence of hypertension. Cox proportional Hazard model provided Hazard ratios with 95% confidence interval with age as underlying time.

Results: In total 14% reported birth weights below 3000g. The univariate hazard ratio of hypertension for those with birth weights < 3000g was 1.24 (1.13–1.36) compared to birth weights >3000g. The association remained stable after adjustment for co-variables. The association between birth weight and hypertension was stronger for women with no family history of obesity, than for women with family history, whereas women's own weight history did not modify associations.

Conclusion: Our results support the hypothesis that low birth weight is associated with hypertension in adult life, also after considering confounding factors. However, we were not able to detect a specific child and youth growth patterns influenced the increased hypertension risk associated with low birth weight.

P015

Does coffee intake during pregnancy prevent gestational diabetes mellitus?

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Background: Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance that arises during pregnancy and disappears after delivery. Recent studies suggest that intake of coffee or rather maybe caffeine is associated with a reduced risk of type 2 diabetes mellitus. In this study, we wish to study the effect of coffee consumption during early pregnancy on the risk of GDM.

Material and methods: All women scheduled to deliver in our Hospital from 1 January 2004 to 31 March 2007 have been invited to complete two self-administered questionnaires during pregnancy. There was a response rate of 91%. The potential confounding factors; parity, age, BMI, smoking, alcohol intake and employment were also collected by the pregnancy questionnaires. Data were analyzed using logistic regression analyses with coffee as primary exposure and GDM as the outcome while adjusting for all the potential confounding factors in multivariate models.

Results: 12,138 women were included in the study. 1.6% developed GDM during pregnancy. Upper quartile of reported coffee consumption per week was 1 cup per day. In the final logistic regression model coffee drinking during pregnancy was associated with 27% decreased risk of GDM when controlled for relevant confounding factors OR (CI 95%) 0.73 (0.51–1.03).

Conclusion: The number of women who developed GDM during pregnancy was lower than expected. This may be due to less intensive screening procedures prior to 2005. Coffee drinking during pregnancy was associated with an approximately 25% decrease in the risk of GDM when controlled for relevant confounding factors.

P016

Management of insulin dependent diabetes mellitus in pregnancy during a 26 year period at Danderyd Hospital

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Background: Insulin dependent diabetes mellitus (IDDM) has been a challenge throughout the years during pregnancy. With modern insulins and careful control of blood glucose levels the management has become more successful although there is still an

increased risk of pregnancy complications and perinatal death.

Objective: To evaluate pregnant women with IDDM regarding antenatal care, complications, delivery and perinatal outcome.

Methods: During the period 1981–2007 pregnant women with IDDM have been surveilled at the high-risk pregnancy ward at our hospital. The first period, 1981–1990, the patients were supervised by a paediatrician/neonatologist and an obstetrician, in the second period, 1991–1998, an endocrinologist and an obstetrician were involved. The women attended their local antenatal midwife center. In the last period, 1999–2007, the women were also offered controls at an antenatal midwife office located in the high risk ward.

Results: There were no great differences in the three groups regarding rate of Cesarean sections, preeclampsia, neonatal outcome, or large for date babies. Maternal age showed a slight tendency to increase. More than 50% had been diabetics for more than 10 years.

In the first period there were two intrauterine fetal deaths and in the third period a pair of twins, delivered at 23 gestational weeks, did not survive. Also, one woman who had her third baby during the last study period, died a few years after the pregnancy in a diabetic complication, probably hypoglycemia.

Conclusion: Careful surveillance and trained staff is always important but particularly so when supervising high risk pregnancies.

P017

Blood glucose home monitoring-based therapy in gestational diabetes leads to reduced number of macrosomic infants

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Background: Gestational diabetes (GDM) is often associated with fetal over growth. Blood glucose home monitoring may better reveal daily aberrations of blood glucose levels than traditional hospital follow-up.

Objective: To assess if blood glucose home monitoring-based dietary and insulin therapy leads to better perinatal results than the traditional therapy based on hospital assessment.

Methods: Perinatal outcome was assessed in two groups of GDM, diagnosed by oral glucose tolerance test at 27 weeks. The study group (n=162) started blood glucose home monitoring immediately after the diagnosis of GDM, while the control group (n=258) had only dietary counselling. Both groups had assessment at maternal hospital in 29–30 weeks. Possible insulin therapy was started either according to home monitoring results (study group) or pre- and

postprandial blood glucose levels after a standard hospital meal (control group).

Results: Insulin therapy was started more frequently in the study group (20,7% vs 3,6%, $p < 0.001$). Gestational age at delivery and caesarean section rate were similar, but birth weight (3572 vs 3705g) was lower and the proportion of big babies (over 75 percentile) was less in the study group (23,5 vs 27,1%, $p = 0.016$).

Conclusion: Blood glucose home monitoring in GDM was associated with a reduced number of macrosomic infants. Probably this reduction was achieved by improved motivation of GDM patients to control their dietary habits. In addition, the need for insulin therapy was noticed more effectively than based on traditional hospital assessment.

P018

Changes of endothelial function in preeclampsia during pregnancy, early and late postpartum

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Background, Objectives and Hypothesis:

Preeclampsia is a multiorgan disorder affecting the endothelial function. It is associated with significant maternal and fetal morbidity and mortality during the index pregnancy. Large follow up studies have demonstrated an increased risk of cardiovascular disease in women with previous preeclampsia.

We sought to measure the endothelial dependent vasodilatation of the brachial artery by measuring flow-mediated dilatation (FMD) during pregnancy and postpartum.

Methods: We studied 34 nullipara non-smoker spontaneous single pregnant women with newly developed mild preeclampsia, with no previous history of hypertension or chronic disease and 30 healthy pregnant women as controls, matched for age, weight and gestational age. All participants underwent non-invasive ultrasound examination of the brachial artery to measure FMD, when they develop preeclampsia during pregnancy (FMD 1), 7–10 days (FMD 2) and 3–6 months (FMD 3) after delivery.

Results: In preeclampsia the FMD levels decline gradually in early and late postpartum period, FMD 1 was higher than FMD 3 ($p < 0.01$) and FMD 3 was negatively correlated with systolic blood pressure during pregnancy ($p < 0.05$) as well as FMD 1 correlated with FMD 2, 3 ($p < 0.05$) as well as FMD 2 with FMD 3 ($p < 0.01$).

In controls the FMD levels did not change and FMD1 correlated only with FMD 3 ($p < 0.01$).

Conclusion: Endothelial dysfunction persists after delivery in patients with preeclampsia, this may predisposes these women to cardiovascular disease in the future. Follow-up and counselling of women with a history of preeclampsia may offer a window of opportunity for prevention of future disease.

P019

Ang-1/Ang-2 ratio as a predictive biomarker for preeclampsia

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Background: The pathophysiology of preeclampsia is not fully understood. Inadequate trophoblast invasion of the uterine spiral arteries is thought to lead to placental insufficiency and inadequate angiogenesis. An imbalance between angiogenesis-associated factors may predispose for preeclampsia.

Objective: The aim of this study was to evaluate if the angiogenic factor Angiopoietin-1 (Ang-1) and the antiangiogenic factor Ang-2 can be used to predict preeclampsia.

Methods: Healthy pregnant women who were visiting a prenatal center in gestational week 10 were enrolled. Plasma samples were collected at week 10, 25, 28, 33 and 37. Concentrations of Ang-1 and Ang-2 in plasma were analyzed by ELISA in women with a normal pregnancy and in women who developed preeclampsia.

Results: The Ang-1/Ang-2 ratio increased during a normal pregnancy while the ratio decreased in gestational week 25 and 28 in women who later developed preeclampsia. At gestational week 25 the mean Ang-1/Ang-2 ratio was 1.8 in women who developed preeclampsia compared to 4.0 in women with a normal pregnancy ($p < 0.05$). A cut-off value of 1.41 at gestational week 25 showed a sensitivity of 46% and a specificity of 90% to predict preeclampsia later in pregnancy. By using this cut-off value 72% of the women became correctly classified as to whether they were going to develop preeclampsia or not.

Conclusion: The Ang-1/Ang-2 ratio in plasma constitutes a suitable biomarker to predict later onset of preeclampsia.

P020

Maternal serum leptin is a first trimester marker of pre-eclampsia

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Background: Leptin is an important regulator of energy homeostasis. It is synthesised by adipocytes and, during pregnancy, by the placenta. It is also involved in angiogenesis and placentation, and has been described as elevated in pre-eclamptic pregnancies and reduced in IUGR pregnancies.

Objective: To examine whether maternal serum leptin is a first trimester marker of later preeclampsia.

Materials and Methods: 148 pre-eclamptic and 299 control pregnancies in week 8–14, participating in the Copenhagen First Trimester Screening Study, were included in the analysis. Maternal serum leptin was determined by immunoassay. Leptin concentrations were converted to multiples of the median (MoM) and subjected to logarithmic transformation. No correction for pre-pregnancy BMI was performed.

Results: Maternal serum leptin in control pregnancies did not increase with gestational age and a mean of 16352 pg/mL was used to convert into MoMs. Following logarithmic transformation of leptin MoM values an elevated mean log MoM leptin of 0.1182 (SD:0.2270), corresponding to a MoM of 1.31, was found in preeclamptic pregnancies compared to a mean log MoM leptin of -0.085 (SD:0.2805), corresponding to a MoM of 0.82, in control pregnancies, $p < 10^{-8}$. The log MoM leptin concentration in later pre-eclamptic pregnancies did not correlate with gestational age.

Conclusion: Maternal serum leptin is significantly elevated in first trimester in pregnancies that later develop preeclampsia. Despite that no correction was made for pre-pregnancy BMI, maternal serum leptin seems a promising early pregnancy risk marker for pre-eclampsia

P021

Case report of severe thrombocytopenia in pregnancy

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Thrombocytopenia is a medical term for low platelet count. The incidence is 1 in 1000 pregnancies. Complications can occur when platelet count is less than $50 \times 10^9/l$. It can cause hemorrhage in labour and C.S., epidural hematomas and intracranial hemorrhage in newborns.

A 22 year pregnant woman was sent to tertiary maternality hospital on 38th week of pregnancy. She

developed skin rash all over the body and hemorrhagic ulcers in mouth. There were $3 \times 10^9/l$ platelets in peripheral blood. Autoimmune thrombocytopenia was diagnosed. Aggressive steroid and immunoglobulin treatment was initiated. Despite the treatment platelets stayed very low: $1-5-11-6 \times 10^9/l$. Clinically thrombocytopenia was compensated. Delivery started spontaneously after 10 days of treatment with 18 platelets in peripheral blood count. A healthy girl of 2940 g was born. Uterine hypotonia and blood loss of 1600ml complicated delivery. Baby developed thrombocytopenia after birth as well. Baby and mother recovered after 3 months of steroid and immunoglobulin therapy.

P022

Q-fever during pregnancy: a case report

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Background: Q-fever caused by *Coxiella Burnetii* is a widespread zoonosis. Most human infections are silent or mild. Occurring in pregnancy, however, acute Q-fever is a potentially serious condition due both to placental infection, affecting outcome of pregnancy, and to the relative immunosuppression of pregnancy, which in turn increases the maternal risk of developing chronic Q-fever. Both risks are diminished significantly by administration of antibiotics throughout pregnancy and in the post partum period.

Case: We describe a 39-year-old primiparous woman, employed as a veterinarian. She had an occupational exposure to parturient livestock infected with *C. Burnetii*. Because of uncharacteristic signs of infection she was tested specifically for *Coxiella Burnetii*, and had rising levels of IgM and IgG antibodies. She was treated according to the Danish recommendations with Sulfametizole and Trimetoprim throughout the pregnancy, and Doxycycline post partum. She delivered a healthy child by elective cesarian section at 42 weeks.

Follow up serologic tests post partum showed sero-conversion and a fall in antibodies. Nine months post partum, both mother and child remained well.

Conclusion: Acute Q-fever should be suspected in pregnant women with relevant exposure, presenting with unexplained fever.

P023

Acute Q-fever in pregnancy – A matter of concern to Obstetricians in the Nordic Countries?

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Background: Q-fever caused by *Coxiella Burnetii* is a widespread zoonosis. Most human infections are silent or mild. Occurring in pregnancy, however, acute Q-fever is a potentially fatal condition, carrying a very high risk of abortion, premature delivery, stillbirth, and development of maternal chronic disease. These risks are diminished significantly by administration of antibiotics throughout pregnancy.

The primary reservoirs are domestic animals, such as cattle, sheep and goats. The microbe is excreted with urine, faeces and milk, and, in particular, it is shed with amniotic fluid and placental tissue. The microbe is extremely contagious, and resistant to heat, drying, detergents etc. Humans are infected by inhalation of contaminated aerosols. Human-to-human spread is only described from handling infected parturient women.

Lately, a high prevalence of Q-fever in Danish livestock has become evident. In 2007, seven Danish veterinaries were diagnosed with acute Q-fever in pregnancy.

Objective and hypotheses: To assess the incidence of Q-fever in the Nordic countries.

Methods: Searching PubMed for information about Q-fever in the Nordic countries.

Results and conclusions: Not much is published about Q-fever in the Nordic countries – the following was found:

Denmark, 2008: 30% of herds are sero-positive
Finland, 1981: 14 human cases presented
Iceland, 2001: 1 human case presented
Norway, 1997: 4 human cases presented
Sweden, 1993: 12% of veterinaries were sero-positive.

Q-fever is probably underreported in the Nordic countries.

No prevalence studies of relevant populations exist.

We suggest the sero-prevalence of *Coxiella Burnetii* to be assessed in relevant populations of 'Nordic creatures' in future studies.

P024

Uterine artery pseudoaneurysm resulting from hidden uterine rupture misinterpreted as a lower uterine segment necrotic myoma.

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Case Report: A 36-year-old woman presented with severe lower abdominal pain 6 days after her third delivery which was performed by Kiwi Ventouse. Initially a round painful mass on the right side of the lower uterine segment was palpated and a necrotic myoma was suspected. Gray scale ultrasound showed a round mass 6, 8 x 5, 4 cm large, with the same echogenicity as adjacent myometrium. Despite colour and pulsed Doppler ultrasound findings suggestive of uterine artery pseudoaneurysm, the accurate diagnosis was not achieved until two days later when a severe vaginal haemorrhage started and a uterine rupture was identified. Pelvic angiographic embolization was attempted but the haemodynamically unstable condition of the patient required a surgical treatment by subtotal hysterectomy.

A hidden uterine rupture followed by uterine artery pseudoaneurysm is a rare puerperal complication. A differential diagnosis of uterine artery pseudoaneurysm should always be considered when an unusual course of postpartum complication arises, particularly with severe abdominal pain, and not only in cases of secondary postpartum hemorrhage. Although vessels lesions can be expected more often nowadays as a steadily increasing rate of cesarean section is observed, we should be aware that this unusual postpartum complication can arise even after vaginal delivery.

P025

Pre-pregnancy transabdominal cerclage in women with previous second trimester deliveries

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Objective: To evaluate the safety and effectiveness of transabdominal cerclage in women with one or more previous second trimester deliveries.

Methods: A consecutive time series of women who had a transabdominal cerclage applied before pregnancy in 1999–2006. All women were followed until 1st of January 2008.

Results: A total of 45 women were included. 26 (58%) had one and 19 (42%) two or more previous second trimester deliveries. In two instances there were minor

complications to the application of transabdominal cerclage (bleeding of 800 ml and local paresthesia). Within the observation period, 50 pregnancies occurred in 33 women. Seven pregnancies resulted in first trimester abortions, four were missed, one was spontaneous, one ectopic and one induced. Vacuum aspirations were uncomplicated. Six pregnancies had due dates after the end of the observation period leaving 37 pregnancies for analysis of pregnancy outcome.

No patient had a second trimester loss. One birth occurred before 34 weeks and 36 pregnancies (97%) ended after 34 weeks, including a twin pregnancy. Mean GA at delivery was 36+5 (± 3 days). The maximum observed number of successful pregnancies following the procedure was three.

One woman had a hysterectomy following a Caesarean section, no other major or minor complications to Caesarean sections were registered. **Conclusion:** Transabdominal cerclage is a procedure with few complications. The pregnancy rate and outcomes are comparable to or better than those reported for vaginal cerclage. The method should be considered in women with suspected cervical incompetence and a single second trimester fetal loss.

P026

The growth hormone axis in twin pregnancies.

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Background: Twin gestation sets increased requirements for maternal energy metabolism. In order to adapt to these demands the maternal organism is influenced by increased levels of metabolites and hormones from the placenta(-s). Placental growth hormone (PGH) replaces GH during pregnancy and in singleton pregnancies PGH appears to regulate insulin-like growth factor (IGF) levels. Sparse knowledge exists on PGH and IGFs in twin gestations.

Objective: To describe the growth hormone axis in the last trimester in twin pregnancies compared to singleton pregnancies

Methods: Thirteen women with twin gestation were compared to 32 singleton controls with repeated blood sampling in gestational week 28 and 35. Serum was analysed for the content of PGH, IGF-I and -II, GH-binding protein (GHBP) and hPL.

Results: Serum PGH levels clearly increased during pregnancy ($p < 0.001$) and were two-fold higher among twin pregnant women (vs. singleton; $p <$

0.001), as were serum hPL levels ($p < 0.001$). Serum levels of IGF-I and -II were similar in singleton and twin pregnancies. Serum GHBP decreased with advancing gestational age ($p < 0.001$) and were lower in twin pregnancies ($p < 0.001$). In late singleton pregnancy, serum IGF-I correlated to PGH ($r = 0.35$, $p = 0.049$), but not to hPL.

Conclusion: Twin pregnancy is associated with higher levels of PGH (and hPL) compared to singleton pregnancies, but IGFs are at comparable levels. This implies effects of PGH independent of IGFs. Such effects probably may be related to lipid metabolism.

P027

Nitric oxide induced morphological changes in the human uterine cervix studied by electron microscopy

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Background: Nitric oxide (NO) is involved in several reproductive processes, including cervical ripening at term. During pregnancy NO is produced endogenously in the cervix. Nitric oxide mediated effects on the cervix can be studied following vaginal administration of NO donors. The aim of this study was to evaluate by means of electron microscopy possible morphological changes in the cervix following treatment with the NO donor isosorbide mononitrate (IMN).

Methods: Cervical tissue samples were obtained by the use of a Tru-cut® biopsy needle. Eight women were treated with 40 mg of IMN tablets for 4 hours prior to first trimester termination of pregnancy or elective cesarean section. For comparison, biopsies were obtained from one non-pregnant untreated woman undergoing hysterectomy, and six untreated women who had first trimester termination of pregnancy or elective cesarean section. Possible morphological changes induced by NO were examined by means of electron microscopy.

Results: Treatment with IMN resulted in more loosely arranged collagen bundles and fibrils of enlarged diameter. Stromal edema and cellular reactions, i.e. increased number of fibroblasts and smooth muscle cells having more demarcated nucleoli and proliferated granular endoplasmatic reticulum, were typically observed following treatment.

Conclusion: Nitric oxide seems to induce morphological changes similar to those previously observed following spontaneous cervical ripening.

P028

Vaginal nitro induces cervical nitric oxide release in women postterm

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Background: Women postterm have insufficient cervical nitric oxide (NO) release, which, due to cervical ripening effect of NO, may be one explanation for prolonged pregnancy. Cervical NO release is controlled by NO synthases in the cervical canal.

Objective: We studied the effect of glyceryl trinitrate (nitro) given vaginally on cervical nitric oxide release in postterm pregnancy.

Methods: Forty nulliparous women postterm (pregnancy duration of 294 days or longer based on early pregnancy ultrasound) were randomized to vaginal nitro 0.25 mg or placebo. Serial cervical fluid samples, collected before and up to 2 hours after intervention, were assessed for the concentration of NO metabolites (nitrates/nitrites) by Griess reaction.

Results: Nitro induced a mean of 20-fold (5–40) elevation in cervical NO release in two minutes. Thereafter cervical NO release reduced slowly up to one hour (3-fold compared to the baseline). Then cervical NO release elevated again up to two hours (7-fold compared to the baseline). No changes were seen in women treated with placebo. No women went into labor after sole nitro/placebo, and therefore misoprostol augmentation was needed. Magnitudes of cervical NO elevation showed no relationship with the time-interval from induction to delivery or duration of labor.

Conclusions: In women postterm, vaginal nitro induced cervical NO release, which has a role in cervical ripening. Thus vaginal nitro may be beneficial in postterm induction.

P029

Cervical biopsies can be send by mail for assessment of cervical incompetence

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Objective: Cervical incompetence occurs in 0.1–1% of all pregnancies and might be caused by congenital low cervical collagen present before onset of pregnancy or by preterm softening of the cervix due to an abnormal

inflammatory response. A former study showed an association between congenital cervical incompetence and low collagen concentration in the cervical connective tissue. The aim of this study was to refine the method for determination of Hydroxyprolin in order to make the method usable in the clinic.

Methods: Handling of cervical biopsies was examined on biopsies taken after hysterectomy. The biopsies were either frozen directly or air-dried. Cervical biopsies from twenty normal non-pregnant women, totally 80 biopsies, were analyzed for the Hydroxyprolin concentration. The biopsies were divided into groups with and without epithelium.

Results: No statistical difference were found in the Hydroxyprolin concentration in cervical biopsies frozen directly compared with air-dried biopsies (46.5 (range 42.5–56.3) µg/mg dry weight vs. 48.4 (range 43.6–51.4) µg/mg dry weight; P=0.486 Mann Whitney test). Biopsies analyzed with epithelium had a lower median cervical Hydroxyprolin concentration compared with biopsies without epithelium (28.7 (range 11.7–65.7) µg/mg dry weight vs. 37.5 (range 17.8–62.2) µg/mg dry weight; P=0.001 T-test). Differences were found in biopsies from different parts of portio in three women.

Conclusions: Cervical biopsies for Hydroxyprolin analysis can be air-dried and sent by mail. Epithelium must be removed prior to Hydroxyprolin analysis. Two cervical biopsies must be collected from each woman.

P030

Comparison of Three Modes of Administration of Prostaglandin for Induction of Labour

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Background: Tablet prostaglandin (PG) has been promoted for induction of labour (IOL) by National Institute of Clinical Excellence in the UK. However there is concern regarding bioavailability and efficacy.

Purpose: To assess if mode of administration of PG for IOL influences admission length and delivery outcome.

Methods: 130 singleton nulliparous women were included in a prospective sequential comparison at West Middlesex Hospital in London. Labour was induced by either Dinoprostone Tablet, – Gel or – Sustained Release Capsule (Propess).

Results: Tablet IOL was associated with more vaginal examinations than gel IOL (p<0.05). Length of induction was unaffected by mode of administration however tablet IOL was more likely to require syntocinon (p=0.03). Propess was not associated with a shorter induction.

Conclusion: We demonstrated that gel prostaglandin has advantageous properties as it is easier to apply and linked with fewer examinations and possibly more effective labour. Surprisingly the sustained release prostaglandin capsule did not demonstrate a benefit in our institution.

P031

Association between lactate concentration in amniotic fluid (AF) and labour dystocia.

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Labor dystocia is one of the main indications for operative intervention during parturition. Inefficient long lasting uterine activity might lead to anaerobic metabolism in the uterine muscle with a progressive lactate acidosis. A possible source of lactate in AF could be the myometrium.

Objective: If the concentration of lactate in AF when action line (AL) is passed can be a better predictor of labor outcome than using the partogram alone.

Study design: 54 women attended the labour ward at Soder Hospital, Stockholm, Sweden. All with a gestation >34weeks; ruptured membranes; regular painful contractions and no sign of fetal distress. All had an IUP inserted, and 5ul AF collected for lactate analysis every hour.

Results: A ROC (receiver operator characteristic) curve was constructed, and a cut-off value of lactate >10.1mmol/l in AF when AL was passed, was found to best distinguish between labour ending in operative delivery due to dystocia or not.

42/59 of the women passed AL during labour. 24/42 had a lactate value >10.1 mmol/l when AL was passed, and 23/24 (96%) were operatively delivered due to dystocia. Among the 15 women who passed AL with a lactate concentration <10.1 mmol/l, 10/15 (67%) had a spontaneous vaginal delivery. Three of the women had no sample collected when AL was passed.

It gives a sensitivity of 82% and a specificity of 91%, ($p < 0.001$).

Conclusions: Measurement of Lactate concentration in AF when passing AL might be a better predictor of labor outcome than just using the partogram alone.

P032

Decreased Cesarean Section Rate after the Introduction of Robson's 10 Group Classification System.

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Background: At FSA the cesarean section (CS) rate increased to 24.9% in 1999, 8% above national average. Clinical audit using Robson's 10 group classification has been associated with a reduction in CS rate. The system was introduced in the hope that it would safely decrease the CS rate.

Methods: Medical audit using Robson's 10 group classification was implemented in 2000 with careful prospective recording of labours on an extended partogram and computerized analysis of results which were discussed regularly.

Results: In 1999 nearly 70% of CS were in groups 1 (nulliparous, singleton, cephalic, spont. labour at term), 2 (nulliparous, singleton, cephalic, induced labour or CS at term) and 5 (nulliparous, singleton, cephalic at term previous CS). The CS rate was high in these groups at 18.4%, 41.4% and 68.5% respectively.

After introducing the audit and active interest in the progress of labour, the overall CS rate has decreased to between 14.6% and 16.9% over the last four years. The CS rate in group 1 has dropped and is now steady between 5% and 7%. Induction of labour for nulliparous women has been avoided where possible and women with previous CS encouraged to attempt vaginal delivery. The instrumental delivery rate has gone down from 11.1% in 1999 to around 7% with concomitant increase in normal delivery rate. There is no evidence for worse neonatal outcome.

Conclusions: After the introduction of the clinical audit at FSA fewer women have cesarean section. Most important is the decreased CS rate in the group 1, nulliparous women in spontaneous labour, which will eventually reduce the number of women with previous CS as those women have a high CS rate.

P033

Vaginal birth following one prior cesarean section

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Objective: The safety of vaginal birth after cesarean section (VBAC) has been debated. The aim of this study was to examine the different modes of delivery after one previous cesarean section (CS) and those factors which may influence mode of delivery after CS.

Material and methods: From 1.1.2001–31.12.2005 925 women with one previous CS and a following singleton pregnancy were identified and included in the study. Information regarding mode of delivery, induction of labor (IOL), instrumental delivery (ID), the urgency and indications for the first and second CS, birth weight and Apgar scores were collected.

Results: VBAC was successful in 346 (37%), 341 (37%) delivered with an elective CS and 238 (26%) urgent CS. The VBAC rate increased during the study period, from 35% to 46%. Trial of labor (TOL) was initiated in 564 and 61% of those were successful while 39% delivered by urgent CS. TOL was less likely to succeed if birth weight was >4000 grams vs <4000 grams ($p < 0.01$). ID was needed in 25% cases. Uterine rupture occurred in six women (1%) during TOL. Five underwent urgent/emergency CS and had healthy infants, one intrapartum death occurred. Perinatal mortality rate was 5.4‰. Successful VBAC following CS for malpresentation was more likely vs following elective CS; 53% vs 21% ($p < 0.0001$).

Conclusion: The results of this study indicate that VBAC is a safe option for women with history of one previous cesarean section while in the hospital setting where there are resources for an immediate CS.

P034

Continuous uterine massage in cases with retained placenta reduces blood loss?

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Background: The main clinical consequence of retained placenta is massive post partum haemorrhage. To reduce maternal morbidity, intervention is recommended after thirty minutes with retained placenta.

Objective: To evaluate the effect of continuous uterine massage on maternal morbidity in cases of retained placenta where manual removal was necessary.

Methods: Consecutive, prospective study with historical controls. Cases: all patients ($n = 43$) with retained placenta who required manual removal during a six month period. All had continuous fundal massage after decision of manual removal to start of operation. Controls: patients ($n = 43$) with retained placenta who underwent manual removal during the corresponding 6 month period the preceding year. Primary outcome measures were need of blood transfusion and duration of hospital stay.

Results: Cases (massage group) had significantly less need of blood transfusion, 30.2% v. 53.5% ($p < 0.05$) and shorter hospital stay: 2.4 ± 1.2 v. 4.0 ± 3.4 days (mean \pm SD), $p = 0.001$, compared to controls. Estimated blood loss was significantly lower among cases, 1441 ± 777 ml v. 1886 ± 723 ml, (mean \pm SD), $p < 0.05$. Cases were more often allowed a top up dose in an existing epidural or spinal anaesthesia compared to controls, 43.9% versus 23.3% ($p < 0.05$).

Conclusion: Addition of continuous uterine massage to standard clinical practice could possibly reduce blood loss and maternal morbidity in patients with retained placenta requiring manual removal. Also beneficial for the patient, was the safer method of anaesthesia.

P035

Fire drills in obstetric emergencies

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Implementations of obstetric drills are described and a well-implemented training programme seems to be a prerequisite for successful implementation of drills.

In Obstetric Department Rigshospitalet, Denmark a mandatory multiprofessional obstetric skills training programme was carried out involving 220 staff members from 2003–2006. This gave the prerequisites for implementation of drills in obstetric emergencies.

Aim of this pilot study was to implement, describe and evaluate impact of fire drills in obstetric emergencies.

Methods and materials: Five fire drills in management of post partum bleeding, shoulder dystocia, preeclampsia and eclampsia included 23 staff members (midwives, doctors, nurses and auxiliary nurses). Study period: March to August 2007.

Results: Data obtained on anonymous questionnaires ($N=23$) revealed that fire drills by the participants were considered educational for the individual staff member and for the organisation. Five participants consider the fire drills were unpleasant but educational.

Conclusions: It is challenging to plan and full fill fire drills in an obstetric department. Beside those

responsible to carry through the fire drill, to observe and to give feedback, other staffs need to replace the work the involved staff members leave to take part in the drill. In case of, recently serious events, understaffing, busy periods it was decided to cancel the planned fire drill.

Perspectives: To evaluate the impact of fire drills among all staff members (N= 160) in the Obstetric Department a questionnaire survey has been completed. Data from this survey will be ready to be presented at the NFOG June 2008.

P036

Breech delivery

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Background: There has been discussion on the mode of delivery in breech position and doubt if vaginal delivery is a safe option.

Objective: The aim of this study was to compare the perinatal outcome with either a policy of planned vaginal delivery (PVD) or planned cesarean section (PCS).

Materials and Methods: We performed a retrospective study of 681 breech deliveries at term between January 2002 and August 2007 in Turku University Hospital. Selection criteria for PVD were flexed fetal head, normal pelvis in clinical evaluation, fetal weight estimate <4kg, biparietal diameter <100mm, adequate x-ray pelvimetry (c.vera >10,5cm) and mother's wish.

Results: 30,4% of infants were delivered by PVD and 69,6% by PCS. The indications for CS were maternal request (50%), large fetus (17%), inadequate pelvis (19%) and other obstetrical reasons (12%) like previous CSs. Fetal distress, unsuccessful induction and prolonged labor resulted in CS 16,4% in the PVD group.

The birth weight was similar in both groups; 3304g (PVD) and 3449g (PCS). Infants born in PVD group had pH lower than 7.05 in 2,4% vs. 0.4% in PCS group. However, there was no difference in average a-pH (7,25 in PCS group vs. 7,30 in PCS group) or Apgar scores (average 9 in both groups). The babies treated in the neonatal intensive care unit were 16,4% in the PVD group and 12,7% in the PCS group. Perinatal mortality was 0% in both groups.

Conclusions: Vaginal delivery in breech position is still a safe option when planned carefully.

P037

Post-partum urinary tract infection

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Background: Urinary tract infection (UTI) is the most frequent hospital-acquired infection. Limited data exist quantifying the risk of post-partum UTI among women having vaginal birth (VB) or caesarean section (CS).

Objective: To compare occurrence of UTI within 30 days post-partum for women with VB or CS, and to describe the microorganisms cultured.

Methods: In a five-year period our registry-based cohort study included 26,025 women giving VB and 5,738 women having had CS.

Information on birth, time of admission- and discharge, date and result of urine culture, and date for antibiotic prescriptions postdischarge were included.

We defined UTI as either treatment with antibiotics used specifically for UTIs in Denmark, and/or culture of pathogens in urine $\geq 10,000$ cfu/mL, occurring within 30 days post-partum.

Results: A total of 620 women met the definition of UTI; 179/5,738 (3.1%) experienced UTI after CS, compared to 441/26,025 (1.7%) after VB. Among women with CS, 36% of the UTI episodes happened within the first week after birth, compared to 43% among women having VB. About 2/3 of all UTI's were identified through prescriptions on antibiotics redeemed after discharge. The most frequently isolated microorganisms were E. coli (36%), Enterococci (15%), β -haemolytic streptococci of group B (14%), and other Enterobacteriaceae (13%).

Conclusions: The risk of acquiring UTI within one month after birth was nearly two times higher after CS than after VB. About two third of the UTIs were first recognized and treated postdischarge. β -haemolytic streptococci of group B were frequently isolated.

P038

Cesarean Section and Maternal Complications

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Background: Cesarean section (CS) is considered to be a relatively safe procedure. We conducted a study to evaluate the incidence of maternal complications

related to CS in a high quality health care system with low maternal and perinatal mortality rates.

Materials and Methods: Data was collected prospectively during a six month period of all caesarean deliveries from 12 largest delivery units taking care of 68.7% of all deliveries and performing 69.3% of all caesarean sections in Finland (n= 2500). The coverage of data was 85.1% of all CSs performed in the study hospitals during the study period.

Results: CS-rate was 16.6% in the study hospitals during the study period; 46.5% were elective operations. 27.8% of the patients had one or more complications, when haemorrhage less than 1500ml was excluded, and 58.4% if hemorrhage over 500ml was included. Severe complications (massive hemorrhage, organ injury, intestinal obstruction, pneumonia, sepsis, pulmonary oedema, deep venous thrombosis, re-operation) occurred in 10.6% of the cases. Perioperative complications other than hemorrhage occurred in 5.1%, anaesthetic complications in 4.3%, and puerperal complications in 20.2% of all cases. Infection complicated CS in 11% of cases.

Complications were more common among women with BMI over 30, over 35 yrs of age and with gestational weeks less than 30 at operation. Emergency operations carried a higher risk of complications than elective ones

Conclusions: Even today caesarean delivery carries a relatively high risk of complications.

P039

Complications of caesarean section

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Objective: Cesarean section (CS) is one of the most common operations performed today. Therefore, we decided to look at the rate of complications during and following caesarean sections.

Study design: All cases of CS during July 1st 2001 – December 31st 2002 were examined in a retrospective manner. Information was collected from maternity records regarding the mother, the surgery and its complications if they occurred, during or following the operation.

Results: During this period 706 women with a singleton pregnancy were delivered by CS at the University Hospital in Iceland. Complications were; blood loss 1000 ml (16,5%), fever (12,4%), rupture from the uterine incision (7,7%), the need for blood transfusion (3,4%), wound infection (1,9%), headache attributed to spinal anaesthesia (1,6%), the need for re-operation (1,3%), postoperative ileus (1%), uterine infection (1%), urinary tract infection (0,6%), subileus (0,3%) and pneumonia (0,3%). The CS's were divided in 5 groups and compared; 1) elective CS, 2) urgent CS

before full dilation of the cervix, 3) CS after full cervical dilation without attempt of instrumental delivery, 4) CS following an attempt of instrumental delivery, 5) emergency CS. Blood transfusion was most common in women undergoing CS after an attempt of instrumental delivery. Fever and uterine rupture from the uterine incision were most common in women undergoing CS after full cervical dilation without attempt of instrumental delivery.

Conclusion: CS is a common operation with frequent complications, especially if labor is advanced. However, even elective CS carries a significant rate of complications.

P040

Mode of delivery in UK mothers with HIV

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Decisions regarding mode of delivery in HIV positive women differ between the UK and the Scandinavian countries.

Whereas in the latter most women are encouraged to have a caesarean section, in the UK an increasing number of HIV positive women deliver vaginally, with good outcomes for mothers and seronegative babies.

The current views and policies regarding mode of delivery for HIV positive mothers in the UK will be presented.

Audit data on mode of delivery and outcomes in HIV from a large South London Hospital during the years 2005–2007 will be presented.

P041

Does TachoSil® improve the healing of the myometrium after cesarean section?

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Background: It is well-known that cesarean section (CS) in many cases is followed by defects in the myometrium. Saline contrast sonohysterography (SCSH) has revealed a niche (triangular, anechoic area at the presumed site of incision) in approximately 60% of patients following CS. Undetected bleeding during suturing the myometrial incision may be a cause to incomplete healing.

Objective: To investigate whether TachoSil® improve the healing of myometrium after CS, measured by (1) the thickness of the residual myometrium (2) its proportion to the thickness of the anterior myometrium and (3) the depth of the niche.

Methods: In ten women with planned CS TachoSil®

maternal transfer of metformin was significantly higher than maternal-to-fetal transfer ($P < 0.05$) in perfusions performed with and without cimetidine.

Conclusions: Supratherapeutic concentrations of cimetidine did not affect the maternal-to-fetal or the fetal-to-maternal transfer of metformin in human placenta, which may suggest the lack of significant involvement of active organic cation transporters in the placental transfer of metformin.

P044

Placental infarcts in preeclamptic, gestational hypertensive, Intrauterine Growth Retardation (IUGR) and normotensive pregnancies

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Background: Placental infarcts are previously reported to be related to hypertensive complications and IUGR in pregnancy or influence pregnancy outcome.

Objective: To evaluate the frequency of placental lesions in women with complicated pregnancies (cases) with normotensive controls, and to compare the detection of placental infarcts by the midwife with the findings at pathologic examination.

Methods: Placentas were collected from 546 participants in a prospective study with standardized data collection on pregnancy, delivery, placenta and infant. All placentas were routinely examined by the midwife and one of the 2 pathology specialists in the project.

Results: Four groups were established, preeclampsia (A, n=86), IUGR (B, n=10) gestational hypertension (C, n=32), and normotensive controls (D, n=418). Among women with preeclampsia, 65% had severe disease. As expected women from groups A/B were more likely to give birth earlier to lower weight infants with a lower weight placenta than groups C/D.

Placental infarcts were diagnosed by the midwife in 9.6, 10.0, 10.0 and 3.1% in group A-D ($p = 0.02$). At gross pathologic examination infarcts were suggested in 59.3, 30.0, 43.8 and 25.1% ($p < 0.01$) – and diagnosed by microscopy in 59.3, 50.0, 34.4 and 23.4% ($p < 0.01$). Of infarcts diagnosed in group A-D 29.4, 40.0, 18.2 and 16.8% constituted $\geq 10\%$ of the total placental tissue ($p = 0.36$).

Conclusion: Placental infarcts are significantly more common in preeclamptic and IUGR pregnancies than in pregnancies with normotension and gestational hypertension. The study emphasizes the need for pathologic examination due to a high proportion of macroscopic misclassifications at delivery.

P045

Histopathological examination of pcos placentas – metformin or placebo in pregnancy

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Background: Women with polycystic ovary syndrome (PCOS) seem to experience more complications in pregnancy than control women. In a RCT we found that PCOS women (n = 38) who received metformin (n = 18) had less serious pregnancy complications compared to those taking placebo (n = 20). Since we found more pregnancy complications among patients in the placebo group, we investigated if this was reflected in the placenta.

Objectives and hypotheses: Our hypothesis was that the placentas from patients who received placebo would demonstrate more pathology compared to those who received metformin in pregnancy.

Methods: Thirty-seven placentas from patients randomized to metformin (16) or placebo (21) in a double blind design. At birth the placenta was collected for gross and histopathological examination. Standardized slides were processed. The slides were examined by an experienced pathologist.

Result: There was generally a high incidence of pathology. The rate of infection, was higher in the placebo group. The incidence of other pathological findings was similar in the two groups.

Conclusions: Contrary to what we hypothesized, pathology was equally distributed, and did not reflect the clinical picture. Patients receiving metformin presented similar placental pathology, without corresponding clinical symptoms. Signs of infection were more common in placentas from patients in the placebo group compared to metformin group.

P046

Maternal risk factors for fetal growth restriction (FGR) in Latvia

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Objectives: Maternal factors and maternal lifestyle may be associated with FGR. Until now these factors were not evaluated in Latvia. The aim of this study is to determine the etiologic factors and risk groups for IUGR in Latvia.

Methods: We started our study in May 2007. Till the 1st of January forty six patients were included. Assessment of the risk factors in 23 pregnant women with confirmed diagnosis of IUGR (FGR group) who entered Riga Maternity Hospital was performed. As a control group we included 23 pregnant women with normal fetal development (control group). Special questionnaire was used. The data about lifestyle habit were collected. All included cases were singleton pregnancies. The research protocol was confirmed in the Ethical Committee of the Riga Stradins University.

Results: The mean age of women in FGR group was 30 years versus 25 in control.

There was no significant difference between the two groups in respect to living place, educational level and employment. In FGR group more patients were unmarried (12/23 vs7/23) and smoking before (8/23 vs4/23) and during pregnancy (7/23 vs3/23) as well as drug users (1/23 vs0/23) comparing to the control group. STS cases (3/23 vs0/23), extragenital pathology (10/23 vs3/23) and medication use for therapeutic reason (5/23 vs1/23) were significantly higher in FGR than in control group.

Conclusions: Maternal age, marital status, smoking, addictive substances abuse and therapeutic agents use during pregnancy, as well as extragenital pathology and STS are the main risk factors for IUGR in Latvia. Better understanding of these etiologic conditions may lead to improved prediction, prevention and management of FGR in Latvia. We will continue our study analyzing fetal factors and blood flow.

P047

Respiratory dysfunction in infants born by elective cesarean section without labor

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Objective: To evaluate the effects of gestational age at the timing of elective caesarean section (ECS) on the incidence of respiratory dysfunction in the newborn.

Study group and methods: This was a retrospective study. All infants born by ECS at the Landspítali-University Hospital Iceland over a 10 years period (1996–2005) at >37 weeks gestation and diagnosed with transient tachypnoea of the newborn (TTN) or respiratory distress syndrome (RDS) were included in the study.

Results: Of the 1486 infants delivered by ECS over the study period 57 (3.8%) developed TTN (50 infants) or RDS (7 infants). The incidence of respiratory dysfunction was inversely related to gestational age, 13.8% at 37 weeks gestation and 2.5% at 40 weeks gestation. A statistically significant reduction in the incidence of TTN or RDS was observed from 38 weeks to 39 weeks gestation (6.6% and 2.3% respectively; $p < 0.001$). There has been a reduction in the incidence of ECS before 39 weeks gestation since 2001, when guidelines regarding optimal timing of ECS were set at our hospital.

Conclusion: The incidence of respiratory dysfunction in neonates born by ECS is inversely related to gestational age, even in the term infant. It is important to delay ECS until 39 weeks gestation whenever possible, in order to minimize the risk of respiratory dysfunction in the newborn infant.

P048

Oxygen transport to the fetus during normal vaginal delivery and during elective Cesarean section

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Objective: To evaluate oxygen transport to the fetus during normal vaginal delivery (NVD) and during elective Cesarean section (ECS).

Study group and methods: 50 newborn infants born by NVD and 50 infants born by ECS were studied. Factors reflecting oxygen transport to the fetus were

measured in venous and arterial cord blood: pH, partial pressure of oxygen and carbon dioxide, oxygen saturation, blood oxygen content, base deficit, and lactic acid (LA), erythropoietin, nucleated red blood cells and haemoglobin.

Results: There was no significant difference in venous blood oxygen content between the two groups. However, arterial blood oxygen content was significantly lower in the infants born by ECS than in those born by NVD. Infants born by NVD had significantly lower pH ($p<0,001$), greater base deficit ($p<0,001$), higher LA ($p<0,001$) and erythropoietin concentrations ($p=0,01$), more nucleated red blood cells ($p=0,004$), and higher hemoglobin concentrations ($p=0,002$) in venous blood than in the infants born by ECS. pH was lower ($p<0,001$) and LA concentrations were higher ($p<0,001$) in arterial blood than venous blood in both groups of infants.

Conclusions: (1) NVD causes reduction in oxygen transport to the fetus, resulting in acidosis and stimulation of blood forming tissues. (2) ECS is associated with more reduction in umbilical arterial cord blood oxygen content than NVD. (3) When evaluating acidosis in newborns after delivery it is more reliable to measure pH and LA concentrations in arterial rather than venous cord blood.

P049

Birth asphyxia and hypoxic ischemic encephalopathy, incidence and obstetric risk factors

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Objective: Newborn infants are still suffering from birth asphyxia and in severe cases leading to hypoxic ischemic encephalopathy (HIE) with permanent neurological damage. The objective of this study was to assess the incidence, obstetric risk factors and the sequela of severe asphyxia at Landspítali university hospital (LSH).

Material and methods: All term infants born at LSH from 1.1.1997–31.12.2001 with birth asphyxia, defined as five minute Apgar score <6 , were included in the study ($n=127$). Clinical information were collected retrospectively from maternal records on maternal diseases during pregnancy, cardiotocogram (CTG), type of birth, the presence of meconium, operative delivery rates, birth asphyxia and HIE.

Results: The incidence of birth asphyxia was 9.4/1000 live term births during the study period, with increasing incidence during the three last years. The incidence of HIE was 1.4/ 1000 live term births. Severe maternal diseases during pregnancy were not a significant risk factor for asphyxia. Meconium and nuchal cord was

present in 50 and 41% of cases, respectively. Abnormal CTG was observed in 66% of cases and 79% of the HIE cases. Operative deliveries vs other deliveries at LSH were; ventouse 22% vs 6.8% ($p<0,001$), forceps 6.3% vs 1,03% ($p<0,001$), emergency cesarean section 19.7% vs 11.4% ($p=0,008$).

Conclusion: The incidence of birth asphyxia is higher in LSH compared with other studies. Correlation between CTG and the development of HIE following severe asphyxia is poor. In low risk pregnancies there is a need for alternative methods with high sensitivity and specificity to detect intrapartum asphyxia.

P050

Birth asphyxia, neonatal risk factors for hypoxic ischemic encephalopathy

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Objective: Neonates suffering from severe birth asphyxia may develop hypoxic ischemic encephalopathy (HIE), some of which develop permanent neurological damage. As the incidence of asphyxia and HIE in Iceland is unknown, this study was conducted. Furthermore, we evaluated the association between some neonatal risk factors and the development of HIE.

Material and methods: All term infants born at LSH from 1997–2001 with birth asphyxia, defined as 5 minute Apgar score <6 , were included in the study. Clinical information, length and weight, Apgar scores at 1, 5 and 10 minutes normoblasts count, initial pH and hemoglobin levels were retrospectively collected.

Results: The incidence of HIE after birth asphyxia was 1.4/1000. The infants who developed HIE had significantly lower birth weight and Apgar scores at one, five and ten minutes. They also had lower umbilical artery pH, had more base deficit and lower serum bicarbonate concentrations than the infants who did not develop HIE.

Conclusion: The incidence of HIE was low compared to other studies. Birth asphyxia resulting in HIE is associated with lower birth weight, Apgar scores, pH and neonatal hemoglobin levels at birth. We conclude that neonates with low hemoglobin level are at increased risk for developing HIE and that low pH and Apgar scores may predict worse outcomes after birth asphyxia.

P051

Assessment of perinatal outcome – analysis of 7 years of STAN usage in normal pregnancies.

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ST analysis as an adjunct to CTG was introduced into clinical praxis in Göteborg in September 2000. Improvements in outcome were noted during the initial 2 years.

Aim: To find to what extent the initial improvements with ST could be maintained.

Methodology: Seven year data analysis of the Gothenburg cohort of pregnancies of >34 weeks gestation entering active labour and assessed to be at low risk and thus delivered at the two low risk units at Mölndal and Östra. The analysis included 48676 deliveries out of which 44333 had cord acid base data available.

Results: From an initial usage of 26% of all deliveries in 2001 at Moelndal, STAN has become part of regular care with 70% being monitored in 2007. Over the last 4 years and 29816 deliveries in Göteborg, only one case has died during the neonatal period after being monitored with CTG+ST, corresponding to the marked reduction noted in perinatal mortality with the 4-year average PNM decreasing from 6.5 to 4.3 (OR 0.66, 0.54–0.82, $p < 0.001$). The overall umbilical cord metabolic acidosis rate ($\text{pH} < 7.05 + \text{BDecf} > 12.0 \text{ mmol/L}$) during the 7-year period was reduced from 0.76% to 0.15% (OR 0.19, 95%CI 0.10–0.38). The figures for Moelndal was a reduction from 0.72% to 0.06% (0.08; 0.02–0.36).

Conclusions: The risk of a normal pregnancy to result in an asphyxiated newborn have been reduced to a level not previously thought possible.

P052

Low umbilical artery pH level at birth associates with the development of asthma among 5–6 year old children

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Background: The development of asthma among offspring may associate with the complications during perinatal period. Umbilical gas analysis is the most objective method to assess newborn's well being at birth. We evaluated if the umbilical artery pH level at birth is associated with the development of asthma among offspring at the age of 5–6 years.

Methods: This study was part of our earlier reported asthma-case control studies. Asthmatic children were selected from national registry for asthma reimbursement and cases were randomly selected from national database controlling for age and sex. Detailed information on delivery was obtained through registry linkage (STAKES). This study population included only singletons and all those who had the umbilical arterial pH level recorded for the analysis ($n=405$). Logistic regression analysis was used to investigate the relationships between asthma and pH values with various confounders.

Results: Median levels of umbilical artery pH levels were similar between asthmatics ($n=222$) and controls ($n=183$), but asthmatic children had two- to threefold significantly more lower umbilical artery pH levels (≤ 7.24 , ≤ 7.15 , ≤ 7.10) in a dose dependent manner compared with controls even after confounding.

Conclusions: Our findings show that prenatal stress detected by low umbilical artery pH values associated with the development of asthma in later life. It is possible that stress detected as a low umbilical artery pH value influences the development of the neonatal neuroendocrine system and further the immune system, or those children with the increased risk of asthma have a priori impaired tolerance to stress during birth.

P053

Risks associated with extremely large babies

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Background: There is increased risk of complications for mother and child at the birth of a macrosomic infant, in particular very large babies (birthweight $\geq 5000 \text{ g}$) Birthweight in Iceland is among the highest in Europe.

Methods: A retrospective case-control study including all births of very large babies in the years 1996–2005 in Iceland, with two matched normal weight controls for each case. Descriptive statistics and multiple regression were used to estimate the risk of complications.

Results: There were 343 births of very large babies or 0.9% of all singleton livebirths. There was a significantly increased risk of shoulder dystocia (OR 26.9, CI95% 11.1–65.1), but also of emergency cesarean section (OR 5.2, CI 95% 3.4–8.0) and failed induction of labour (OR 4.3, CI95% 1.7–11.0), but elective section was not more frequent (OR 1,1, CI95% 0.6–2.0). There was increased risk of congenital malformation (OR 2.1, CI95% 1.2–3.7), birth injury (OR 3.7, CI95% 2.1–6.8) and postdelivery metabolic

disturbance (OR 2.5, CI95% 1.1–6.2) among the very large babies.

Conclusions: There is considerable danger of shoulder dystocia attached to the delivery of very large babies along with increased risk of various complications for these neonates and their mothers. Better clinical assessment methods to detect these babies and to protect them and their mothers are needed.

P054

Pregnancy exposure to venlafaxine, preterm delivery and Apgar score

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Background: Venlafaxine is used in pregnancy despite limited knowledge about the potential effects on the fetus. The paucity of human data means that the safety in relation to the newborn essentially is unknown.

Objective: To investigate the association between pregnancy exposure to venlafaxine and gestational age at birth and Apgar score at 5 min.

Methods: Information on medication during pregnancy was obtained from the Danish National Birth Cohort and linked to the Danish Birth Registry. The outcome of 22 pregnancies of women treated with venlafaxine was compared with 479 women with self reported depression and no use of psychotropic medication, including antidepressants. Potential confounding was evaluated by regression analyses guided by directed acyclic graphs.

Results: Venlafaxine exposure during pregnancy was associated with a reduction in gestational age of 9 days [4; 13] and an odds ratio for preterm birth of 5.2 [1.3; 21] compared to no psychotropic exposure in pregnancies of depressed women. The odds ratio was 6.8 [1.6; 28] for all births and 5.1 [1.0; 26] for term births for an Apgar score lower than 9 at 5 min.

Conclusion: The study suggests an association between treatment with venlafaxine during pregnancy, preterm delivery and lower Apgar scores, even in term babies. However, additional studies are needed to confirm these findings.

P055

PCOS and breast feeding

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Background: Polycystic ovary syndrome (PCOS) is associated with sub-fertility and infertility. There is also an increasing body of evidence that pregnancy complications, such as miscarriage, gestational diabetes mellitus, pre-eclampsia and possibly preterm delivery are more frequent in PCOS. Little is known about PCOS and breastfeeding.

Objective: To investigate the breastfeeding rate in new mothers with PCOS.

Methods: Case-control, questionnaire study; 36 women with PCOS and 99 controls. Controls were matched for age, gestational length and parity. Breastfeeding at one, three and six months post partum was registered and the two groups were compared.

In PCOS women, androgen levels through pregnancy were analysed and related to breastfeeding rate.

Results: At one-month post partum 27 (75%) of the women with PCOS were breastfeeding exclusively, whereas five (14%) did not breastfeed at all. Among controls, 88 (89%) were breastfeeding exclusively and two (2%) did not breastfeed ($p = 0.03$). At three- and six-months post partum breastfeeding were equal in the two groups. DHEAS levels at gestational week 32 and 36 showed a negative association with breastfeeding in PCOS. Breastfeeding rate was not associated to maternal gestational levels of androstenedione, testosterone, SHBG or free testosterone index in PCOS.

Discussion: The present study seems to be the first case-control report on breastfeeding in women with PCOS. Commencing breastfeeding seemed to be affected, but once lactation has been established, breastfeeding was as successful in PCOS women as in controls. DHEAS is a weak androgen but it is important because of the high circulating levels. Compared to testosterone and androstenedione it is 500–2000 times more prevalent. DHEAS is also important because it is the “substrate” for the intracellular conversion to testosterone and androstenedione in peripheral cells. These androgens are metabolized in the cells and are only released after they have been converted to androgen metabolites.

Conclusions: Women with PCOS seem to have reduced breastfeeding rate in the early post partum period.

Gestational DHEAS might negatively influence breastfeeding rate in PCOS women.

P056

Maternal androgen levels associate negatively with breastfeeding

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Objective: To investigate a possible association between second trimester maternal androgen levels and breastfeeding.

Methods: Prospective observational study. Women from a random sample of pregnant women (n = 63) and from a group at risk of giving birth to a small for gestational age child (n = 118) were included. All participants had singleton pregnancies and one or two previous births. Maternal androgen levels were measured at gestational week 25. The association with breastfeeding was explored by univariate and multivariate linear regression analyses. Analyses were adjusted for other factors known to associate with breastfeeding.

Results: In the random group breastfeeding at 3 and 6 months were negatively associated with maternal testosterone, androstenedione, and free testosterone index levels. After correction for maternal age, education and smoking, breastfeeding were negatively associated with free testosterone index at 3 and 6 months.

In the high risk group breastfeeding at 6 weeks and 3 months associated with maternal DHEA, and this association persisted after correction for maternal age, education and smoking.

Conclusions: Maternal gestational androgen levels are negatively associated with breastfeeding.

P057

Maternal mortality and near-miss morbidity in metropolitan La Paz, Bolivia.

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Background: In Bolivia the maternal mortality ratio (MMR) is reportedly 229/100,000 live births. It is estimated that 37% occur at facility level, possibly indicating a high uptake of severe complications, under-registration in rural areas or low quality of care.

Objective: To describe the occurrence of maternal mortality and severe acute morbidity (near-miss) and to explore socio-demographic factors associated with adverse maternal outcome.

Methods: Facility-based, cross-sectional study at four hospitals in La Paz, Bolivia, where maternal health care is free since 1996. Maternal deaths and near-miss cases during 6 months were included using disease-specific criteria. Cases were compared to facility-matched referents as to socio-demographic factors.

Results: MMR was 187/100,000 live births (Range 97–417/100,000) and near-miss prevalence was 50/1000 giving a mortality index of 3.6%.

Haemorrhage and severe preeclampsia/eclampsia were main causes of morbidity while sepsis caused most deaths. The majority (75%) was in a critical condition already on arrival at hospital. Age >35 years (OR 3.71), rural residence (OR 2.12), primiparity (OR 1.85) and non attending prenatal controls (OR 1.57) were independently associated with adverse maternal outcome. Age <20 years showed a negative association (OR 0.48).

Conclusions: Combining near-miss and mortality reviews clarifies the epidemiologic panorama faced at facility level. This study describes a high capacity to treat severe complications but indicates major delays in reaching hospital also in an urban setting with free maternal care. The results raise the hypothesis of an ongoing generational shift in health care-seeking behaviour and a change in cause of mortality patterns at facility level.

P058

Physical and mental handicaps among women examined at center for victims of sexual assault (CFVSA) in Copenhagen

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Background and objective: Victims of sexual assault are examined at specialized centres, but the organization and service offered differs.

The centre in Copenhagen is the largest in Denmark, with an intake of app. 300 per year.

The objective of this study was to present the prevalence of physical and mental handicaps including sub-stance abuse among women attending the CFVSA.

Methods: Data on all women attending the CFVSA during the period 2001–2006 who reported a sexual assault were extracted from an anonymous database.

Results: Included were 1,451 women. A total of 2.9% were registered as having a physical handicap. Mental handicaps were registered as mental disease (7.4%), mental retardation (3.4%) or other mental handicap (2.4%); with a total prevalence of 13.2%. Daily intake of psychoactive drugs was reported by 13.3% of all women. A total of 6.2% received treatment as an out-patient while 1.5% was hospitalized at a psychiatric department at the time of history taking. Active alcohol abuse was reported by 3% and drug abuse by 2.4%.

Conclusion: Women with physical and mental handicaps are common among victims examined at the CVSA in Copenha-gen. Because of their disability they may have special needs recovering from a sexual assault and the help offered needs to be coordinated with existing therapy. The sexual assault is for some just one traumatic event among others and the approach to help these women has to be multi faceted and in fact underlines the impor-tance of an interdisciplinary approach involving physicians, psychologists and social workers.

P059

TNF-a polymorphism and pathogenesis of Chlamydia trachomatis associated infertility

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Objectives: A proportion of Chlamydia trachomatis (CTR) infected women develop chronic infection that may result in tubal factor infertility (TFI). We studied TNF- α genotype distribution in women with various manifestations of tubal damage.

Methods: The study population consisted of 94 infertile women (median age 33 years) with laparoscopically verified TFI and a history of CTR infection. At least one of the following immunological markers was positive: lymphocyte response or serum antibodies to CTR EB antigen or CHSP60. The control group consisted of 176 female blood donors (median age 41 years). Genotyping of TNF- α -308 was performed by PCR using the Cytokine Genotyping Tray (One Lambda Inc., Canoga Park, CA).

Results: Genotype distribution did not differ between TFI cases (GG 70.2%, GA 29.8%, AA 0%) and controls (72.2%, 25.6% and 2.3% respectively). However, TNF- α -308A allele was more common in TFI cases with moderate or severe adhesion formation (25.8% and 46.9%, respectively) or with sactosalpinx formation (38.2%) than in cases with no or minimal adhesions (18.2%) or sactosalpinx formation (17.1%).

Conclusions: Our results indicate that TNF- α -308A allele which is associated with high TNF- α production increased the risk for severe tubal damage. TNF- α mediated inflammatory response may induce severe tissue damage.

P060

Human lactobacilli as supplementation of clindamycin to patients with bacterial vaginosis reduce the recurrence rate; a 6-month, double-blind, randomized, placebo-controlled study.

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The objective was to investigate if supplementary lactobacilli treatment could improve the initial cure rate after vaginal clindamycin therapy, and if lactobacilli as repeated adjunct treatment during 3 menstrual cycles could lengthen the time to relapse after initial cure.

Methods: Women with bacterial vaginosis diagnosed by Amsel criteria were offered vaginal clindamycin therapy followed by vaginal gelatine capsules containing either 109 freeze-dried lactobacilli or identical placebo capsules for 10 days during 3 menstrual cycles in a double-blind, randomized, placebo-controlled trial.

Results: The initial intent to treat analysis for the one-month cure rate was 64% in the lactobacilli group and 78% in the placebo group ($p > 0.05$). The 76 cured women were followed for 6 menstrual cycles or until relapse within that time span. At the end of the study, 64.9% (24/37) of the lactobacilli treated women were still BV-free compared to 46.2% (18/39) of the placebo treated women. Comparison of the two groups regarding "Time from cure to relapse" was statistically significant ($p = 0.027$) in favour of the lactobacilli treatment. Adjuvant therapy with lactobacilli contributed significantly to avoidance of relapse with a proportional Hazard Risk ratio of 0.73 (0.54–0.98) ($p < 0.05$).

Conclusions: The study shows that supplementary treatment combining two different strains of probiotic lactobacilli does not improve the efficacy of BV therapy during the first month of treatment, but for women initially cured, adjunct treatment of lactobacilli during 3 menstrual cycles lengthens the time to relapse significantly in that more women remained BV free at the end of the 6-month follow up.

P061

The Effect of Endometrial Thickness on In Vitro Fertilization (IVF)-Embryo Transfer/Intracytoplasmic Sperm Injection (ICSI) Outcome

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Background: The value of measuring the endometrial thickness and studying the endometrial receptivity in the context of assisted conception remains a contentious issue

Objective: To examine the effect of endometrial thickness on pregnancy rates in IVF/ICSI cycles in an African population

Methods: A prospective analysis was carried out between May 2005 and April 2006 on the effect of endometrial thickness on IVF – embryo transfer / ICSI outcome in a dedicated Assisted Reproductive Technology (ART) unit in Abuja and its subsidiary in Rivers state, Nigeria.

251 patients who met the inclusion criteria were analysed. They were grouped on the basis of endometrial thickness into 3 groups; <7mm, 7–14mm and >14mm. The main outcome measure was pregnancy.

Results: Age, duration of infertility and number of oocytes recovered, were not significantly different between the pregnant and the non pregnant groups. $p=0.1475$, $p=0.5224$ and $p=0.5032$ respectively.

There was no statistically significant difference in the endometrial thickness in the general pool of patients between those who achieved pregnancy and those who did not, 11.82(+/-1.90) and 11.88(+/-3.17) respectively. $p=0.8521$.

There were significantly more pregnancies in the 7–14mm endometrial thickness group compared to the <7mm and >14mm groups. $p=0.004$ and $p<0.0001$ respectively.

Conclusion: The findings in the study suggest that though there is no statistically significant difference in endometrial thickness between pregnant and non pregnant patients following IVF/ICSI, significantly more pregnancies would occur when the thickness is 7–14mm compared to when it is <7mm or >14mm.

P062

Intrauterine polyps and their influence on infertility

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Background: Different theories regarding infertility in women with intrauterine polyps have been presented. It has been speculated that intrauterine polyps may work as an Intrauterine device.

Objective: to evaluate if polypectomy enhances fertility and delivery rate after hysteroscopic operation.

Hypothesis: Surgical removal of intrauterine polyps enhances fertility.

Methods: Descriptive cohort analysis. All patients operated in Denmark in a six-year period (2001–2006) was extracted from the Danish National Registry of Hysteroscopy Operations (HyskoBase) and sent a questionnaire. The HyskoBase is a quality database in which the data are registered: e.g.: age, symptoms, hysteroscopic findings and surgical complications. A total of 390 patients with infertility were included. 13 women were lost to follow-up, leaving 377 women who were sent a questionnaire.

Results: Median age: 36 (21–48 years). The majority of women had only one polyp (Range 1–10). In our material, 11 cases had a polyp and an intracavitary myoma; in 10 cases a polyp and a septum. 7 women had a re-operation for polyps. The median size of polyps was 1 cm (range 0,5–5cm). So far 51 women has returned the questionnaire. Three were excluded. Of the remaining 48 women, there were a total of 67 pregnancies and 51 deliveries in 40 women. (pregnancy rate 83%). In the total material, number and size of polyps will be correlated with pregnancy rate and postoperative time to conception.

Conclusion: Our preliminary results show that hysteroscopic polypectomy may have some beneficial effect on infertile women.

P063

Biochemical and morphological changes in the uterine cervix after pre-treatment with isosorbide mononitrate and misoprostol

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Background: Despite the wide clinical use of cervical softening little is known about the mechanism behind the biochemical process leading to cervical softening. Prostaglandins and nitric-oxide (NO) donors have been

used as priming agents of the cervix. The objective of this study was to evaluate cervical softening after pre-treatment with the prostaglandin misoprostol and NO donor isosorbide mononitrate (IMN) and look for morphological changes with electron microscopy (EM) and inflammatory events by investigating MMP1, MMP9 (immunohistochemistry, real time RT-PCR) and IL 8 (ELISA, real time RT-PCR).

Methods: Women undergoing surgical termination of first trimester pregnancy were given either misoprostol 200µg or IMN 40mg for cervical priming or no treatment (control group). Cervical biopsies were taken from the cervical anterior lip and were either snap frozen in liquid nitrogen (immunohistochemistry, real time RT-PCR and ELISA) or fixated in glutaraldehyd (EM).

Results: Treatment with misoprostol resulted in a more clear splitting and desorganization of the collagen fibres, the granular endoplasmatic reticulum appeared more proliferative and dilated then in specimens from IMN-treated women (EM). IL 8 was higher after treatment with misoprostol (ELISA). MMP 1 and MMP 9 showed higher values for IMN treated women (immunohistochemistry). There was no difference in the expression of IL 8, MMP 1 and MMP 9 between the three groups (real time RT-PCR).

Conclusion: Misoprostol seems to induce more morfological changes than IMN. Inflammatory events with higher IL 8 were seen in misoprostol treated women and higher MMP 1 and MMP 9 were seen in IMN treated women.

P064

The advantage of daily symptom ratings for the diagnosis of menstrual cycle linked conditions

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Background: Several medical conditions are affected by the hormonal fluctuation over the menstrual cycle. Conditions like premenstrual dysphoric disorder (PMDD), the less severe premenstrual syndrome (PMS), asthma, migraine, acute intermittent porphyria and epilepsy are diagnoses that can be deteriorated depending on increasing or declining levels of gonadal hormones. By diagnosing these conditions at an early stage it is possible to minimize the time of patient suffering and to be able to offer an adequate treatment.

Methods: By using daily prospective symptom ratings as a tool the cyclical nature of the disorder can easily be identified. We use an instrument for diagnosing cyclic

symptoms called the Cyclicity Diagnoser (CD) scale that is validated for the diagnosis of premenstrual syndrome. In this study we have used this scale to investigate different patient categories for appearance of symptoms related to the different phases of the menstrual cycle.

Results: Cyclical patterns depending on the underlying disorder can be shown and the diagnosis of cyclicity is easy to obtain. The pattern of symptoms and prevalence of severity groups show that up to 10% were affected in the work for up to 10 days and 15% in their social life for up to 14 days and up to 40% during 14 days in their family life. In women with moderate and severe PMS/PMDD much higher frequencies were obtained.

Discussion/Conclusion: Menstrual cycle linked conditions can be very severe and the diagnosis of the severe cases can easily be made by using daily prospective symptom ratings with the Cyclicity Diagnoser.

P065

Association of interleukin-10 promoter polymorphism with endometriosis

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Endometriosis occurs in one in 7–10% of women in the general population and is one of the most common causes of pelvic pain and infertility in women.

Three single nucleotide polymorphisms (SNPs) in the promoter region of interleukin-10 (IL-10), IL-10 (-1082)A>G, (-819)C>T and (-592)C>A were examined in 100 Danish patients with endometriosis and 358 healthy Danish blood donors and haplotype associations were tested.

No strong single IL-10 marker (rs1800896, rs1800872 and rs1800871) effects were observed and no single haplotype showed significant association, however the ACC/ACC genotype (marker rs1800896- rs1800871- rs1800872) showed a strong significant association since this genotype was significant higher among patients with endometriosis than in healthy controls (OR = 3.55 [CI = 1.42-18.92]; p = 0.006).

In conclusion, our results suggest that the IL-10 ACC/ACC genotype which is known to be a 'low-producer' of IL-10 has a strong association to endometriose.

P066

Decreased blood flow in left medial prefrontal and right striatal areas correlates to increased self-rated fatigue in women with premenstrual dysphoria

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Background: Premenstrual dysphoria is characterized by the cyclical occurrence of negative mood and physical symptoms during the luteal phase of the menstrual cycle. The cardinal symptoms; irritability, depression of mood, fatigue, affective lability and impaired impulse control, can all be alleviated by drugs increasing brain serotonin signaling.

We earlier reported the serotonin-precursor part of this study in which we found strong inverse correlations between worsening of cardinal mood symptoms and changes in brain serotonin precursor trapping.

Objective: To study if menstrual phase cerebral blood-flow changes from mid-follicular to late luteal phase in women with premenstrual dysphoria correlate to changes in self-rated mood-symptom scores.

Methods: Positron emission tomography with ¹⁵O-H₂O and ¹¹C-5-hydroxy-L-tryptophan (¹¹C-5-HTP) was used to assess brain blood-flow and presynaptic aromatic amino acid decarboxylase activity, the enzyme converting ¹¹C-5-HTP to ¹¹C-serotonin.

Region-of-interest analysis was performed in the following regions on both sides: medial prefrontal cortex, dorso-lateral prefrontal cortex, the putamen, and the caudate nucleus, and in a single whole brain region of interest.

Changes in mood and physical symptoms were assessed from daily VAS self-ratings.

Results: For the left medial prefrontal cortex, the right putamen, and the right caudate nucleus, changes in blood flow showed strong inverse, ¹¹C-5-HTP-adjusted, correlations to changes in VAS scores of fatigue.

No significant phase differences in blood flow were seen or correlations between changes in blood flow and changes in ¹¹C-5-HTP trapping.

Conclusions: Worsening of fatigue was correlated to a decrease in frontal brain regional blood flow in women with premenstrual dysphoria.

P067

Difference in hormonal levels between lean and overweight women with PCOS

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Background: Polycystic ovary syndrome (PCOS) is linked to insulin resistance. Several studies indicate that normal weight women with PCOS have normal insulin sensitivity, which has led to the hypothesis that there are different causes for PCOS in lean and overweight women and that treatment and long time health hazards could also differ.

Objective and hypotheses: The objective was to study a possible difference in hormonal levels between overweight and lean women with PCOS in our population. This could support the hypothesis mentioned above.

Methods: Retrospective study of all patients with PCOS seen at the department of Obstetrics and Gynecology, Aarhus University Hospital Skejby, during a three year period. Patients included: Fulfilled the Rotterdam criteria for the diagnosis, had a BMI between 20 and 40, did not take any medication influencing hormonal levels, were not pregnant or lactating, and their files contained all information wanted for the study. All information was entered into a database and analysed with the statistical software program Stata, version 9.2 (StataCorp 2005). Differences between groups was tested with two-sample t-test after log transformation if appropriate. Spearman correlation coefficients were used to assess the correlation between BMI and hormonal levels.

Results: Ninety-four patients were included. Gonadotropins, dihydroandrostenedione, androstenedione and sexual hormone binding globulin (SHBG) were significantly higher in lean than in overweight women with PCOS, while there was no difference in testosterone. There was a strong correlation between BMI and testosterone index (T/SHBG) ($r = 0.44$, $p = 0.000$).

Conclusions: The study supports the hypothesis that overweight and lean women with PCOS differ in several areas that may be important with regard to treatment and long term health risk.

Metabolic characteristics/features of first degree relatives of women with polycystic ovary syndrome

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Women with polycystic ovary syndrome (PCOS) display irregular menses, hirsutism, infertility and elevated risks for metabolic syndrome and cardiovascular diseases. There is some evidence about the heritability of PCOS, but it is unclear, whether family members of PCOS women have increased risks for metabolic disorders, cardiovascular diseases or infertility problems.

Object: To investigate the occurrence of symptoms of PCOS and morbidity among the first degree relatives of symptomatic and symptomless women.

Design and methods: A postal questionnaire including questions about hirsutism and oligomenorrhoea was sent to all women of the Northern Finland Birth Cohort 1966 (n=5889), of whom 4523 women responded and 3.4% reported both symptoms. A questionnaire on the occurrence of symptoms of PCOS, infertility, early balding and metabolic diseases in their relatives was sent to 98 randomly selected symptomatic and 163 symptomless women. Fourty-three symptomatic and 86 symptomless women answered the questionnaire.

Results: We obtained data from 183 relatives of symptomatic women and 412 relatives of symptomless women. Compared to relatives of symptomless women, mothers had significantly more often symptoms of PCOS. Sisters suffered more significantly from hirsutism and infertility, had less children and were more often childless. No significant differences were found in the frequency of cardiovascular diseases, hypertension or diabetes in female relatives. Fathers had more often hypertension.

Conclusion: These results suggest that infertility problems in sisters of women with PCOS symptoms should be actively investigated and diagnosed. A follow-up of blood pressure should be considered for the fathers of women with PCOS symptoms.

The cost-effectiveness of estradiol 0.5 mg /norethisterone acetate 0.1 mg for Swedish women with an intact uterus and menopausal symptoms

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Background: At menopause about 75% of women experience menopausal symptoms such as hot flushes, night sweats, sleep disturbances, mood swings, anxiety, cognitive defects and atrophy-related symptoms of the urogenital tract. These symptoms may lead to social impairment and work-related difficulties that significantly decrease overall quality of life (QoL).

Objective and hypotheses: The objective of this study was to assess the health economic consequences of a new ultra-low dose HRT product, estradiol 0.5mg/norethisterone acetate 0.1mg (E2 0.5/NETA 0.1), for the treatment of 50 to 60 year old women with menopausal symptoms.

Methods: The cost-effectiveness of E2 0.5/NETA 0.1 was estimated using an individual state transition model consisting of the following disease states: coronary heart disease, stroke, venous thromboembolic events, breast cancer, colorectal cancer, hip fracture, vertebral fracture and wrist fracture. The effects of E2 0.5/NETA 0.1 on disease risks during therapy were extrapolated from the original Women's Health Initiative study. Fracture risks, mortality, estimated symptom related QoL-loss and unit costs were derived from published sources. E2 0.5/NETA 0.1 was assumed to completely alleviate symptom related QoL-loss.

Results: The cost per QALY gained for E2 0.5/NETA 0.1 compared to no treatment ranged between 16,692 SEK and 12,212 SEK for 50–60 year old Swedish women from a societal perspective. Similar results were obtained for the third-party payer perspective.

Conclusion: The results indicate that compared to no treatment, E2 0.5/NETA 0.1 may be a highly cost-effective treatment for women with an intact uterus experiencing menopausal symptoms.

P070

Hormone Therapy modulates ETA mRNA expression in the aorta of ovariectomized New Zealand White Rabbits

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Objective: To study the effect of 17 β -estradiol (E2) or conjugated equine estrogens (CEE) alone and in combination with either norethisterone acetate (NETA) or medroxyprogesterone acetate (MPA) on the endothelin-1 (ET-1) system in the aorta.

Methods: Non-atherosclerotic New Zealand White rabbits were treated orally with E2, CEE, E2 + NETA, CEE + MPA or placebo for 28 days (n=7–8). The thoracic aorta was used for mRNA expression analyses and the epicardial coronary artery was used for myograph analyses.

Results: E2 and CEE alone reduced ET-1 receptor subtype A (ETA) mRNA expression in the aorta compared to placebo treatment (0.80 \pm 0.25 vs. 1.13 \pm 0.31 and 0.83 \pm 0.25 vs.1.13 \pm 0.27, p<0.05) (mean \pm SD, Student's t-test). The E2-induced reduction in ETA mRNA expression persisted with the co-administration of NETA (0.71 \pm 0.24 vs. 1.13 \pm 0.31, p<0.05) but the CEE induced reduction in ETA mRNA expression was not maintained with the co-administration of MPA (0.93 \pm 0.27 vs.1.13 \pm 0.27). Treatment with CEE alone significantly increased endothelin-1 converting enzyme (ECE) mRNA expression and CEE combined with MPA reduced prepro-endothelin-1 (ppET-1) mRNA expression when compared to placebo treatment. E2 alone or combined with NETA did not affect ECE or ppET-1. ET-1 receptor subtype B (ETB) mRNA expression and ET-1 induced vasoconstriction was unaffected by treatment.

Conclusions: E2 and CEE treatment exert potentially beneficial vascular effects through regulation of the ETA receptor. The effect was maintained with the co-administration of NETA but not MPA. Different effects of various hormone components may explain some of the variable effects of Hormone Therapy on the arterial wall.

P071

A longitudinal study of contraception in the same women, born in 1962, followed over a quarter of a century

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Objectives: To describe and compare contraceptive use in the same women born in 1962 and followed from 19 to 44 years of age.

Material and methods: In 1981 a postal questionnaire regarding the use of contraception, pregnancies and reproductive health was sent to a random sample (n = 656) of 19 year old women resident in the city of Göteborg. The responders were contacted again every 5th year in 1986, 1991, 1996, 2001 and 2006 in order to follow changes in contraceptive use over time.

Results: The questionnaire was returned on all six occasions by 308 women (25 yr response rate 47%) and these women were included in the analyses. The mean number of pregnancies/children increased successively from 0.22/0.05 at 19 years of age to 3.02/2.11 at 44 years of age. At 19 years of age 75% of the women reported they had already used contraception and this had increased to 97% at 44 years of age. Combined oral contraceptives were the commonest form of contraception currently used up to 29 years of age (51%/49%/24% at 19/24/29 years of age respectively). Thereafter intrauterine devices (IUD) were the commonest form of contraception (Cu-IUD: 21%/20%/17%; LNG-IUS:15%/19%/22% at 34/39/44 years of age respectively). The use of a condom was as follows during the 25 year study period:15%/12%/25%/22%/22%/15%. Non-use of contraception was as follows: 34%/29%/ 26%/21%/ 21%/ 26%.

Conclusion: Choice of contraception was strongly related to age and parity.

P072

Age, parity, history of abortion and contraceptive choices affect the risk of repeated abortion

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Objective: The rate of repeated abortion varies from 30 to 38% in Northern Europe. However, risk factors as regards repeated abortion are poorly understood. We characterized risk factors related to sociodemographic

characteristics, history of abortion and post-abortal contraception.

Design and population: A prospective cohort study of 1269 women undergoing medical abortion between August 2000 and December 2002. The subjects were followed via the Finnish Registry of Induced Abortions until December 2005, the follow-up time (mean \pm SD) being 49.2 \pm 8.0 months.

Results: Altogether, 179 (14.1%) of the subjects requested repeated abortion within the follow-up time. In univariate analysis, a history of abortion, parity, young age, smoking and failure to attend the follow-up visit were associated with repeated abortion. Immediate – in contrast to postponed – initiation of any contraceptive method was linked to a lower risk of repeated abortion. In comparison with combined oral contraceptives, use of intrauterine contraception was most efficacious in reducing the risk of another pregnancy termination. In multivariate analysis, the effects of young age, parity, smoking, a history of abortion and type of contraception on the risk of another abortion persisted.

Conclusions: An increased focus on young women, parous women and those with a history of abortion may be efficacious in decreasing repeated abortion. Contraceptive choices made at the time of abortion have an important effect on the rate of re-abortion. Use of intrauterine contraceptives for post-abortal contraception was associated with decreased risk of repeat abortion.

P073

Satisfaction with contraceptive services and contraceptive behaviour in Estonia, Russia and Finland

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Background: Contraceptive use patterns vary widely in the geographically neighbouring areas of Russia, Finland and Estonia. Use of reliable contraceptive method during last sexual intercourse was highest among Finns (90%), followed by Estonian speakers (78%) and Russian speakers in Estonia (64%) and women in St. Petersburg (59%).

Objective: To investigate to what extent satisfaction with contraceptive services is associated with the use of reliable contraceptive methods in Estonia, St. Petersburg and Finland.

Methods: Data from three comparable surveys on

sexually active women aged 18–44 who needed contraception was analysed: Estonia in 2004 (n=1931), St. Petersburg in 2004 (n=883) and Finland in 1994 (n=1752).

The association between satisfaction and the use of reliable contraceptive method was investigated by logistic regression analyses adjusting for age and education.

Results: In Finland reliable contraceptive use was not related to satisfaction. Among Estonian-speaking women in Estonia, satisfaction with all four aspects was associated with the use of reliable methods: friendliness OR=2.4 (95% CI 1.4–4.3), competence of the staff 1.9 (95% CI 1.1–3.3); confidentiality 1.8 (95% CI 1.0–3.6); duration of consultation 2.2 (95% CI 1.3–3.6). Among Russian speakers in Estonia and women in St. Petersburg, competence of the staff was the only determinant of reliable contraceptive method use: OR=2.6 (95% CI 1.3–5.1) and 2.0 (95% CI 1.1–3.0), respectively.

Conclusion: Perceived quality of contraceptive services may play a significantly greater role in promoting reliable contraceptive use in societies and ethnic groups where this rate is low and need further development in Estonia and Russia.

P074

Is the use of reliable contraceptive methods associated with contraceptive service type?

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Background: During the last 15 years new contraceptive services have become available in Estonia. In addition to the existing state-funded women's out-patient clinics, private gynaecological practices, a family doctor system and youth-friendly clinics providing free access for young people under 25 yrs have been established.

Objective: To investigate to what extent the use of different contraceptive services is associated with the use of reliable contraceptive methods.

Methods: Data from the Estonian 764 sexually active women aged 16–24 yrs who needed contraception. The association between most recently used type of contraceptive service and the use of a reliable contraceptive method (hormonal, condom, IUD) during their last sexual intercourse was investigated by logistic regression analyses adjusting for age and marital status.

Results: Women who had used any type of contraceptive service were more likely to use a reliable contraceptive method compared to those who had not. The highest rate of reliable method use was associated

with the use of contraceptive services at youth-friendly clinics (adjusted prevalence odds ratio POR=4.3, 95% CI 2.2–8.2); followed by “other services” – mainly private gynaecological practices and also family doctors (adjusted POR=3.6, 95% CI 2.1–6.3); and out-patient women’s clinics (adjusted POR=1.7, 95% CI 1.1–2.7).

Conclusion: Reliable contraceptive method use is influenced by contraceptive service type. Services tailored to the needs of young people are more effective for promoting the use of reliable contraception methods among them.

P075

Prevalence of psychiatric disorders and premenstrual symptoms in patients with ongoing or prior experience of adverse mood during treatment with combined oral contraceptives

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Background: Negative mood symptoms remain one of the major reasons for discontinuation of combined oral contraceptive (COC) pills. The aim of this study was to compare prevalence of mood and anxiety disorders in women with different experience of oral contraceptive pills.

Methods: Thirty women currently on COCs with no reports of adverse mood symptoms, 28 women currently on COCs and experiencing mood related side effects from treatment, 33 women who had discontinued COC use due to adverse mood effects, and 27 women who had discontinued COC use for reasons other than adverse mood symptoms were included. Ongoing psychiatric disorders were evaluated by the structured M.I.N.I. interview and prevalence of premenstrual syndrome (PMS) or premenstrual dysphoric disorder (PMDD) by use of daily prospective ratings on the Cyclicity Diagnoser Scale.

Results: Women with ongoing or past experience of COC-induced adverse mood more often suffered from mood disorders than women with no reports of adverse mood while on COC. Self-reported PMS was significantly more common in women with ongoing or past experience of COC-induced adverse mood. However, prospective ratings failed to indicate any differences in prevalence of PMS or PMDD in prior users with positive or negative experiences. Women who had discontinued COCs due to adverse mood symptoms more often had had a legal abortion.

Conclusion: Women with ongoing or past self-reported adverse mood effects from COCs had a significantly increased prevalence of mood disorders.

P076

Does smoking affect the result of treatment for urinary incontinence?

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Background: Smoking is known to delay wound healing and therefore in some surgical departments it is requested to quite smoking several weeks before an operation. And some studies have shown an association between smoking and urinary incontinence.

Objective and hypotheses: We wanted to examine whether smoking affected the result of treatment for urinary incontinence or not.

Methods: The patients seeking treatment for urinary incontinence were asked at their first visit if they were smoking. The patients were treated relevantly according to their type of urinary incontinence. At a follow-up visit after relevant treatment they were asked if their symptoms of incontinence were cured, considerably improved or unchanged. Thus all the patients acted as their own control group.

Results: A total of 1076 women were non-smokers and a total of 330 were smokers. We divided the patients into groups according to age. Our results suggest that smoking has a negative impact on the chance of being cured or improved after relevant treatment. For the group >69 years of age the association is statistically significant ($p < 0.05$). In the others age groups the association is not significant. We also divided the groups according to type of urinary incontinence but this did not affect our results (data not shown).

Conclusion: The study showed a significant association between smoking and result of treatment for urinary incontinence in elderly women. We did not have information on the number of cigarettes smoked and therefore there might be a dose-response relationship which needs to be further investigated.

P077

Pelvic floor muscle training in the prevention and treatment of urinary incontinence in women – what is the evidence? A systematic review

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As evidence from RCTs is emerging, the role of pelvic floor muscle training (PFMT) should continually be assessed. In a systematic review, randomized studies comparing PFMT to either no treatment, placebo/sham treatment or comparison treatment were identified. Rates of continence after treatment, i.e. cure rates

(objective and subjective, where available) were calculated, and relative risks (RR), with 95% confidence intervals (CI), for cure after PFMT were calculated. For preventive peri-partum PFMT, cure was defined as the absence of UI at follow up. Formal meta-analysis was not attempted.

We found nine studies with 5026 randomized participants to compare peri-partum PFMT to routine care for the prevention of urinary incontinence (UI), and 31 studies with 3348 randomized patients comparing PFMT to no treatment, to placebo/sham treatment, to routine care or to other active therapy for UI. Two large studies of 1169 and 1800 women contributed heavily to the evidence on peri-partum PFMT, while studies on PFMT to treat established UI were quite small with a median population size of 50 (range 18–747). A plethora of modalities and training programs were used, making comparison difficult. Duration of follow-up was variable, as was the outcome measures applied.

Variations in study populations, intervention types and outcome measures make comparisons difficult. Available evidence suggests a lack of long-term efficacy of peri-partum pelvic floor muscle training. In established urinary incontinence, there seems to be a modest immediate response to pelvic floor muscle training. We believe that a critical reappraisal of pelvic floor muscle training is needed.

P078

Nocturia in relation to sleep quality in an unselected population of women and men aged 60–80 years in Denmark

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Objective: To investigate the association between nocturia and selected sleep quality variables in an unselected population of women and men aged 60–80 years in Denmark.

Methods: A questionnaire was sent to 2000 women and 2000 men aged 60, 65, 70, 75, and 80 years. The population was selected at random. Questions on sleep quality were based on Basic Nordic Sleep Questionnaire (BNSQ). Nocturia was defined as waking up at night to void (ICS 2002).

Results: A total of 2799 (70%) were fully evaluable on nocturia. Except for snoring and a sensation of good sleep, a significant positive association between number of nocturnal voids and sleep variables (difficulties falling asleep, wake up too early in the morning, excessively sleepy during morning and daytime, sleep length ≤ 6 hours, nap during daytime, length of nap, snoring, leg cramps during evening and night time, and taking sleeping pills) was demonstrated (OR controlled for age and gender: 1.13–1.83, $p < 0.0001$). Only 32.6% of

respondents with nocturia \geq four times per night reported a sensation of good sleep (OR controlled for age and gender: 0.49, $p < 0.0001$). In contrast the majority of respondents (88.5%) having no nocturnal voids reported a sensation of good sleep.

Conclusions: Our results confirm a strong association between the severity of nocturia and affected sleep quality, controlled for age and gender. Nocturia is most often reported to be secondary to medical disorders, but there is a possibility that complaints of nocturia may be a result of awakenings from sleep caused by sleep disorders.

P079

Risk factors for complications with the TVT-procedure

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Background: Complications with the TVT-procedure for female stress incontinence are few. However, the complications can be disastrous for the patient. Is it possible to avoid some complications? Are there special risk factors to observe?

Methods: 104 claims have been submitted to the Swedish Patient Insurance Association concerning TVT-procedures from 1997–2005. Patient records have retrospectively been analyzed to categorize the type of complications and special risk factors.

Results:

Perioperative complications

Bladder perforations	31
Abnormal bleeding	25
Nerve injury	4
Bowel perforation	5
	65

Postoperative complications

Voiding difficulties	42
Perforation of tape to bladder	13
Infection	29
Abnormal pain	13
Defect vaginal healing or tape perforation	2
	101

These complications are in accordance with reports in the literature.

Of the 104 patients 45% (47/104) had undergone previous gynecological surgery which seems to be a risk factor.

30% (31/104) of the perioperative complications were bladder perforations. In 12 of 31 cases the operation was abandoned. In 19 cases the operation was continued but with more complications in 79% (15/19) of the patients.

Laparotomy was performed in 15 cases and in 12 of these within four days after the TVT-procedure, because of heavy bleeding or bowel damage.

Conclusions: Previous gynaecological surgery seems to be a risk factor for complications.

Continuing the TVT procedure after one bladder perforation also seems to be a risk factor. As this is a selected group there is a demand for further investigations together with operative registers.

P080

The effect of hysterectomy or LNG-IUS on wellbeing – A 5-year randomised controlled trial

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Background: Hysterectomy and levonorgestrel-releasing intrauterine system (LNG-IUS) are effective treatment options for menorrhagia. However, the influences of these two treatment modalities on pain and other general symptoms remain largely unclear.

Objective: The purpose of this trial was to compare the effects of hysterectomy and LNG-IUS on lower abdominal pain, back pain, headache, breast tenderness, acne, leucorrhoea and weight gain among women with menorrhagia.

Methods: Of 598 women referred with menorrhagia to the five university hospitals in Finland, 236 were eligible and agreed to participate. Women were aged 35–49 years and randomly assigned to treatment with hysterectomy (n = 117) or LNG-IUS (n = 119). Symptoms were evaluated by questionnaires at baseline, and at 6 months and 12 months after the initiation of the treatment (hysterectomy or application of LNG-IUS), and at 5 years after the randomisation.

Results: 6 months post treatment, back pain, headache, breast tenderness and acne decreased in the both groups (P < 0.001). Lower abdominal pain decreased in the hysterectomy group (P = 0.015). Leucorrhoea decreased in women with hysterectomy (P

< 0.001) and increased in women with LNG-IUS (P < 0.001), and the difference between the groups was significant (P < 0.001). The average weight gain over 5 years was 3.2 kg in the hysterectomy group and 2.0 kg in the LNG-IUS group.

Conclusions: Both hysterectomy and LNG-IUS reduce pain, breast tenderness and acne. Hysterectomy decreases and LNG-IUS increases leucorrhoea. Both hysterectomy and LNG-IUS have a positive long-term effect on general wellbeing among women with menorrhagia.

P081

Introduction of bipolar hysteroscopic transcervical endometrial resection (TCER) in a rural hospital in Iceland

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Objectives: The experience of bipolar TCER on patients with meno/metrorrhagia in a rural hospital in Iceland.

Materials and methods: In a 10 months period from May 2007 until February 2008, 36 premenopausal women aged 44 (34–55) with dysfunctional bleedings, fibroids or polyps underwent bipolar TCER. Patients were treated with bipolar (Olympus) equipment. No pretreatment or timing of the patients was utilized. The safety evaluation included the measurement of irrigation deficit. Additionally operating time, weight of tissue removed and easyness of operation was recorded. Pre- and postoperatively levels of vaginal bleeding, se-Ferritin and FSH will be recorded. Follow up at six and twelve months will be carried out and also the need for secondary intervention.

Results: The average amount of tissue removed was 5 g (1–11). The mean volume of isotonic saline used was 5,39L(3,00–8,90) and the mean deficit volume was 0,08L(0,00–0,53). The operating time was 19 min (9–30). All patients but 2 were discharged after 3 hours (+/-1). Two patients needed an intra uterine balloon for hæmostatic treatment and stayed over night. The histology results were as follows; proliferation 13 (35,1%), secretion 20 (54,1%), adenomyosis 19 (51,3%), leiomyoma 2 (5,4%), hyperplasia simplex 4 (10,8%), endometrial polyps 3 (8,1%), adenocarcinoma 1 (2,7%). Two patients (5,7%) have later undergone hysterectomy, one because of a finding of adenocarcinoma in the specimen and the other due to continuing dysfunctional bleeding. No major perioperative complications have occurred.

Conclusion: Based on our experience bipolar TCER with isotonic saline irrigant is a safe and effective treatment. No complications such as described after

monopolar TCER with Glycine irrigant; cerebral and pulmonary edema and uterine perforations have occurred. The introduction of bipolar TCER in our hospital has reduced the need for hysterectomy by 45% in cases of meno-metrorrhagia, comparing the same period prior to the bipolar TCER treatment. In this material only one patient of 36 (2,8%) needed vaginal hysterectomy because of continuing dysfunctional bleeding after bipolar TCER.

P082

Intravenous Tranexamic Acid And Total Abdominal Hysterectomy: A Prospective Randomized Study

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Background: Bleeding and infections remain primary complications to one of the most common surgical procedures in gynaecology, the total abdominal hysterectomy.

Objective and hypotheses: The aim of this study was to determine if a single intravenous preoperative dose of tranexamic acid (TXA) would benefit the outcome for patients undergoing total abdominal hysterectomy (TAH).

Methods: In a time frame of 18 months, the patients undergoing TAH were randomized to either TXA (15 mg/kg) or placebo administered preoperative intravenously. Before surgery haemoglobin level (Hgb-level) and erythrocyte volume fraction (EVF) were measured and again at day 1, 2 and 3 postoperatively. The perioperative bleeding was measured in mL.

Results: 140 patients were included. 15 were later excluded mainly due to supravaginal procedure. The remaining 125 patients were randomized with 62 in the TXA-group and 63 in the placebo-group. The mean values of perioperative bleeding were 256.3 mL and 266.1 mL in the two groups. The standard deviations were 166.3 and 184.8 mL, respectively. The difference is not statistically significant. The mean values of the decline in Hgb-level and EVF after 3 days also showed no significant differences. When comparing other parameters to perioperative bleeding there is a correlation of both rising BMI and the weight of the uterus.

Conclusion: We found that a single intravenous preoperative dose of TXA has no significant effect on perioperative blood loss and decline in Hgb-level and EVF in patients undergoing TAH.

P083

The treatment of Bartholin's cyst or abscess with silver nitrate

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Background: Bartholin gland cysts and abscesses are common problems in women of reproductive age. The traditional treatment of Bartholin's cyst or abscess is marsupialization, which has disadvantages, such as pain of long duration, scarring, risk of general anaesthesia and risk of recurrence. In the present study we use silver nitrate in the treatment of Bartholin's cyst or abscess and compare to marsupialization. We expect lower healing time, lower recurrence rate and less pain with the silver nitrate treatment.

Methods: It is prospective randomized study. The silver nitrate treatment is performed under local anaesthesia on an outpatient basis. A simple vertical incision 1 cm in length is made in the vaginal mucosa and the underlying cyst or abscess wall. A crystalloid silver nitrate stick of 5 mm in diameter and 5 mm in length is inserted into the cyst or abscess cavity.

The standard marsupialization treatment is performed under general anaesthesia.

Results: The study is still ongoing. Until now fourteen patients with symptomatic Bartholin's cyst or abscess are investigated. Ten patients are treated with intracavitary silver nitrate stick insertion and four patients are treated with marsupialization.

While there is a one recurrence in marsupialization group (n=4), no recurrence is observed in silver nitrate group (n=10).

Conclusion: Management of Bartholin's cyst or abscess by insertion of silver nitrate seems to be more beneficial than the traditional treatment with marsupialization. Because it is effective, simple, inexpensive and the least anaesthetic requiring procedure, which can easily be carried out in the outpatient setting.

P084

Long-term outcome following radical surgery for rectovaginal endometriosis (RVE)

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Background: The purpose of this study was to evaluate the long-term results of surgery for RVE with special emphasis on the risk factors for recurrence.

Patients and methods: A total of 116 patients operated upon RVE at our institution between January 2002 and May 2004 were offered a clinical follow-up evaluation visit; 60 (52%) subjects consented for the study. Daily symptoms (dysmenorrhea, dyschezia, pelvic

pain, dyspareunia and bleeding) were characterized using a diary covering 30 consecutive days prior to clinical assessment. The mean (\pm SD) for time from the index surgery to the follow-up visit was 4.0 (\pm 0.5) years.

The association of various factors with recurrence was performed using a univariate logistic regression model.

Results: Evidence of RVE recurrence on pelvic examination was noted in 21 (35%) of the subjects. However, detection of clinical recurrence was not associated with pain symptoms. Severe recurrent dysmenorrhea (defined as VAS $>$ 3 for $>$ 3 days/30 days) was reported by only four (6.7%) women. Bowel resection was associated with lower risk for recurrence, OR 0.37 (95% CI 0.13–1.07), $p=0.07$. Absence of uterine bleeding, due to hysterectomy or hormonal treatments, was associated with lower risk for recurrence, OR 0.13 (95% CI 0.02–0.65), $p=0.01$.

Conclusion: Surgery for RVE results in significant long-term pain relief. Therapies resulting in amenorrhea may be effective in preventing disease recurrence following surgery for RVE.

P085

Posterior intravaginal slingplasty sling versus unilateral sacrospinous ligament fixation in treatment of severe vaginal vault prolapse

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Background: Sacrospinous ligament fixation is the primary transvaginal surgical procedure in treatment of posthysterectomy vaginal vault prolapse. Recently posterior intravaginal slingplasty sling (PIVS) has challenged it as a minimally invasive new method.

Objective: The aim of our study was to compare the safety, effectiveness and complication rate of sacrospinous ligament fixation and posterior intravaginal slingplasty sling in treatment of severe vaginal vault prolapse.

Methods: We performed a retrospective study of 21 patients who underwent PIVS procedure for treatment of severe vaginal vault prolapse between October 2002 and March 2005 in Oulu University Hospital. Sixteen of these patients came to the control visit. Seventeen patients treated with sacrospinous ligament fixation procedure between February 2001 and June 2004 were chosen as controls. There were no statistically significant differences in patient characteristics between these groups. Minimum follow-up time was 6 months.

Results: Five (31%) patients in the PIVS group had a recurrence of the apical prolapse and were treated with sacrospinous fixation. One (6%) patient in the

sacrospinous ligament fixation group had de novo cystocele which needed surgical treatment. Three patients (18%) in the PIVS group had vaginal erosion. All three erosions were treated operatively.

Conclusions: Recurrence of vaginal vault prolapse was higher in the PIVS group than in the sacrospinous ligament fixation group. The problem of vaginal erosion was noticed in the PIVS group. We suggest that PIVS procedure is not as efficient as sacrospinous ligament fixation in treatment of vaginal vault prolapse and its safety is questionable because of the unacceptable high erosion rate.

P086

The Essure transcervical sterilisation procedure, a review of case series

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Background: Different methods for transcervical sterilisation: chemically, thermally and mechanically, have been attempted through the years, but never proved reliable. A new method with the Essure titanium micro insert coil has internationally shown good results in efficacy, patient safety, patient satisfaction, recovery time as well as economically, when compared to laparoscopic sterilisation.

Objective and hypotheses: To summarise our first and unskilled experiences with the Essure procedure, in comparison to the larger international studies, before deciding further implementation in our department.

Material and methods: Retrospective follow up of 20 cases, aged 28–46, mean 38 years. Data sources were patient files and questionnaires sent out to the patients.

Results: 15 of 20 (75%) returned the questionnaire. Mean follow up time was 32 months [13–55]. Primary successful cases were 14/20=70%. Three patients were rescheduled to optimise the uterine cavity overview, resulting in 17/20 (85%) completed procedures after re-timing, all performed in local anaesthesia in an outpatient setting, causing short recovery time as well as low cost.

3 of 20 (15%) cases were failures: in two cases only unilateral placement of the micro insert was possible. One case did not tolerate the procedure in local anaesthesia.

No serious adverse events occurred. All patients indicated "satisfied" or "very satisfied" with the procedure. No pregnancies have occurred this far.

Conclusions: This review of the first Essure procedures in our department shows results close to those of larger international studies: the method proves efficacy, patient safety, patient satisfaction, short recovery time as well as low cost.

P087

Uterine vascular malformation after elective termination of pregnancy. A case report.

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Background: Acquired uterine vascular malformation is a rare but potentially life threatening condition. It must be kept in mind when treating a patient with abnormal vaginal bleeding after pregnancy and uterine trauma.

Case: A 40-year-old woman was evaluated for severe uterine bleeding that started 3 months after elective termination of pregnancy. The termination was performed at pregnancy week 11+2 using vacuum aspiration and uterine curettage. A levonorgestrel-releasing-IUD was inserted. Uterine vascular malformation was suspected on color Doppler ultrasonography and MRI, and later confirmed by angiography. The malformation was successfully treated with selective embolization of both uterine arteries. Six months after the treatment the patient had a normal menstrual cycle and the uterus appeared normal on both MRI and ultrasound.

Conclusions: Selective uterine artery embolization is a safe and effective treatment for uterine vascular malformations. It preserves the uterus for possible future pregnancies. Uterine curettage should be avoided when a possibility for vascular malformation exists, for it can cause massive bleeding

P088

Medical abortion in Iceland – experience from the first 246 treatments

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Background: Medical abortion is a safe and effective treatment and is increasingly being used as the first choice for termination of very early pregnancy. In february 2006 medical abortion became available to women in Iceland. We present our experience from the first 18 months of this treatment.

Methods: All eligible women (duration of pregnancy <63 days, n=246) who chose medical abortion were included in the study. All women received 200mg mifepristone orally followed by 800µg misoprostol vaginally two days later. Need for surgical evacuation or other intervention (admission for reasons other than evacuation, use of antibiotics or blood transfusion) was analysed.

Results: The proportion of women who had medical abortion was 17,4% of all abortions (n=1417) during

the study period in our clinic, rising to 21% in the latter half of the study period. Curettage was needed in 8,9% of cases. No woman had a continuing pregnancy. Antibiotics were prescribed in 4,1% of cases for suspected infection. Four women were admitted for complications without need for evacuation (urinary tract infection=2, bleeding=2), one woman was admitted to the intensive care unit because of transient high fever and one woman needed blood transfusion.

Conclusions: Our success rate (91,1%) is comparable to what has been reported in other studies (92–99%) and this treatment option has proven to be safe in our settings. In total 17,4% of women opting for abortion had a medical abortion compared to 50% in Sweden and 46% in Denmark. With increasing experience we expect the ratio to increase.

P089

Cytology quality in the national cervical screening program in Slovenia

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Background: In Slovenia the incidence of cervical carcinoma is as high as 17/100,000. Every effort is being made to decrease this incidence.

Objective: The aim of study was to assess cytology quality of Papanicolaou smears in the national cervical screening program.

Methods: In this retrospective study cytology and final biopsy were compared.

Results: In 2005, 426 women with ASC-US cytology were treated by biopsy or cone biopsy at the Colposcopy Center, Department of Obstetrics and Gynecology, UMC Ljubljana. The patients were divided into the low-grade squamous intraepithelial lesion (LSIL) group and the high-grade squamous intraepithelial lesion (HSIL) group. Of the 185 cases in the LSIL group CIN I was found in 44.1%, CIN II in 14.3% and CIN III in 11.5%. No invasive carcinoma was found. Metaplasia was found in 17.3% of cases. There were no pathological findings in 12.8%. Of the 241 cases in the HSIL group CIN I was found in 17.3%, CIN II in 24.7%, CIN III in 45.2% and invasive carcinoma in 2.9% (n=7) of cases. Metaplasia was found in 4.3% of cases. There were no pathological findings in 5.6%. Sensitivity of cytology was 65.4% and specificity 79.6%. Positive predictive value was 73.0% and negative predictive value 73.1%. Odds ratio with corresponding 95% CI was 7.4 (4.4–11.6).

Conclusions: Cytology quality in the national cervical screening program seems to be satisfactory, although sensitivity of cytology needs to be improved.

P090

Human Papillomavirus persistence after treatment for cervical dysplasia with conization and laser vaporisation

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Objective: Effectiveness of treatment of cervical dysplasia by a combination of LEEP (loop electrosurgical excision procedure) conization and laser vaporisation was evaluated using persistence of human papillomavirus (HPV) as outcome. Also, a long-term follow-up on the ability of HPV testing, as compared to cytology, to predict recurrence of high grade CIN was performed.

Methods: 178 women with abnormal smears who were treated using LEEP conization and laser vaporization were scheduled for HPV DNA testing and Pap smears 3, 6, 12, 24 and 36 months post treatment. HPV DNA was detected with general primer (GP5+/GP6+) PCR and typed using reverse dot blot hybridization.

Results: Among patients that were HPV-positive before treatment 10.8% had the same HPV-type 1 year after treatment. Three years after treatment the HPV-infection was still present in 4.5% of patients. The sensitivity for detection of recurrent disease with histopathology-confirmed CIN II or worse (CIN II+) was 100% for HPV-testing and 72.7% for cytology. The specificity was 40.0% for HPV-testing and 20.0% for cytology. Histopathology-confirmed recurrence during follow-up was only found among patients with HPV-persistence. The most common HPV-types at treatment among patients with CIN II+ were HPV 16 followed by HPV 31 and HPV 18.

Conclusions: LEEP conization and laser vaporisation may not be optimal for achieving clearance of the HPV-infection. HPV-testing had better sensitivity and specificity than cytology. Only type-specific HPV persistence predicted recurrence.

P091

HPV-testing of women aged 30 and above with the diagnosis ASC-US/LSIL cervical cytology in the Copenhagen population screening programme for cervical cancer.

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The diagnosis ASC-US/LSIL represents changes ranging from inflammation to carcinoma. Studies have shown that HPV-testing increases detection of cervical cancer

and precursors. Moreover, clinical trials have demonstrated that HPV DNA-detection with the Hybrid Capture II system (HC2), is a more sensitive test than repeat cytology for triage of women with ASC-US. The negative predictive value of DNA-testing for high risk HPV (HR-HPV) is reported to be 0.98 or greater.

HPV DNA-testing is now applied to all women in the Copenhagen population screening program aged 30 and above, who are diagnosed with ASCUS/LSIL. This paper presents data on follow-up diagnosis of this group of women in the year 2006.

1340 women had a HC2-test, of these 692 were positive and 648 were negative for HR-HPV. Women testing positive had the subsequent follow-up diagnoses: 7.3%; only cytological follow-up, 24.5%; normal histology, 15.9%; koilocytosis, 5.0%; ungradable dysplasia, 15.5%; CIN1, 20.5%; CIN 2+ and 11.3%; no follow-up. There were diagnosed 17 cases of CIS, and 5 cases of carcinoma.

In conclusion, the specificity for HC2-test is low, though being the only FDA-approved method for supplementary testing of cervical cytology specimens.

Almost 50% of the HC2-tests were HR-HPV-negative, indicating that retesting of these women could be postponed, with subsequent reduction of anxiety for the women and workload for the healthpersonel. Of the women testing positive for HR-HPV, 20% had a follow-up of CIN 2+ and were referred to cone biopsy. In spite of recommendations, approximately 11% of HR-HPV-positive women were not offered any follow-up.

P092

Evaluation of tampon as a suitable self Sampling device for detection of HPV mRNA from cervical cells – a preliminary report

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Objectives: Self-collection of samples for human papillomavirus (HPV) testing is a feasible alternative method for women who decline to participate in population based cervical cancer screening programs.

This study is performed to prove the principle of tampon collection to detect high risk HPV mRNA, using the PreTect HPV-Proofer, in patients with cervical cancer.

Methods: 45 patients at the Academic Hospital in Pretoria, South Africa, with newly diagnosed cervical cancer have been sampled so far. Samples have been collected with tampons inserted for one hour and with cervix brushes. After the sampling (and preparation of PAP smears) both brushes and tampons were placed in vials with PreTect TM for cell preservation and shipped to NorChip AS, Norway for analysis. The samples have been analysed with the PreTect HPV-Proofer assay

detecting E6/E7 mRNA from the 5 high risk HPV types 16, 18, 31, 33 and 45.

Results: Of the 45 sets of samples 43 had concordant results. In one case the internal control for sample quality was negative and also no HPV was detected in the brush sample, while the tampon was HPV positive and in one case HPV 16 was detected in the tampon sample, but not in the brush sample.

Conclusions: This study indicates that tampon collection and mRNA based testing may be feasible for women who for various reasons are not included in any conventional screening program. Molecular testing is probably at least as good as cytological testing of self-collected samples.

P093

Increased MMP-2, MMP-9 and TIMP-2 expression is associated with progression from VIN to invasive vulvar carcinoma

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Objectives: The expression of matrix metalloproteinases 2 (MMP-2) and 9 (MMP-9) and their tissue inhibitors TIMP-1 and TIMP-2 in vulvar epithelial neoplasia (VIN I-III) and in vulvar invasive carcinoma were evaluated. There are no previous studies on TIMP-1 and -2 in vulvar neoplasia.

Methods: The study population consisted of 68 patients with vulvar neoplasia (13 VIN I, 5 VIN II, 6 VIN III and 44 squamous cell carcinomas). Paraffin-embedded tissue samples were examined by immunohistochemistry. Positive expression was defined as more than 25% of cells showing positive staining.

Results: In all patients with vulvar intraepithelial neoplasia (VIN I-III) MMP-2 expression was shown in 13%, MMP-9 expression in 13%, TIMP-1 in 52% and TIMP-2 in 17% of patients. The positive expressions in carcinoma group were 52% for MMP-2, 36% for MMP-9, 41% for TIMP-1 and 77% for TIMP-2. MMP-2, MMP-9 and TIMP-2 expression showed increasing tendency from VIN lesions towards vulvar carcinoma. TIMP-1 expression did not seem to differ between VIN and carcinoma groups.

Conclusion: We conclude that overexpression of MMP-2, MMP-9 and TIMP-2 may be associated with the progression from vulvar intraepithelial neoplasia to invasive vulvar carcinoma.

P094

'Complications after extensive surgery for epithelial ovarian cancer FIGO stage IIIC and IV in a Nordic Centre. Experiences from the first nine months'

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Background: Extensive surgery for epithelial ovarian cancer stage IIIC and IV and primary peritoneal carcinomas has recently demonstrated a higher rate of optimal cytoreduction and a better 5-years survival rate. However, the complications are not well described.

Objective: To elucidate the influence of extensive upper abdominal debulking procedures on complications and short term survival in FIGO stage IIIC and IV epithelial ovarian carcinomas and primary peritoneal carcinomas.

Methods: Extensive surgical procedures for advanced stages of epithelial ovarian carcinomas and primary peritoneal carcinomas were introduced at our department in March 2007. The procedures include stripping/resection of the diaphragm, splenectomy, distal pancreatectomy, and peritoneal stripping in general. Peri- and postoperative complications including death were recorded.

Results: 13 patients had extensive surgery within the first 9 months after introduction of the procedure. Median age of the patients was 55 years (range 37-71 years).

One patient died within the first postoperative month 6 days after surgery. This patient was the oldest in the cohort being 71 years at the date of operation.

Conclusion: Extensive surgery is generally well tolerated in younger patients (<70 years). Patients aged 70-75 has to be evaluated carefully before offering the extensive procedures, and patient older than 75 years has been excluded from extensive surgery in our centre.

P095

GATA-4 regulates Bcl-2 expression in ovarian granulosa cell tumors

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Background: Ovarian granulosa cell tumors (GCT) are hormonally active malignancies that share several features with the proliferating granulosa cells of normal preovulatory follicles. Excessive cell proliferation and decreased apoptosis have been implicated in the pathogenesis of GCTs, and previous studies suggest a role for transcription factor GATA-4 in these processes.

Objective and Hypothesis: We hypothesized that GATA-4 contributes to GCT pathogenesis by regulating expression of the anti-apoptotic factor Bcl-2 and the cell cycle regulator cyclin D2.

Methods: Tissue microarray of 80 primary human GCTs was subjected to immunohistochemistry for GATA-4, Bcl-2 and cyclin D2, and the data were correlated with clinical and histopathological parameters. In addition, quantitative RT-PCR for GATA-4, Bcl-2 and cyclin D2 was performed on 21 human GCTs. The role of GATA-4 in the regulation of Bcl-2 and *ccdn2* (coding for cyclin D2) was studied by transactivation assays and by disrupting GATA-4 function with dominant negative approaches in mouse and human GCT cell lines.

Results and Conclusions: We found that GATA-4 expression correlated with Bcl-2 and cyclin D2 expression in GCTs. Moreover, GATA-4 overexpression enhanced Bcl-2 and cyclin D2 promoter activity in murine GCT cells. Whereas GATA-4 overexpression upregulated and dominant negative GATA-4 suppressed Bcl-2 expression in human GCT cells, the effects on cyclin D2 were negligible. Our results reveal a previously unknown relationship between GATA-4 and Bcl-2 in the granulosa cells and GCTs, and suggest that GATA-4 influences granulosa cell fate by transactivating Bcl-2.

P096

Vascular endothelial growth factor in granulosa cell tumors

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Background: Ovarian granulosa cell tumors (GCTs) are hormonally active sex cord stromal tumors accounting for 3–5% of all ovarian cancers. GCTs are highly vascularized tumors generally diagnosed at an early stage. Vascular endothelial growth factor (VEGF) is a key regulator of physiological and pathological angiogenesis and plays a crucial role in ovarian function. Furthermore, VEGF regulates tumor angiogenesis and it is expressed in the vast majority of human tumors.

Objective: We studied the expression VEGF and its receptors VEGFR-1 and VEGFR-2, and analyzed microvessel density in GCTs.

Methods: We collected tumor tissue samples and constructed a tissue microarray from 80 female patients diagnosed for GCT in Helsinki University Central Hospital between 1971 and 2003. Immunohistochemical analysis was carried out for VEGF, VEGFR-1 and -2, and CD34 to visualize tumor blood vessels.

Results and conclusions: All GCTs stained positive for VEGF with percentage of positive cells between 10–90% (mean 46.4%). Staining for VEGFR-1 was weak (0–80%, mean 18.4%) whereas VEGFR-2 expression was more intense (22.5–85%, mean 54.4%). The expression of VEGFR-1 and VEGFR-2 correlated positively to the expression of VEGF ($p < 0.0001$). The microvessel density of GCTs varied from 6–171 (mean 45.3) blood vessels per visual field and correlated positively to tumor VEGF expression ($p = 0.04$). Our results give new insight into the biology of the highly vascularized granulosa cell tumors and implicate the possibility of applying novel treatments for GCT patients.

The tumor suppressors p53, p27 and p21, their relationship and their effects on the prognosis in early stage (FIGO I-II) epithelial ovarian carcinoma

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Background: The prognosis for patients in the early stages of epithelial ovarian cancer is much better than for the patients in the advanced stages. However, about 25% of the patients have died of their disease within 5 years from diagnosis.

Objectives: To evaluate the prognostic impact of the tumour suppressors p53, p21 and p27 in epithelial ovarian cancer in FIGO-stages I–II, treated with postoperative adjuvant chemotherapy. Classical clinical (age, FIGO-stage) and histo-pathological factors (type, grade) were included in the analysis.

Methods: In a series of 131 patients with ovarian cancer in FIGO-substages IA–IIC, prognostic factors mentioned above were studied in relation to three important tumor suppressors for oncogenesis (p53, p21 and p27). Tissue-microarray and immunohistochemistry (IHC) were used. All patients underwent primary surgery before chemotherapy 4–6 weeks later. Both univariate and multivariate analysis was performed.

Results: Positive stainings for p53, p27 and p21 was found in 25%, 57% and 14% of cases respectively. P53-positivity was significantly ($P=0.040$) associated with tumor grade and recurrence-free survival ($P=0.015$) and p27-positivity was significantly ($P=0.022$) associated with both histological subtype and tumor grade ($P=0.001$). Recurrent disease was found in 27 out of the 131 (24%) patients and 9 (38%) recurrences were found among the 24 tumors with concomitant positivity for p53 and p27. Furthermore, concomitant p21-negativity was found in 12 (92%) out of the 13 recurrent p53-positive tumors

Conclusion: Patients whose tumours were p53-positive had 2.4 times increased probability of having recurrent disease. In combination with p53 also p27 and p21 are prognostic factors.

Simulation based Team Training as a Tool to Improve Patient Safety and Communication Skills

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Lack in communication and team collaboration is still topping the list of root causes in adverse events' analyses in the area of perinatal deaths indicating that team training in the delivery room is needed.

The aim of this study was to analyse the situations in the delivery room using full scale simulation. Based on this analysis to plan organisational changes and develop a course addressing the issues that prolonged treatment of the patient or set the patient at risk.

Scenarios illustrating different emergency situations in the delivery room were video recorded and the team was interviewed afterwards. The research team analysed recordings and searched for organisational, technical and team factors causing risk situations. Based on these organisational and technical changes were addressed and a simulation based team training course developed for all staff members.

The team was asked to evaluate individually – and team skills after 2 different scenarios on a 4 point Likert scale, where 4 indicate agreement with the question and 1 disagreement.

A total of 154 staff members (obstetricians, midwives, anaesthesiologists, anaesthesia – and OR nurses) participated in the courses. The results of self assessment questionnaire indicate that the team improve team skills such as for example use of clear messages, clear leadership, re-evaluation of the patient and prioritizing resources. Overall satisfaction with the course was very high.

The staffmembers rated their own performance and the performance of the team significant higher after the training. The quality of the messages and introduction of new teammembers was also rated significant higher after 2 scenarios.

The research team is now analysing the videos for essential crisis resource management principles. These results will be presented at the meeting.

The study is an example of how simulation can be used to look at clinical situations and identify risk

situations. Based on the analysis, organisational issues can be changed and clear learning objectives described for team skills. The ratings of the participants indicated improvement of team skills.

We conclude that full scale simulation in known environment is a very useful tool to improve team skills and patient safety.

P099

Retention of Skills in Procedural Laparoscopic Virtual Reality Simulator Training

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Background objective and hypotheses: Several studies in Gynecology and Surgery have demonstrated the construct and contrast validity of the LapSim virtual reality (VR) simulator, both of basic and procedural skills. The transferability to real operations has also been demonstrated.

However, an unanswered question regarding simulator-training is the durability, or retention, of acquired skills from simulator-training.

The aim of this study was to assess the retention of skills in the LapSim VR simulator, 6 and 18 months after an initial training-course.

Methods: The investigation was designed as a 6 and 18 months follow-up on a cohort earlier participating in a test- and training-programme in LapSim VR.

The cohort consisted of two groups of 10 each: novices (<5 procedures) and experts (>200 procedures).

All participants initially performed 10 sets of simulations consisting of three basic skill tasks and one procedural (salpingectomy) task. Assessments of skills were based on time, economy of movement and bleeding.

The groups were re-tested 6 and 18 months after the initial test. None of the novices performed laparoscopic surgery in the follow-up period. The experts continued their daily work with laparoscopic surgery.

Results and conclusions: The novices showed retention of skills following 6 months for both time and movement ($p < 0,01$) and bleeding ($p < 0,04$). After 18 months novices were back to their initial level of performance. This indicates loss of skills in the period between 6 and 18 months. The experts showed consistent performance over time.

This information can be included when planning the surgical-curriculum involving simulation for trainee-doctors.

P100

An Observational Crossover Comparison of Specialist Training in Obstetrics and Gynaecology in Great Britain and Denmark

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Training in Obstetrics and Gynaecology in Northern Europe is going through major changes as the speciality is increasingly subspecialised and work pattern is changing. The author is approaching completion of the specialist training in UK after initially having started training in Denmark. UK training is strictly formalised including biannual and annual formal assessment of progress, postgraduate exam and formalised assessment of clinical skills. The personal experience of two very different training systems and the recent revision of the training system in UK ('Modernising Medical Careers') is being reviewed. There may be important lessons to learn in Scandinavia from the UK experience.

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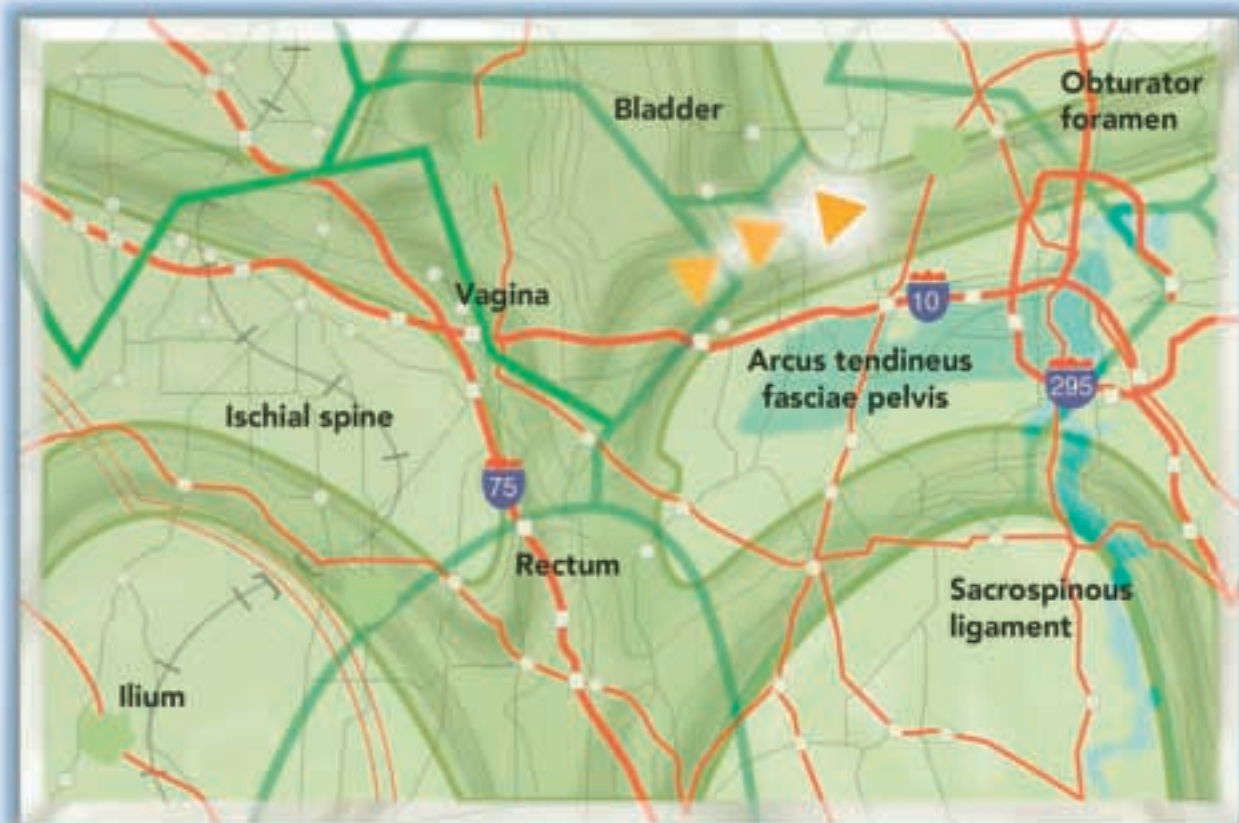
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