1st Nordic Congress on Obesity in Gynaecology and Obstetrics (NOCOGO) · 22 -24 October 2012, at Hotel Legoland, Billund, Denmark

Welcome to Billund
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It is with great pleasure that I – on behalf of the organizing committee – welcome you to the 1st Nordic Congress on Obesity in Gynaecology and Obstetrics.

Obesity amongst our patients within the areas of fertility treatment, obstetrics and gynaecology is unfortunately a growing challenge. Thus, launching this first mutual Nordic meeting we hope to create a very important instrument of meeting with our colleagues or interested parties within our specialties.

The intentions of this conference are equally the wish to exchange knowledge and experience about treatments of obesity patients and to create the possibility of a future co-operation within research and clinical work.

From the very beginning we chose to hold an interdisciplinary conference and to extend our invitations not only to obstetricians and gynaecologists but also to those midwives and nurses, who are working within the obesity field, and who have a special interest in clinical work or research.

The initiative of this conference originated from the Region of Southern Denmark and Odense University Hospital with the only stipulation that the venue must be within the Region. Going against the mainstream of having conferences in large cities our choice fell on Billund. There are many reasons for this: the nearby airport with international flights, the size of the conference venue and the special atmosphere here surrounded by bricks. That we get to live and stay right in the middle of the Legoland® Park is but a “minor” special bonus.

The planning of this congress began only a year ago, and we are proud to be here today with you. Unfortunately, the limited time frame did not allow us to include colleagues from other Nordic countries in the scientific and organizing committees, but we are very happy to see so many of you here today, nonetheless. Hopefully many of you will be involved in the planning of the 2nd Nordic Congress Obesity in Gynaecology and Obstetrics.

To ease our practical planning this conference is sponsored exclusively by the Region of Southern Denmark and Odense University Hospital – with no commercial sponsors or exhibitors.

We are thrilled that we have succeed in including so many great capacities in the scientific programme, and it is our hope that you will all gain new experience and knowledge during the conference here in Billund – and that this conference could become the basis for a future co-operation in order to secure an improved treatment of our obesity patients.

Yours sincerely

Bjarne Rønde Kristensen

Bjarne Rønde Kristensen
Conference President
Contents

Monday 22nd – Pre-congress ................................................................. Page 5-8

Tuesday 23rd ..................................................................................... Page 10-21
  Plenary speakers: bionotes and abstracts ........................................ Page 10-13
  Parallel speakers: abstracts .......................................................... Page 14-21

Programme for 23rd and 24th .......................................................... Page 23-25
  Floor plan of venue ........................................................................ Page 26

Wednesday 24th ................................................................................ Page 27-31
  Plenary speakers: bionotes and abstracts ........................................ Page 27
  Parallel speakers: abstracts .......................................................... Page 28-31

Practical information ........................................................................ Page 32-33
  Organizing committee ................................................................. Page 32
  Scientific committee ................................................................. Page 32
  Hotel Legoland information ....................................................... Page 33
  Social programme information ................................................ Page 33

Poster abstracts ................................................................................ Page 36-44
  Table of abstracts ................................................................. Page 36
  Abstracts ............................................................................ Page 37-44
Pre-congress event: Innovative Solutions for the Challenges of Future Health Care

MONDAY 22nd OCTOBER

See full programme on page 23

12.30: International trends and tendencies

Speakers

Kevin Dean

As the Managing Director of Healthcare & Life Sciences in Cisco’s global strategy consultancy, the Internet Business Solutions Group (IBSG), Kevin and his team work with health and care organisations, public sector leaders and major Life Sciences corporations all over the world. The team helps organisations to use technology to accelerate innovation and transformation, often transferring Cisco’s own experience & techniques. Kevin has detailed experience in numerous aspects of health IT strategy and execution, especially at the leading edge of health knowledge, communication, collaboration and information use by patients, clinicians and administrators. Kevin has extensive experience working outside the United Kingdom, leading his team supporting projects all over the European Union and beyond, and with the European Commission & World Health Organisation (WHO). Published in 2003 and with over 35,000 copies printed, Kevin edited the book “Connected Health”, collecting the experiences of pioneers and thought-leaders from around Europe. A follow-up book, “The Health & Care Revolution” was published in July 2011 with a colleague from City University, London through the European Alliance for Innovation. In 2010, Kevin was invited to become a member of the British Computer Society’s Healthcare Policy & Strategy Committee. Kevin has been involved in the healthcare & pharmaceutical industry since the 1990s, working in procurement, supply chain management and large IT systems implementations, and has been with Cisco since 1999, leading on healthcare IT strategic advice to customers in Europe. Kevin is also Visiting Professor, University of Southern Denmark and Honorary Research Fellow, City University, London.

Presentation: The role of technology in the development and evolution of health and care systems of the future

Kevin will discuss the important capabilities that health and care systems, professionals and organisations will need in the next 5-10 years, and how technology can be used to deliver these capabilities. Collaborating, innovating and communicating in new ways will be described and illustrated with case studies.
Sheena Wright

As Director of Nursing and Care, Sheena provides professional clinical leadership to all NHS 24 Nurses and frontline staff, ensuring that the highest standards of person centred telehealth and telecare services are developed and delivered to the people of Scotland. Sheena is responsible for the delivery of safe and effective Clinical and Care Governance disciplines, systems, and processes within NHS 24, including the Patient Safety Programme and the NHS Scotland Quality Strategy.

Sheena has considerable experience in senior nursing and management roles and has held a variety of nursing posts in hospital and community settings, as well as in Higher Education and in a joint post with Glasgow City Council. Her most recent roles have been as Director of Nursing & Midwifery with NHS Borders, Interim Nurse Director / Chief Operating Officer with NHS Western Isles and within the Scottish Government Health Department as Nursing Officer, firstly with a responsibility for Vulnerable Adults and later as Nursing Officer for Children, Vulnerable Families and Early Years.

Sheena was a member of the Nursing & Midwifery Council from 2002-2007 and has been an Honorary Lecturer at the University of Glasgow since 2000.

Presentation: Delivering top quality health and care services through digital channels – a national strategy

NHS 24 is Scotland’s national provider of Telehealth Services. Scotland has adopted a strategy of using all available digital channels to underpin service redesign and safeguard face-to-face services. The presentation will explain the thinking behind Scotland’s strategy and use examples to challenge existing thinking in the delivery of health and care services. Building on the development of NHS 24 as the national provider of telephone based clinical assessment and triage for primary care problems in the out of hours period, the organisation has grown and evolved. Initially, developing a number of innovative telephone based services supported by web content it then became the national provider of all patient facing health and care information and advice. The presentation will explore the evolution of services into a blended value added clinical service provision for the 5.2 million citizens of Scotland. It will demonstrate the benefits of developing a single national technology platform with a sense of local ownership as a way of delivering organisational and financial efficiency and delivering best value and return on investment for the citizens of Scotland.

Henrik Wieland

Henrik Wieland is an Associate Partner in IBM Global Business Services responsible for the healthcare industry in Denmark. As healthcare industry leader in Denmark, Henrik is overall responsible for the business and delivering services on existing contracts as well as leading the healthcare consultant practice. Clients served include the Danish governmental regions and hospitals, the healthcare related national agencies like The National Health Agency, the National Board of eHealth and other organizations.

Key focus areas for Henrik and his team are:

- Care coordination and telehealth
- Digital hospitals
- Clinical logistics
- eHealth transformation

Presentation: Belief, Motivation and Access - Changing Lifestyle with Technology

For an increasing number of people inactivity is becoming a significant health risk, contributing to low levels of fitness and mobility, diminished cardiovascular performance, and weight gain. The benefits of regular exercise, even of low intensity, are now well understood, with potential improvements to physical, mental and social health. Meanwhile the consumer electronics boom of the past decade is generating innovative new devices and related services which are giving us the ability to monitor activity and record calorie intake, and providing some with the extra motivation to achieve health and fitness gains. What can these technologies actually deliver, and how might they be harnessed by healthcare systems to improve population health? The recent trends and latest innovations will be explored.
Jacob Bangsgaard

Jacob Bangsgaard is the Director General of FIA Region I and responsible for the mobility activities of the FIA in Europe, the Middle East, and Africa supporting the 106 automobile clubs in the region from the Region I head-quarters in Brussels, Belgium. Mr Bangsgaard is a Danish national with a university background in international economics and 20 years experience working in Brussels on transport and mobility issues. He is also Secretary General of eSafetyAware an association of 40 international organisations and authorities with the aim of campaigning for improved use of advanced vehicle safety technologies. Mr Bangsgaard came to FIA Region I from a position as Director of International Relations in the FIA Foundation where he was responsible for the deployment support and global campaigning for vehicle safety technologies. Prior to that he worked as Director of International Relations for ERTICO - ITS Europe where he was responsible for the international deployment support for intelligent transport systems especially dealing with the markets of China, India, South Africa, and Brazil. Jacob Bangsgaard is Board Member of several international organisation e.g. Euro NCAP and ERTICO

**Presentation:** **Road Traffic Accidents: A Global Epidemic**

The UN Decade of Action for road safety will in the coming 10 years focus on the epidemic development of traffic killings. Through technological solutions, traffic planning, and campaigning the FIA aims to help breaking this deadly curve and thus ensure a better quality of life for millions of people worldwide. Every 6 seconds someone is killed or seriously injured on the world’s roads. With 1.3 million road deaths each year this is a global epidemic comparable to Malaria or Tuberculosis. And like those killer diseases, road crashes prey on the young, the poor and the vulnerable. The economic cost is estimated at up to US $100 billion a year (equivalent to all annual overseas aid from OECD countries). The poorest communities are the worst affected. Road crashes are the leading global cause of death for young people aged 10-24, and by 2015 are predicted to be the leading cause of premature death and disability for children in developing countries aged five and above. Already, 260,000 children die and another 10 million are injured in road crashes every year.

The ‘vaccines’ for the road injury epidemic are available. We know how to reduce road deaths, and in most industrialised countries road deaths have been cut by at least half over the past 30 years, even as the number of vehicles has increased dramatically. Improved road design and a focus on pedestrian safety, safer vehicles, motorcycle helmets, seat belts, action on drink driving, driver training and licensing and tackling speed – this is how road deaths can be reduced. The missing ingredient is political commitment to take action.

**15.20: National solutions**

**Presentation title:** **Telemedicine - a possibility for women who are discharged early after delivery?**

**Authors:** PhD student Dorthe Boe Danbjoerg, Dr PH professor Lis Wagner, Dr. Med Jane Lyngso and PhD Jane Clemensen. Dorthe.Boe.Danbjoerg@ouh.regionsyddanmark.dk

**Background:** The duration of the postnatal stay at the hospital after delivery has declined in the last 10-20 years. At the same time the number of readmissions of new-born babies with problems related to nutrition has increased. Concurrently the literature shows that new parents are experiencing a feeling of insecurity in the postnatal period. The region of Southern Denmark made a new policy in 2011 for the postnatal period. The early postnatal discharge is prospectively the general procedure after uncomplicated delivery, also for first-time mothers, who previously have had the possibility of staying at the postnatal ward after the delivery. It is the intention that all new parents are discharged 4-6 hours after delivery, which increases the need for a further development of postnatal follow up.
Methods: The project is an emancipatory action research project, which is located in critical theory. Due to the technical and organizational focus participatory design was chosen. Semi-structured interviews, field observations and focus group interviews have been conducted in order to identify the needs of the new parents in the first seven days after the delivery, focusing on the challenges they have overcome and what it takes for them to feel secure in the postnatal period. The analysis was conducted by the systematic text condensation method described by Kirsti Malterud. After analyzing data workshops were held and the identified themes were presented to the families and health care professionals. At the workshops the families and health care professionals worked with idea-generation according to the principles from ‘The creative platform’ to create new solutions to overcome the challenges experienced in the first seven days after giving birth.

Next step: IT-professionals will be involved in the process of transforming some of the generated ideas into technology prototypes. The prototypes will then be tested in laboratory settings.

Results: The presentation will focus on how practical innovative solutions can be developed together with the users in order to meet the needs of the new families.

Conclusions: The achieved knowledge is expected to contribute to a further development of the postnatal follow up. Telemedicine might be among future solutions enhancing future discharge of newborn babies and their families.

Presentation title: A feasibility study on the development of 3D imaging ulcer scanner

Authors: Benjamin Schnack Rasmussen MD, Johnny Frøkjær MD., Knud Yderstraede MD, PhD
University of Southern Denmark, Dept. of Endocrinology. benjamin.rasmussen@ouh.regionsyddanmark.dk

Objective: To develop a 3D imaging ulcer scanner for use in ulcer treatment and to present a new fast method for determination of wound area and volume. To qualify the used standards in measurements and detecting a variety of ulcer variables (e.g. necrosis, granulation tissue etc.). The method is characterised by a high accuracy scan and a digital image that shows wound edges precisely defined.

Method: The study includes 25 individuals with diabetic foot ulcers. The patients are provided with conventional wound treatment according to clinical standards. In addition to treatment all wounds are assessed with the 3D ulcer scanner, a conventional 2D camera and VISI-TRAK.

The assessment will provide volumetric data and surface area data from the 3D ulcer scanner and surface area data from VISI-TRAK and the 2D camera. Photo documentation of the ulcers will be made at baseline and at every consultation until wound healing. A comparison of 2D and 3D area will be performed, along with a methodical examination of: tissue classification, volume (wound healing), and complexity of use.

Result: Preliminary results reveal, 1) a high accuracy with respect to volume and surface area and 2) a feasible method for photo documentation of wound healing

Conclusion: The 3D ulcer scanner should provide a valid expression of volumetric data and surface area data. The scanner will improve photo quality in Telemedical wound treatment and offer more accurate diagnosis and referral of patients.

Presentation title: Use of eHealth in the communication with patients about prenatal diagnosis. An intervention study in clinical innovation carried out in a highly specialized unit for obstetrics.

Authors: M. M. Skjoeth¹, C. D. Pedersen², E. Draborg³, H. P. Hansen³, J. S. Joergensen¹
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Prenatal screening and diagnosis is testing for diseases or rare conditions in the fetus before birth. The aim is to assist the pregnant women to make their own decisions, and neutral and adequate counseling is a prerequisite during prenatal diagnosis. To make an informed choice, the pregnant women must be informed about the benefits and potential disadvantages of prenatal diagnosis and with this background be able to make a comprehensive evaluation, where ethical values will have a high impact.

Aim: In the work for a healthier society and high quality care, the aim of this project is to use advanced technologies to ensure easy access to professional health information about prenatal diagnosis to pregnant women.

Purpose: The overall purpose of this project is to increase pregnant women’s knowledge of prenatal diagnosis, and thereby an option to make an informed choice. The project is planned as a research into whether the use of an eHealth solution (in this project an interactive website) may be an appropriate intervention for pregnant women.
Methods: Part one consists of an identification of the problem - What are the challenges for pregnant women and for the health care system / health staff in relation to information about prenatal diagnosis?
Part two consists of developing a website with relevant information about prenatal diagnosis.
Part three is an effect measurement. The effect of the intervention is measured through a randomized controlled trial in which the essentials of the measurement will be the pregnant women's knowledge and behavior in relation to prenatal diagnosis. Twice 600 pregnant women will be included in the project.
Results: The research aims at generating new knowledge about ways to inform pregnant women about prenatal diagnosis and prenatal screening. The expected results are:
1. Higher knowledge about prenatal diagnosis for the pregnant women.
2. Less difficulty in making an informed choice for the coming parents.
3. Easy access to high quality information.
4. Equity in access to high quality information.

Presentation title: Serious Games – The potential in using gaming technology as a rehabilitation tool

Authors: Helene Kissow, Occupational Therapist, Department of Rehabilitation,
Henrik Gaunsbæk, Department of Innovation, Odense University Hospital, Helene.Kissow@ouh.regionsyddanmark.dk

At Odense University Hospital there is a major challenge in the rehabilitating of hand surgery patients as all highly specialized hand surgery of the region takes place at the hospital. Therefore, the Occupational Therapists suggested this as a focus area for an innovation project that would take place in collaboration with student from University College Lillebælt.

The challenge in developing software and tools for this specific patient group is that the rehabilitation is centred on small movements of the fingers. Therefore the Kinect needed special calibration to be able to read the individual movements, which forced the developers to read background material on rehabilitation in this particular area and use anatomical studies to establish benchmarks into their programming. The therapists worked with the developers in determining which specific movements were relevant to train using the Kinect and how to do it. The wish was a game that included the wrist or a game that included one of the upper limbs e.g. oedema prophylaxis.

This proved difficult to create with the current technology, so the result was training software based on the well-known Pacman game, which at the moment is able to train the forceps grip where the thumb and index finger of the injured hand are used. The Pacman moves across the screen opening and closing his mouth to eat, as the patient touches the index finger to his thumb on the injured hand.

The game has continuously been tested by surgical patients in the Rehabilitation Department to improve the functions and possibilities of the game, and overall the patients find the game interesting, challenging and motivating to use as a part of their rehabilitation programme.

For the time being the Kinect solution cannot stand alone in the rehabilitation of hand surgical patients, as it only trains two fingers and doesn’t offer training of joint movements in the extreme positions of the joints. Furthermore it is not able to train oedema prophylaxis, sensibility, strength and stamina along with training of daily activities.

Further development of the technology is still needed before it can be fully implemented, but the Kinect could prove to be a good supplement to the training of function and activities of daily living for certain hand surgical ailments depending on diagnosis, possible restrictions and the patient himself.
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**8.15 – 8.45 Patrick Catalano, M.D.**

Patrick Catalano, M.D. is former Chair and currently Professor of the Department of Reproductive Biology at Case Western Reserve University/MetroHealth Medical Center, Ohio. Doctor Catalano’s research interests include obesity, diabetes and metabolism in pregnancy. His research includes the longitudinal evaluation of women before and throughout pregnancy to determine the short and long term effects maternal obesity and diabetes on both the mother and her fetus. He is a member of several professional organizations including the American Congress of Obstetrics and Gynecology, the Society of Maternal-Fetal Medicine, Society for Gynecologic Investigation, American Diabetes Association and the Perinatal Research Society among others. He was the previous Chair of the American Diabetes Association Council on Pregnancy and Women’s Health. Dr. Catalano has served as a Co-Chair of the NICHD Scientific Vision Group on Pregnancy and sits on the Maternal Fetal Medicine Division of the American Board of OB/GYN.

Recently, Dr. Catalano was on the Institute of Medicine (IOM) committee to review the weight gain in pregnancy guidelines and currently sits on the IOM committee relative to the dissemination of the Guidelines. Awards include the Norbert Freinkel award from the American Diabetes Association, the Jorgen Pedersen award from the Diabetes in Pregnancy Study Group of the European Association for the Study of Diabetes, the Agnes Higgins award from the March of Dimes and the Charles Best lecture form the University of Toronto. Receiving his M.D. from the University of Vermont College Medical College, he is certified in general Obstetrics and Gynecology and Maternal-Fetal Medicine. He has over 160 peer reviewed publications and continuous National Institute of Health funding since 1987.

**Presentation title: Short and long-term risks for the offspring of overweight and obese women**

In the United States, as in many developed countries, the prevalence of overweight and obesity is approaching 60% in women of reproductive age. In the United States the prevalence is highest among minority populations such as African American and Hispanic women. The problem of obesity is not limited to adults as 30% of children are overweight or obese. Relative to Obstetrics there is also evidence for increasing birth weight in various populations; maternal obesity being the strongest predictor. Although excessive gestational weight gain is associated with increasing fetal growth, gestational weight gain is inversely proportional to pregravid maternal obesity, as estimated by body mass index (BMI, weight/ht2).

At birth the human fetus has the greatest percentage of body fat in comparison to most mammalian species, about 12%. There is a linear association of maternal BMI with fetal adiposity through class III maternal obesity (BMI 40) after which the fetal adiposity plateaus. Maternal pregravid BMI again has the strongest correlation for fetal adiposity rather than gestational weight gain or even treated gestational diabetes. In addition to increased adiposity, at birth the infant of the obese women has increased insulin resistance and an inflammatory profile in comparison with non-obese women.

There have been multiple studies of lifestyle interventions in overweight and obese women. Many of the interventions have been successful in preventing excessive gestational weight gain. However, these programs have been less successful in decreasing the risk of fetal overgrowth or macrosomia. This may relate to the early effects of the maternal environment of placental growth and gene expression, which programs the placenta to increase efficiency of nutrient delivery to the fetus. In obese women with normal glucose tolerance, the role of lipids is gaining significance as a potential mechanism relating to fetal adiposity.
There are multiple long-term studies reporting the increased risk of obesity in and metabolic dysfunction in offspring of women who are obese or who have diabetes during pregnancy. Because the prevalence of overweight and obesity is approximately 5 fold greater than diabetes during pregnancy, the population attributable risk of obesity is greatest relative to maternal obesity in comparison to diabetes during pregnancy. Therefore, as Obstetrician Gynecologists, if we are going to address the prevention of obesity, we need to address the issue before conception, manage appropriate weight gain during pregnancy and control glucose in those women with glucose intolerance before and during pregnancy.

In utero Programming of Obesity and Metabolic Dysfunction

Catalano, JCEM; 2003

8.45 – 9.15 Helen Budge

Helen Budge is Clinical Director of the Early Life Research Unit and Clinical Associate Professor and Reader in Neonatology at the University of Nottingham. Her research expertise lies within fetal/neonatal and childhood development, physiology and metabolism and she was awarded the Neonatal Society’s Young Investigator Prize in 2002 and the Cuthbertson Medal for excellence in clinical nutrition research in 2007. She is a Fellow of the Royal College of Paediatrics and Child Health, serves as a member of its Academic Training Committee and is Sub-Group Chair of the RCPCH Commission on Child Health Research. She is also Secretary of the Neonatal Society, the leading UK society for neonatal science. She graduated in Physiological Sciences in 1988 and in Medicine in 1991 from the University of Oxford. She undertook her clinical training in Paediatrics and Neonatology in Nottingham and Oxford before being appointed as Clinical Lecturer in Neonatal Medicine at the University of Nottingham in 1998. She was awarded her PhD on the influences of maternal undernutrition on fetal and neonatal physiology in 2003 and was appointed as Clinical Associate Professor in 2004.

Presentation title: Early programming in Metabolic Health - Missing Links

Maternal obesity and its accompanying adverse environmental influences act together to programme the health of the infant, setting up an intergenerational cycle of disadvantage. Metabolic parameters established in the developing individual are influenced by, and act through, multiple mechanisms.
12.15-12.45 Dr Valerie Fleming, RM, PhD.

Current position: Consultant, Department of Midwifery Zürcher Hochschule für Angewandte Wissenschaft

Even before qualifying as a midwife in 1979 I have pursued an international career that has spanned the globe having the opportunity to work as a volunteer in a mission hospital in Malawi in 1973. After qualifying and a period of consolidation in my native country of Scotland I worked in the former Soviet Union, India and Thailand before emigrating to New Zealand where I lived worked and studied for 16 years. I became the country’s first independent midwife following a change in the law in 1990 and in 1994 the first midwife in Australasia to gain a PhD in my own discipline. I graduated with a PhD in 1994 returned to the UK in 1995 having being attracted to Glasgow Caledonian University because of its status as a World Health Organisation Collaborating Centre. Since 1995 my academic career has embraced both research and international development. In 2007 I led the development of the UK’s Department of International development research policy and from 2012-12 held the post of nursing and midwifery adviser for WHO Europe.

Presentation title: Obesity and pregnancy: whose responsibility is it?

In this paper I will show that obesity is not a simple concept and the solutions to any problem which may exist are far from simple. Midwives and others providing care during the pregnancy continuum need to look very closely at the perception of the problem of obesity as a cause of maternal mortality. It is also necessary to consider carefully the uses to give careful consideration to terminology such as ‘overweight’ and ‘obesity’ and the meaning and actions designated to these. I argue that the attribution of blame constitutes an ‘easy answer’ to problems of poor maternal outcomes. I recommend instead that we need to adopt a cautious stance before making such ready judgements.

12.15-12.45 Robert Norman

Robert Norman holds a personal chair as Professor for Reproductive and Periconceptual Medicine at The University of Adelaide in South Australia and is a subspecialist in reproductive medicine (CREI) and in endocrine biochemistry (FRCPA). He is Director of the Robinson Institute at The University of Adelaide, a collection of over 450 researchers in reproductive health and regenerative medicine. He has published 350 peer-reviewed publications and one book. He serves on the editorial board of major journals. His major research contributions have been in IVF and reproductive endocrinology, particularly in PCOS, the effect of lifestyle on reproductive outcomes and periconception medicine. He is an active reproductive medicine specialist. He serves on the Australian National Health and Medical Research Council's research and embryo licensing committees.

Presentation title: The consequences of obesity in periconceptual medicine

The human body allocates resources from nutrition and diet according to stages of life and ongoing health. During times of famine, basic body mechanisms are maintained at the expense of reproduction and infertility is common, largely due to hypothalamic amenorrhea. During times of food excess, reproduction is also impaired and infertility results from either lack of ovulation or poor implantation. The mechanisms behind these processes are ill-defined but involve an interaction between fat, the gut, the brain and the ovary.

In experimental animals it is possible to load the ovary with lipid and in a series of experiments we have shown that ovary lipotoxicity is a common phenomenon that prevents adequate egg development, fertilisation and embryo growth. There is also evidence in males that fertility can be impaired by over-nutrition. There is abundant evidence that pharmacological and lifestyle management can reverse these changes and the mechanisms for this are now emerging.

Adipose tissue in the body produces a large number of cytokines and signalling molecules that impact on the gut, the brain and the ovary. These molecules include leptin, adiponectin, fatty acids and variety of gut peptides. In addition, insulin has a potent impact on reproductive function.

The aim of this lecture is to show how all these factors tie together and the implications for human reproductive health.
17.30-18.30 Hal Wolf - Senior Vice President and Chief Operating Officer, The Permanente Federation, LLC

Hal Wolf brings multi-industry expertise to his role as senior vice president and chief operating officer of The Permanente Federation. The Permanente Federation represents the national interests of the regional Permanente Medical Groups, which employ more than 16,000 physicians across Kaiser Permanente.

Hal is responsible for the development and implementation of the Federation’s strategic priorities and is the key liaison between Kaiser Permanente Information Technology and the Federation for the development of technical strategies. He also works with international health systems in end-to-end process evaluations, IT data design, and care delivery application enhancement. Prior to joining the Federation, Hal served as vice president of medical group operations and health plan regional information officer at Kaiser Permanente of Colorado. Previously, he served as chief information officer for eBusiness, corporate services, and wholesale at Qwest Communications/USWest, and in business management positions with Time Warner Communications and MTV Networks.

Presentation title: Taking a health systems approach to the obesity epidemic

Kaiser Permanente is one of the largest not-for-profit integrated care delivery systems in the United States, serving more than 9 million members. Hal Wolf will describe Kaiser Permanente’s structure and emphasis on prevention, total health, and chronic disease management. He will illustrate how care is coordinated by a team of providers (physicians, nurses, social workers, pharmacists, administrative staff, etc.) across the continuum of care and highlight the critical role of clinical information technology in enabling teams to provide excellent care and take a population health approach.

However, excellence in clinical care alone is not sufficient if we are to significantly improve the health of our communities. Clinical care accounts for only 10-20% of impact on health. Other factors include environmental and social factors, family history and genetics, and personal behaviors.

One serious issue facing the United States today is the obesity epidemic. Over one-third of U.S. adults are obese, and obesity is linked with an increased risk of a number of serious health conditions. In order to improve the total health of our populations, health care organizations need to take broader accountability and have a comprehensive, multi-faceted approach. Mr. Wolf will provide an overview of Kaiser Permanente’s Total Health approach and share examples of programs, initiatives, and strategies that aim to reduce obesity, resulting in fewer health complications and better health for our communities.
Obesity is an epidemic and confers a 10-fold relative risk of cancer. Endometrial carcinoma is approximately the 4th most common cancer in women in Scandinavia and the incidence is increasing mostly due to the growing obesity and lack of physical activity. Treatment for endometrial carcinoma is primarily surgical comprised of hysterectomy, bilateral salpingo-oophorectomy and with or without lymph node dissection. General consensus opinion is that obesity adds additional surgical risk with high complication rates. Therefore as the patient population becomes more obese surgical management presents challenges and different surgical techniques should be evaluated. Conventional laparoscopy is an alternative to open surgery in obese patients. There are studies describing feasibility and safety of laparoscopy compared to open surgery in endometrial carcinoma with fewer complications and shorter hospital stay with the expense of longer operative time. Although there are disadvantages with laparoscopy due to visualization, exposure, precision and accuracy suitable to stiff instruments through the abdominal wall of an obese patient and studies are showing high conversion rates to laparotomy in about 25%. Robotic assisted laparoscopy is a development of laparoscopy with stereo viewing, wristed instruments and offers benefits of improved surgical visualization and ergonomics. Several studies have demonstrated the feasibility of robotic assisted laparoscopy for endometrial carcinoma in obese women as well as benefits compared to open surgery and laparoscopy with lower estimated blood loss, shorter hospital stay and fewer complications with equivalent oncological safety. Our institution at a university setting started with robotic assisted laparoscopy for endometrial cancer in 2010 and has performed surgery in obese women with the highest BMI of 66 with low conversion rate, low estimated blood loss, short hospital stay and low complication rate. Our experience will be presented along with studies published concerning robotic assisted laparoscopy for endometrial cancer in obese women and further discussions concerning other surgical indications in obese women.

Presentation title: Approaches to hysterectomy in the morbidly obese woman
Author: Adeola Olaitan, Consultant Gynaecologist, University College Hospital, London

Obesity is a growing epidemic affecting most developed countries. In the UK one in four adults is classified as obese. If this is not addressed, estimates predict that this figure will increase to 90% by 2050. The Nordic countries have less of a problem with obesity rates typically under 10%. Gynaecological oncologists may see an over-representation of obesity in the population they perform surgery on as obesity predisposes to endometrial cancer. While it may be reasonable to deny hysterectomy to morbidly obese women who require surgery for benign reasons on the basis that the risks outweigh the benefits, the threshold for risk is set differently in women suffering from cancer. It is important therefore that every attempt is made to make surgery as safe as possible for these women.

The challenge of offering surgery to these women is increased by the associated co-morbidity. In my centre, we demonstrated that total laparoscopic hysterectomy and bilateral salpingo-oophorectomy is a safe technique even in women with body mass indices (BMIs) of up to 60. This is supported by the world literature which has shown that the technique is safer and less expensive than the open approach. The cost saving almost certainly arises from a shorter hospital stay. Laparoscopy may be contra-indicated in women with cardiac co-morbidity as the physiological disturbances associated with a CO2 pneumo-peritoneum and the Trendelenburg position may compromise anaesthesia. Vaginal hysterectomy with regional block is an option and we have performed this procedure safely in women with BMIs of up to 70 but the adnexae may not be accessible resulting in under-staging. However these are women who would otherwise be turned down for surgery and who have no other curative options. To conclude, the laparoscopic approach is the safest but vaginal hysterectomy may be considered where there are anaesthetic limitations.

Presentation title: Infections and thromboembolic complications after gynaecological cancer surgery
Author: Pernille T. Jensen, consultant gynaecologist, Odense University Hospital

Background: Major abdominal surgery constitutes one of several risk factors for venous thromboembolism (VTE) in gynaecological cancer patients. Obesity and immobilization add on to the risk of VTE. Several meta-analyses have assessed the optimal prophylactic interventions to prevent VTE after major abdominal surgery. The optimal antibiotic prophylaxis to prevent postoperative infection re timing, duration, route of administration and bacterial coverage has been evaluated in elective colorectal surgery.

Methods: Systematic literature review
Results: Multimodal thromboprophylaxis is recommended to high-risk patients after major abdominal surgery. A combination of gradually elastic compression stockings (GCS) and pharmacological thromboembolic prophylaxis significantly decrease incidence of deep venous thrombosis (DVT) (OR 0.25; 95% CI 0.17-0.36). No significant difference between knee-length vs thigh length GCS in reducing incidence of DVT postoperatively. Low Molecular Weight Heparin (LMWH) in combination with GCS significantly reduced incidence of VTE compared to LMWH alone following major colorectal surgery. Prolonged thromboprophylaxis (4 weeks vs. 5-7 days) with LMWH significantly decrease the overall incidence of VTE after major abdominal/pelvic surgery (OR 0.41; 95% CI 0.26-0.63). Incidence of symptomatic VTE also decreased significantly, however, with no difference in mortality. Prophylactic antibiotics significantly reduces incidence of surgical wound infection. Antibiotics should be administered 1 hour before surgery and there is no need for 2nd dose intra- or postoperatively. Anaerobic and aerobic bacteria should be covered and combined oral and intravenous antibiotics is preferred. Mechanical colon cleansing before bowel resection is not recommended. Drains have no benefit in preventing lymphocysts and derived symptomatology e.g. pelvic infection and wound infection.

Conclusions: There is evidence to support combined thromboprophylaxis following major abdominal surgery whereas effect of prolonged prophylaxis is questioned. Individual risk evaluation for VTE should be done pre-operatively. Antibiotics covering aerobic and aerobic bacteria should be delivered orally and intravenously prior to major abdominal surgery.

Presentation title: Robotic assisted laparoscopy in obese women - the future?
Author: Pernilla Dahm Kähler, PhD, Medical director gynecology surgery, Sahlgrenska University Hospital

Obesity is an epidemic and confers a 10-fold relative risk of cancer. Endometrial carcinoma is approximately the 4th most common cancer in women. The incidence is increasing mostly due to the growing obesity and lack of physical activity. Treatment for endometrial carcinoma is primarily surgical comprised of hysterectomy, bilateral salpingo-oophorectomy and with or without lymph node dissection. General consensus opinion is that obesity adds additional surgical risk with high complication rates. Therefore as the patient population becomes more obese surgical management presents challenges and different surgical techniques should be evaluated. Conventional laparoscopy is an alternative to open surgery in obese patients. There are studies describing feasibility and safety of laparoscopy compared to open surgery in endometrial carcinoma with fewer complications and shorter hospital stay with the expense of longer operative time. Although there are disadvantages with laparoscopy due to visualization, exposure, precision and accuracy suitable to stiff instruments through the abdominal wall of an obese patient and studies are showing high conversion rates to laparotomy in about 25%. Robotic assisted laparoscopy is a development of laparoscopy with stereo viewing, wristed instruments and offers benefits of improved surgical visualization and ergonomics. Several studies have demonstrated the feasibility of robotic assisted laparoscopy for endometrial carcinoma in obese women as well as benefits compared to open surgery and laparoscopy with lower estimated blood loss, shorter hospital stay and fewer complications with equivalent oncological safety. Our institution at a university setting started with robotic assisted laparoscopy for endometrial cancer in 2010 and has performed surgery in obese women with the highest BMI of 66 with low conversion rate, low estimated blood loss, short hospital stay and low complication rate. Our experience will be presented along with studies published concerning robotic assisted laparoscopy for endometrial cancer in obese women and further discussions concerning other surgical indications in obese women.

Presentation title: Approaches to hysterectomy in the morbidly obese woman
Author: Adeola Olaitan, Consultant Gynaecologist, University College Hospital, London

Obesity is a growing epidemic affecting most developed countries. In the UK one in four adults is classified as obese. If this is not addressed, estimates predict that this figure will increase to 90% by 2050. The Nordic countries have less of a problem with obesity rates typically under 10%. Gynaecological oncologists may see an over-representation of obesity in the population they perform surgery on as obesity predisposes to endometrial cancer. While it may be reasonable to deny hysterectomy to morbidly obese women who require surgery for benign reasons on the basis that the risks outweigh the benefits, the threshold for risk is set differently in women suffering from cancer. It is important therefore that every attempt is made to make surgery as safe as possible for these women.

The challenge of offering surgery to these women is increased by the associated co-morbidity. In my centre, we demonstrated that total laparoscopic hysterectomy and bilateral salpingo-oophorectomy is a safe technique even in women with body mass indices (BMIs) of up to 60. This is supported by the world literature which has shown that the technique is safer and less expensive than the open approach. The cost saving almost certainly arises from a shorter hospital stay. Laparoscopy may be contra-indicated in women with cardiac co-morbidity as the physiological disturbances associated with a CO2 pneumo-peritoneum and the Trendelenburg position may compromise anaesthesia. Vaginal hysterectomy with regional block is an option and we have performed this procedure safely in women with BMIs of up to 70 but the adnexae may not be accessible resulting in under-staging. However these are women who would otherwise be turned down for surgery and who have no other curative options. To conclude, the laparoscopic approach is the safest but vaginal hysterectomy may be considered where there are anaesthetic limitations.

Presentation title: Infections and thromboembolic complications after gynaecological cancer surgery
Author: Pernille T. Jensen, consultant gynaecologist, Odense University Hospital

Background: Major abdominal surgery constitutes one of several risk factors for venous thromboembolism (VTE) in gynaecological cancer patients. Obesity and immobilization add on to the risk of VTE. Several meta-analyses have assessed the optimal prophylactic interventions to prevent VTE after major abdominal surgery. The optimal antibiotic prophylaxis to prevent postoperative infection re timing, duration, route of administration and bacterial coverage has been evaluated in elective colorectal surgery.

Methods: Systematic literature review
Results: Multimodal thromboprophylaxis is recommended to high-risk patients after major abdominal surgery. A combination of gradually elastic compression stockings (GCS) and pharmacological thromboembolic prophylaxis significantly decrease incidence of deep venous thrombosis (DVT) (OR 0.25; 95% CI 0.17-0.36). No significant difference between knee-length vs thigh length GCS in reducing incidence of DVT postoperatively. Low Molecular Weight Heparin (LMWH) in combination with GCS significantly reduced incidence of VTE compared to LMWH alone following major colorectal surgery. Prolonged thromboprophylaxis (4 weeks vs. 5-7 days) with LMWH significantly decrease the overall incidence of VTE after major abdominal/pelvic surgery (OR 0.41; 95% CI 0.26-0.63). Incidence of symptomatic VTE also decreased significantly, however, with no difference in mortality. Prophylactic antibiotics significantly reduces incidence of surgical wound infection. Antibiotics should be administered 1 hour before surgery and there is no need for 2nd dose intra- or postoperatively. Anaerobic and aerobic bacteria should be covered and combined oral and intravenous antibiotics is preferred. Mechanical colon cleansing before bowel resection is not recommended. Drains have no benefit in preventing lymphocysts and derived symptomatology e.g. pelvic infection and wound infection.

Conclusions: There is evidence to support combined thromboprophylaxis following major abdominal surgery whereas effect of prolonged prophylaxis is questioned. Individual risk evaluation for VTE should be done pre-operatively. Antibiotics covering aerobic and aerobic bacteria should be delivered orally and intravenously prior to major abdominal surgery.
Gestational diabetes mellitus (GDM) is one of the most frequent maternal pregnancy complications. GDM is associated with significant short and long term complications for both mother and child. Unfortunately several different diagnostic criteria of GDM exist, making comparison of clinical outcomes as well as scientific studies difficult. Furthermore, the commonly used criteria are not based on the risk of poor perinatal outcome.

Therefore new outcome based criteria were proposed by the International Association of Diabetes in Pregnancy Study Groups (IADPSG) in Diabetes Care in March 2010. These criteria are based on data from the HAPO (Hyperglycaemia and Adverse Pregnancy Outcomes) study. The proposed diagnostic test is a 75 g OGTT with venous plasma glucose measured at 0, 1 and 2h. The test is diagnostic for GDM if at least one value equals or exceed one of the following values 5.1 mmol/l (0 h), 10.0 mmol/l (1 h) or 8.5 mmol/l (2 h). The criteria are expected to increase the prevalence of GDM in most populations. At the moment the IADPSG criteria have been implemented in some countries, while other countries debate if the new criteria should be implemented. WHO and NIH are expected to publish new recommendations for screening and diagnosing GDM in 2012.

Presentation title: Treatment of GDM – the Danish experience
Author: Per Ovesen, MD, DMSc. Aarhus University Hospital, Skejby

In 1989, the St. Vincent Declaration set as a goal that the outcome of pregnancies complicated by diabetes should approach those without obesity. The aim of this study was to analyze the outcome of GDM pregnancies in Denmark from 2004 to 2010 and compare it with the background population. A population-based study on a cohort consisting of all Danish women giving birth to a singleton from 2004 through 30 June 2010 (n = 402,959) was undertaken. The women were identified from the National Birth Registry (NBR) in which all deliveries in Denmark are registered. The database contains data on 99.8% of all deliveries in Denmark with a population of more than 5 million. The prevalence of obesity continues to increase both in the community and on the labour ward, currently estimated to be 24% in the UK. Obese women have a higher prevalence of comorbidities, a higher risk of developing medical problems during pregnancy, a higher rate of obstetric intervention, a higher rate of failure of regional anaesthesia, and of management of the airway when anaesthetized, the practical problems of venous access, of finding weight appropriate equipment, an increased difficulty in being recognized as seriously unwell and higher rates of thromboembolism. But, despite all these factors, the proportion of women who died in the 2006-8 Confidential Enquiry into Maternal Deaths in the UK report who were obese was only 27% (compared to the all maternity obesity rate of 20-25%). Experience from perioperative studies in other disciplines has shown that BMI on its own is a blunt way to stratify risk (as it is also a poor way to predict difficult intubation). Within obesity there are those who are “the metabolic healthy, but obese”, and others are the “metabolic obese”. These are the patients with the metabolic syndrome – characterised by central obesity, hypertension, hyperglycaemia, dyslipidaemia, and prothrombotic and proinflammatory states – and these are the patients who are truly high risk. The 2010 CMACE/RCOG Joint Guideline – The Management of Women with Obesity in Pregnancy - makes a number of recommendations. They include risk assessment by an anaesthetist for all morbidly obese expectant mothers, a manual handling assessment, and an assessment of thromboembolic risk. It suggests clear communication between the labour ward and anaesthetic and theatre staff, whenever an obese woman is admitted, early establishment of venous access and makes recommendations about the seniority of staff who should be present to care for these women.
In a Swedish pregnant non-diabetic population (N=764,498), 26% of women were overweight (BMI 25-29) and 11% were obese (BMI ≥30). Overweight and obesity is associated with numerous problems and complications in pregnancy, with a linear relation between degree of overweight and rate of complications.

Fetal and neonatal problems are closely related to maternal complications, and obesity is a risk by itself. Obesity makes diagnostic measures difficult, both regarding ultrasound diagnostic certainty and intrapartum electronic fetal monitoring. The risk of intrauterine fetal death is 2-3 times increased and the risk of intrapartum hypoxia is increased. This results in a higher perinatal mortality.

In a Swedish study of 764,498 non-diabetic pregnant women, if the mother's BMI was >30 the odds ratio for malformation was 1.15, for preeclampsia 3.4, for a large-for-gestational age neonate 2.6, for preterm birth 1.26, for CS 1.87, for neonatal overweight 2.55, and for perinatal mortality 2.22. The causal relationship between obesity and fetal/neonatal hypoxia and mortality is not well investigated, but relates to maternal respiratory and cardiovascular impairments and subsequent impaired oxygenation of the fetus. In a small study with fetal pulse oximetry during labor it was found that during both the first and second stages of labor the oxygen saturation was lower in fetuses of overweight women compared with normal weight women. In another small case-control study with blood cell counts in newborns, the amount of nucleated red blood cells (NRBC) was higher in offspring of obese mothers. An increased NRBC count indicates increased erythropoiesis, where hypoxia is one of many causes. From the NRBC count it cannot be determined whether the hypoxia was chronic, subacute or acute, and hypoxia of any duration does not always cause an increased NRBC count.

Pregnancy leads to considerable maternal circulatory, respiratory, gastrointestinal and metabolic changes. Due to airway engorgement and mucosal edema the oxygenation is less effective in pregnancy. Obese pregnant women have in addition a decreased total lung capacity with lower inspiratory capacity, lower tidal volume, increased airway resistance, and ventilation-perfusion mismatch. Their functional residual capacity may fall below the closing capacity, resulting in shunting and ventilation of only the lung apices, which in turn result in a rapid shallow breathing and decreased oxygen tension. Adding to that, linear to body weight the oxygen consumption increases and carbon dioxide production increases. Resultant, the oxygen tension. Adding to that, linear to body weight the oxygen consumption increases and carbon dioxide production increases. Resultant, the oxygen tension.

Obesity carries an increased risk of gestational and peripartum cardiac arrhythmia due to hypertension, cardiac hypertrophy, diastasis, fat deposition in conducting tissues, ischemic heart disease, elevated catecholamines, sleep apnoea and minor QT prolongation. The symptoms are often masked because of obesity and UKG is more difficult to perform. The prevalence of sleep apnoea in pregnant obese women is not known, but it might lead to hypoxia not only in the mother but also in the fetus. Hypotension and syncope, resulting in reduced uteroplacental blood flow, is more common in obese women because of a combination of aorto-caval compression and the "Obese Supine Hypotension Syndrome". Actions to improve oxygenation in labor are head-up position, positive pressure breathing and preoxygenation.

The incidence and prevalence of obesity are increasing and obesity is recognized as one of the major public health challenges facing the developed world mainly because it contributes to the development of several chronic diseases. It is estimated that more than half of the European population are overweight and up to 30% are obese. Among fertile women obesity is reaching epidemic proportions and maternal overweight and obesity are associated with adverse pregnancy outcome, such as maternal hypertension, venous thromboembolism, preeclampsia, gestational diabetes, more frequent cesarean delivery, delivery of large-for-gestational-age infants, and stillbirths. There are obvious signs in the literature that pregnancies in morbidly obese women show even more complications and adverse outcomes, although low patient numbers limit their statistical power.

Obese women considering pregnancy are informed of the risks that maternal obesity confers on a pregnancy but our strategies is almost exclusively based on prevention practice, concentrating on lifestyle management. These problems can be categorized into those associated with overweight and obesity is a risk by itself. Obesity makes diagnostic measures difficult, both regarding ultrasound diagnostic certainty and intrapartum electronic fetal monitoring. The risk of intrauterine fetal death is 2-3 times increased and the risk of intrapartum hypoxia is increased. This results in a higher perinatal mortality.

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Objective: To study the risk of adverse pregnancy outcomes in women with polycystic ovary syndrome, taking into account maternal characteristics and assisted reproductive technology.

Design: Population based cohort study.


Participants: By linkage with the Swedish patient register, 3787 births among women with a diagnosis of polycystic ovary syndrome and 1191 336 births among women without such a diagnosis.

Main outcome measures: Risk of adverse pregnancy outcomes (gestational diabetes, pre-eclampsia, preterm birth, stillbirth, neonatal death, low Apgar score (<7 at five minutes), meconium aspiration, large for gestational age, macrosomia, small for gestational age), adjusted for maternal characteristics (body mass index, age), socioeconomic factors (educational level, and cohabiting with infant’s father), and assisted reproductive technology.

Results: Women with polycystic ovary syndrome were more often obese and more commonly used assisted reproductive technology (60.6% v 34.8% and 13.7% v 1.5%). Polycystic ovary syndrome was strongly associated with pre-eclampsia (adjusted odds ratio 1.45, 95% confidence interval 1.24 to 1.69) and very preterm birth (2.21, 1.69 to 2.90) and the risk of gestational diabetes was more than doubled (2.32, 1.88 to 2.88). Infants born to mothers with polycystic ovary syndrome were more prone to be large for gestational age (1.39, 1.19 to 1.62) and were at increased risk of meconium aspiration (2.02, 1.13 to 3.61) and having a low Apgar score (<7) at five minutes (1.41, 1.09 to 1.83).

Conclusions: Women with polycystic ovary syndrome are at increased risk of adverse pregnancy and birth outcomes that cannot be explained by assisted reproductive technology. These women may need increased surveillance during pregnancy and parturition.

Presentation title: Obesity, Metformin and PCOS
Author: Eszter Vanky, Ass. Professor, St. Olav’s Hospital, University Hospital of Trondheim, N

Obesity is increasing in most Western countries. It is estimated that one third of the Norwegian women are overweight or obese. Obesity and PCOS are closely linked. The prevalence of PCOS is estimated to 7-17% (depending on diagnostic criteria) in recent birth-cohort based studies. Weight gain often precedes symptoms and worsens the presentation of PCOS. Weight gain also decreases the rate of spontaneous conception, while miscarriage and pregnancy complications increase. Although not part of the diagnostic criteria, insulin resistance is a key feature in PCOS. PCOS women are more insulin resistant than age- and weight-matched controls. One third is insulin resistant and one in ten has diabetes by the age of 40. The risk to develop T2DM is considerably increased in PCOS. Hyperinsulinaemia increases the free, biologically available levels of androgens. Weight loss has powerful positive impact on insulin resistance. Lifestyle management is first line therapy. General calorie restriction is important. No specific diet is recognized as superior. Metformin is an oral anti-diabetic drug, frequently prescribed to PCOS women. For weight control, metformin alone is not superior to diet. There is some evidence for its insulin, testosterone and blood pressure reducing effect in overweight but not obese PCOS women. Metformin increases ovulation rate, especially in leaner PCOS women. It seems to have positive impact on pregnancy outcome as pre-treatment to IVF/ICSI. The role of metformin treatment in pregnancy is not yet settled and will be discussed at the session.

Presentation title: Insulin resistance in polycystic ovary syndrome (PCOS)
Author: Dorte Glintborg, MD, PhD, Odense University Hospital

PCOS is characterized by insulin resistance, abdominal obesity and increased secretion of inflammatory markers (adipokines). The etiology to PCOS is most likely multifactorial including both genetic and environmental factors. The risk of type 2 diabetes is 5-10 times increased in PCOS. Ethnicity, levels of HbA1c and adipokines may be important predictors for development of type 2 diabetes in PCOS.

Presentation title: Risk of adverse pregnancy outcomes in women with polycystic ovary syndrome: A population based cohort study
Authors: Nathalie Roos(NR) 1, 2, Gunvor Ekman-Ordeberg(GEO) 1, Helle Kieler(HK) 2, Olof Stephansson(OS) 1, 2
1 Department of Women’s and Children’s Health, Division of Obstetric and Gynaecology, Karolinska Institutet, Stockholm.
2 Department of Medicine, Solna, Clinical Epidemiology Unit, Karolinska Institutet, Stockholm.

Objective: To study the risk of adverse pregnancy outcomes in women with polycystic ovary syndrome, taking into account maternal characteristics and assisted reproductive technology.

Design: Population based cohort study.


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Conclusions: Women with polycystic ovary syndrome are at increased risk of adverse pregnancy and birth outcomes that cannot be explained by assisted reproductive technology. These women may need increased surveillance during pregnancy and parturition.
Spatial variations in the acoustic properties of tissue are the basis for the scattering of ultrasound that is used to produce ultrasound images. However, strong variations in the properties, as for example found with the mixtures of fat, muscle, and connective tissue in the body wall, also reduces the quality of ultrasound images through
  i) multiple scattering of the ultrasound pulse that is seen as noise in the image, and
  ii) aberrations of the ultrasound wave front that reduces the beam focusing and hence the spatial resolution in the image.

With fetal and gynecology ultrasound imaging, the multiple scattering noise is the most disturbing reduction in image quality, as it reduces the ability to detect small differences in object contrast. This effect is especially strong in obese women.

Harmonic imaging reduces part of, but not all of, the multiple scattering noise from the body wall, and has somewhat lower sensitivity than fundamental imaging, which requires the use of lower frequencies with reduced spatial resolution.

We have developed a new ultrasound technique, called SURF ultrasound imaging, where we transmit a pulse complex composed of a high frequency (HF) pulse, and a low frequency (LF) pulse. Example frequencies for fetal imaging are HF ~ 5 – 7 MHz and LF ~ 0.5 – 0.7 MHz. The HF pulse is used for the imaging, and the overlapping LF pulse is used to nonlinearly manipulate the elastic parameters observed by the co-propagating HF pulse. The method suppresses multiple scattering noise better than harmonic imaging, with the sensitivity of fundamental imaging. The method is also very useful for imaging of contrast agent micro-bubbles at frequencies above the resonance frequency, which makes it interesting for trans-vaginal imaging of neo-angiogenesis in gynecology tumors at ~ 10 MHz. We have also shown improved imaging of micro-calcifications in phantoms, which can have impact on ultrasound imaging of breast cancer.

We have currently tested the method clinically at HF ~ 10 MHz for imaging of carotid plaque and prostate cancer, and are in process of modifying our equipment for fetal imaging.

Presentation title: Routine scanning of obese pregnant women – time to rethink?
Author: Kjell A. Salvesen, professor, Clinical Sciences, Lund University

Obese pregnant women have higher risk of some fetal anomalies such as neural tube defects, congenital heart malformations and cleft lip and palate. In addition, obese women represent a challenge for the sonographer because of restricted views and poor visualization. The presentation will discuss some aspects of this problem. It is suggested to do an early fetal anomaly scan transvaginally at 12-14 weeks in tertiary fetal medicine centers for all women with BMI > 40. Scheduled follow-up scans to assess fetal growth (SGA and LGA) are important. The problem of macrosomia and detection of LGA in the third trimester will be addressed.

Presentation title: Tips for performing US examinations in obese pregnant women
Author: Lene Søndergaard Sperling, consultant, Odense University Hospital

What can you do to visualize the low impedance anatomical structure in obese pregnant women?
Five different tips to come around these problems will be discussed.
1) Technical tools as frequencies, harmonic, compound and speckle reduction.
2) The four major abdominal areas with least subcutaneous fat
3) The transvaginal approach
4) Moving around with the fetus
5) The use of color Doppler to visualize the cardial in and outflow.
14.15 – 15-30 Intervention and prevention in pregnancy

Presentation title: Lifestyle and pregnancy study: The clinical effect of lifestyle intervention during pregnancy in obese women
Authors: Christina Anne Vinter, Dorte Møller Jensen, Per Ovesen, Henning Beck-Nielsen, Jan Stener Jørgensen
Department of Gynecology and Obstetrics, Aarhus and Odense University Hospital.

Background: Obesity in pregnancy is related to higher maternal and perinatal morbidity. The 2009 Institute of Medicine (IOM) guidelines recommend gestational weight gain (GWG) of 5–9 kilograms in obese women. Observational studies indicate that adverse pregnancy outcomes in obese women can be limited if GWG is restricted. The aim of this study was to evaluate the effect of lifestyle intervention on GWG and obstetric outcomes.

Methods: The LiP-study was a randomized controlled trial in 360 obese women with body mass index (BMI) of 30–45 kg/m² allocated to either lifestyle intervention or routine obstetric care in early pregnancy. The intensive intervention program included recurrent dietary guidance, free membership in fitness centres, physical training and personal coaching in groups.

Results: A total of 360 obese pregnant women were included and 302 (84%) were followed until delivery. The intervention group had significantly lower GWG compared to the control group: Median 7.0 (4.7–10.4) kg vs. 8.6 (5.7–11.6) kg (p=0.01). IOM recommendations were exceeded in 38% of the women in the intervention group vs. 50% in the control group (p=0.05). Overall, there was no significant difference in the obstetric or neonatal outcomes in the intervention group vs. controls.

Conclusions: Intervention with diet and physical exercise in pregnancy resulted in limited GWG in obese pregnant women. Overall obstetric outcomes were similar in the two groups. Intensive lifestyle intervention resulted in a higher adherence to IOM recommendations. However, a significant number of women still exceeded the upper threshold. These and similar results from other studies raise the questions of how and when intervention should be considered to prevent obstetric and neonatal complications of obesity in pregnancy.

Presentation title: Gestational gain and the outcome of pregnancy.
What is the evidence for the present guidelines?
Author: Ellen Aagaard Nøhr, Midwife and associate Professor, Aarhus University

While maternal anthropometry is a strong determinant of reproductive outcome, only gestational weight gain is modifiable during pregnancy making it a potential target for intervention. In 1990, the American Institute of Medicine (IOM) published the first guidelines for gestational weight gain where optimal gain differed according to a woman’s prepregnant BMI. Since these guidelines were only based on optimal birth weight, a revision was carried out in 2009 to also include maternal health consequences and to evaluate the trade-off between mother and child for different weight gains.
Presentation title: Urogynaecologic surgery and obesity
Author: Gunnar Lose, Professor, Copenhagen University Hospital, Herlev

Urogynecologic disorders (especially urinary incontinence and pelvic organ prolapse) are common. There is strong evidence to support the causal role of excesses weight in the development of these disorders.

The evidence available on the impact of obesity on outcome of urogynecologic surgery is conflicting. There are no prospective randomized studies that have examined overweight/obesity as an independent variable across different surgical procedures or within the same operation. However based on our current knowledge, obese women seem roughly to have equivalent cure rates to those obtained in patients of normal weight and the risk of additional complications is low.

Presentation title: Risk factors for urinary incontinence
Author: Yngvild Skåtun Hannestad, MD, PhD, Section for General Practice, University of Bergen

The background for urinary incontinence in women is multifactorial. The risk factors most thoroughly studied are age, parity, and obesity. Increasing age is in most studies found to be associated with an increasing prevalence of incontinence. It has been shown that incontinence is more likely to occur in parous than in nulliparous women, but the difference seems to disappear after 65 years of age. Vaginal delivery is associated with increased risk compared with caesarean section, but also women who have delivered by caesarean only, have more incontinence than nulliparous women.

The effect of a high body mass index or obesity on stress incontinence is thought to be caused by increased abdominal-wall weight, increased intra-abdominal pressure, and increased intra-vesicular pressure. A higher waist-to-hip ratios has been found to be an independent risk factor for stress incontinence, even after adjusting for body mass index. Since higher waist-to-hip-ratios is an expression of central adiposity this suggests that the distribution of fat is of importance. Several studies have shown a decrease in incontinence symptoms after weight reduction following diet or bariatric surgery in obese women.

Case control studies as well as twin studies suggest a genetic predisposition for urinary incontinence. Studies of pelvic tissues at a molecular and fibrillar level have shown differences in collagen and elastin content and turnover between control subjects and women with SUI. This aim of this lecture is to give an overview of the complex interplay between genetic predisposition, traumas to the pelvic floor, inciting potential modified factors and the expected changes of aging with regard to urinary incontinence in women.

Results: Urinary incontinence and weight change during pregnancy and postpartum

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<td>Italy</td>
<td>Cross-s</td>
<td>537</td>
<td>3 weeks PP</td>
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<td>[van Brummen 2007]</td>
<td>Netherland</td>
<td>Cohort</td>
<td>334</td>
<td>12 mth PP</td>
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<td>[Wesnes 2010]</td>
<td>Norway</td>
<td>Cohort</td>
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<td>Week 30, 6 mth PP</td>
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Presentation title: A childhood with or without overweight
Authors: Brødsgaard A1,2, Wagner L2, Poulsen I2, Peitersen B1, Sørensen TIA4
1 Department of Paediatrics, Copenhagen University Hospital Hvidovre
2 Research Unit of Nursing, Institute of Clinical Research, University of Southern Denmark
3 Department of Neuro-rehabilitation TBI Unit (TBI), Copenhagen University Hospital Glostrup
4 Institute of Preventive Medicine, Copenhagen University Hospital Bispebjerg

Background: Overweight in childhood does not only run the risk of overweight and obesity as a young person or adult. It represents further health risks, which in addition can go beyond weight, with a number of serious health, social and psychological challenges with their Health Related Quality Of Life (HRQOL) being affected. The HRQOL in childhood is the basis for the HRQOL in adulthood. The aim was to study to what degree and how HRQOL was related to overweight and obesity among seven to nine old children, assessed by children and their mothers.

Methods: The study was conducted as a part of an investigation of the mothers’ wish and ability to take action to counteract overweight and obesity among seven to nine year old children. HRQOL was assessed by the child self-report and by parent proxy-report module of the Ped- sQL™ 4.0 Generic Core Scales. Results: Non-overweight children scored HRQOL slightly higher than overweight children, but significant higher than obese children. The same pattern was seen for the mothers’ proxy HRQOL score and mothers in general scored higher than children. Furthermore, a significant linear trend was found for HRQOL across all groups

Conclusions: An inverse association between Body Mass Index and HRQOL was found. It is important for health professionals to counteract and prevent overweight and obesity among children not only because of the increased health risks and risk of early death but also to improve the HRQOL in childhood and adulthood. During nearly three years I followed a group of obese adolescents and their parents to explore why the former could not adhere to healthier lifestyles and loose weight.

Presentation title: Practice makes perfect – a longitudinal study of obese adolescents and their parents’ experiences of the adolescents’ obesity and weight loss attempts
Author: Anders Lindelof, Dr.med. PhD, Aarhus University Hospital Marselisborg

In this presentation I will argue that unhealthy habits run within the family as a consequence of the obesogenic environment. Hence, societal changes are needed to counteract the obesity epidemic.
Conference entrance at Hotel Legoland

Auditorium A
Innovative Solutions for the Challenges of Future Health Care

The NOCOGO pre-congress will cover a wide variety of global strategic innovations and initiatives within health care and services, as well as take a practical look at innovations in E-health, Telemedicine and Innovative Technology for the health care sector. The first part of the pre-congress will look at the trends and tendencies of future health care from a broad global perspective. The second half will focus on practical innovative solutions that are developed and implemented in the Region of Southern Denmark.

When: Monday the 22nd of October from 12.20 – 16.30. (Registration and sandwiches from 11.45)

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>11.45</td>
<td>Registration for NOCOGO, Sandwiches</td>
<td>Peder Jest, Medical Director, Odense University Hospital</td>
</tr>
<tr>
<td>12.20</td>
<td>Pre-congress: Innovative Solutions for Challenges of Future Health Care</td>
<td>Peder Jest, Medical Director, Odense University Hospital</td>
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<tr>
<td>12.30</td>
<td>International trends and tendencies</td>
<td>Kevin Dean, Managing Director, Cisco IBSG, Healthcare &amp; Life Sciences</td>
</tr>
<tr>
<td>12.30</td>
<td>The role of technology in the development and evolution of health and care systems of the future.</td>
<td>Sheena Wright, Director of Nursing &amp; Care, NHS24, Health Information and Self Care Advice for Scotland</td>
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<tr>
<td>13.00</td>
<td>Delivering top quality health and care services through digital channels - A national strategy.</td>
<td>Henrik Wieland, Healthcare Industry Leader, IBM</td>
</tr>
<tr>
<td>13.30</td>
<td>Short break</td>
<td>Jacob Bangsgaard, Director General, Fédération Internationale de l’Automobile (FIA)</td>
</tr>
<tr>
<td>13.40</td>
<td>Belief, Motivation and Access - Changing Lifestyle with Technology</td>
<td>Henrik Wieland, Healthcare Industry Leader, IBM</td>
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<tr>
<td>14.10</td>
<td>Using intelligent technological solutions to combat the global epidemic of Road Traffic Accidents.</td>
<td>Jacob Bangsgaard, Director General, Fédération Internationale de l’Automobile (FIA)</td>
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<tr>
<td>14.40</td>
<td>Panel of speakers, questions</td>
<td>Jacob Bangsgaard, Director General, Fédération Internationale de l’Automobile (FIA)</td>
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<tr>
<td>15.00</td>
<td>Coffee Break</td>
<td>Jacob Bangsgaard, Director General, Fédération Internationale de l’Automobile (FIA)</td>
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<td>15.20</td>
<td>National solutions</td>
<td>Dorthe Boe Danbjerg, PhD Student and Ulrik Schonnemann, Developer</td>
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<tr>
<td>15.20</td>
<td>Telemedicine - a possibility for women who are discharged early after childbirth?</td>
<td>Dorthe Boe Danbjerg, PhD Student and Ulrik Schonnemann, Developer</td>
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<tr>
<td>15.20</td>
<td>A faster Track to Diagnosis - needs for coping and support.</td>
<td>Kamila Adellund Holt, PhD Student</td>
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<tr>
<td>15.20</td>
<td>A feasibility study on the development of 3D imaging ulcer scanner.</td>
<td>Benjamin Rasmussen, MD, PhD Student</td>
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<tr>
<td>15.20</td>
<td>Use of eHealth in the communication with patients about prenatal diagnosis. An intervention study in clinical innovation carried out in a highly specialized unit for obstetrics.</td>
<td>Mette Maria Skjøth, PhD Student</td>
</tr>
<tr>
<td>15.20</td>
<td>Serious Games - The potential of using gaming technology as a rehabilitation tool.</td>
<td>Helene Kissow, Occupational Therapist and Henrik Gaunsbæk, Dept. of Innovation, Odense University Hospital</td>
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<tr>
<td>16.20</td>
<td>Questions, closing of pre-congress</td>
<td>Peder Jest</td>
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<tr>
<td>17.00</td>
<td>NOCOGO - registration, tapas/Cava reception</td>
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<tr>
<td>19.00-20.00</td>
<td>Official opening of NOCOGO Congress</td>
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<td>20.00</td>
<td>Congress dinner</td>
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<tr>
<td>08.00-08.15</td>
<td>Opening of the scientific part of the congress: Bjarne R. Kristensen, Ole Mogensen and Jan Stener Jørgensen</td>
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<tr>
<td>08.15-09.00</td>
<td>Plenary session, auditorium A. Chair: Dorte Møller Jensen</td>
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<tr>
<td>09.15-10.30</td>
<td>Parallel sessions, auditorium A</td>
<td>Obstetrics 1, auditorium B</td>
</tr>
<tr>
<td></td>
<td>PCOS, life style and intervention - auditorium B</td>
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<tr>
<td>09.15-10.30</td>
<td>Robotic assisted laparoscopy in obese women - the future?</td>
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<td></td>
<td>Pernilla Dahm Kähler, S</td>
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<td>Approaches to Hysterectomy in the Morbidly Obese Woman</td>
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<td>Adeola Olaitan, UK</td>
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<td>Infections and thromboembolic complications after gynaecological cancer surgery</td>
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<td>Pernille Tine Jensen, DK</td>
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<td></td>
<td>Discussion</td>
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<tr>
<td>09.15-10.30</td>
<td>Outcomes based diagnostic criteria for Gestational Diabetes Mellitus (GDM)</td>
<td></td>
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<td>Peter Damm, DK</td>
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<tr>
<td>10.30-11.00</td>
<td>Coffee break / poster viewing</td>
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<tr>
<td>11.00-11.15</td>
<td>Plenary session, auditorium A. Chair: Lis Wagner</td>
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<td>11.00-12.15</td>
<td>Obstetrics 2 - auditorium A</td>
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<td>PCOS, life style and intervention - auditorium B</td>
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<td>Intrapartum asphyxia and obesity</td>
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<td>Per Olofsson, S</td>
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<td>Neonatal outcome</td>
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<td>Tine Brink Henriksen, DK</td>
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<td>Aspects of patient safety</td>
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<td>Isis Amer Wählö, S</td>
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<tr>
<td></td>
<td>Discussion</td>
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<tr>
<td>11.00-12.15</td>
<td>Obesity and pregnancy: whose responsibility is it? Valerie Fleming, UK</td>
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<tr>
<td>12.15-12.45</td>
<td>Plenary session, auditorium A. Chair: Peter Humaidan</td>
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<tr>
<td>12.15-13.15</td>
<td>The consequences of obesity in periconceptional medicine Robert Norman, AU</td>
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<tr>
<td>13.15-13.45</td>
<td>Lunch</td>
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<tr>
<td>13.45-14.15</td>
<td>Plenary session, auditorium A. Chair: Peter Humaidan</td>
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<tr>
<td>14.15-15.30</td>
<td>Ultrasound in obstetrics and gynaecology - auditorium A</td>
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<td>Intervention and prevention in pregnancy - auditorium B</td>
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<td></td>
<td>New technology may improve US examinations in obese women Bjørn Angelsen, N</td>
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<td>Routine scanning of obese pregnant women – time to rethink? Kjell Salvesen, S</td>
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<td>Tips for performing US examinations in obese pregnant women Lene Sperling, DK</td>
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<td>Discussion</td>
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<td>14.15-15.30</td>
<td>Lifestyke and pregnancy (LiP) study: The clinical effect of lifestyle intervention during pregnancy Christina Vinter, DK</td>
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<tr>
<td>15.30-15.45</td>
<td>Gestational gain and the outcome of pregnancy. What is the evidence for the present guidelines? Ellen Aagard Nørh, DK</td>
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<tr>
<td>15.30-16.15</td>
<td>Coffee break / poster viewing &amp; authors present</td>
<td></td>
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</tbody>
</table>
### Tuesday 23.10 NOCOGO

<table>
<thead>
<tr>
<th>16.15 - 17.30</th>
<th>Parallel sessions</th>
<th>Quality of life for mothers and children - auditorium B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Urogynaecology - auditorium A</strong></td>
<td><strong>Pregnancy, obesity &amp; communication</strong></td>
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<tr>
<td></td>
<td>Urinary incontinence and weight change during pregnancy and postpartum</td>
<td>Christina-Louise Lindhardt, DK</td>
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<td>Stian Langeland Wenes, N</td>
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<tr>
<td></td>
<td>Urogynaecologic surgery and obesity</td>
<td>A childhood with or without overweight. Mothers action competence, health behavior and relationships with their children</td>
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<td>Gunnar Lose, DK</td>
<td>Anne Broegaard, DK</td>
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<td>Risk factors for urinary incontinence</td>
<td>Practice makes perfect – a longitudinal study of obese adolescents and their parents’ experiences of the adolescents’ obesity and weight loss attempts</td>
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<td>Yngvild Hannestad, N</td>
<td>Anders Lindelof, DK</td>
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<td>Discussion</td>
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**Chairs:** Rikke Goldberg Sonensen, Ronald Lamont

<table>
<thead>
<tr>
<th>17.30 - 18.30</th>
<th>Plenary session, Chair: Jan Stener Jørgensen</th>
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<tbody>
<tr>
<td></td>
<td>Kaiser Permanente Organisation: Taking a health systems approach to the obesity epidemic</td>
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<td>Hal Wolf, USA</td>
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**19.30 -** Gala Dinner at the King’s Castle in LEGOLAND

### Wednesday 24.10 NOCOGO

<table>
<thead>
<tr>
<th>09.00 - 09.30</th>
<th>Plenary session, auditorium A. Chair: Christina Vinter</th>
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<tbody>
<tr>
<td></td>
<td>Bariatric surgery and consequences in pregnancy and later life Roland Devlieger, B</td>
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</tbody>
</table>

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<thead>
<tr>
<th>09.30 - 10.45</th>
<th>Parallel sessions</th>
<th>Poster/abstract award session - auditorium B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Reproductive function - auditorium A</strong></td>
<td>The best submitted abstracts - to be announced at the congress.</td>
</tr>
<tr>
<td></td>
<td>Female bodyweight and IVF outcome</td>
<td><strong>Chairs:</strong> Marianne Andersen, Dorte M. Jensen, Ole Mogensen, Pernille Ravn, Lisbeth Nilas</td>
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<td></td>
<td>Anja Pinborg, DK</td>
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<td>Endometrial gene expression and obesity</td>
<td><strong>Chairs:</strong> Dorte Glintborg, Alexandre Smarason</td>
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<td>David Blesa Jarque, ES</td>
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<td>Male obesity - consequences in relation to sperm quality and assisted reproduction</td>
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<td>Mona Bungum, S</td>
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<td>Discussion</td>
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**10.45 - 11.15** Coffe break / poster viewing

<table>
<thead>
<tr>
<th>11.15-12.30</th>
<th>Parallel sessions</th>
<th>Inflammation and infection - auditorium B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Hormonal therapy - auditorium A</strong></td>
<td><strong>Adipokines</strong></td>
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<tr>
<td></td>
<td>Contraception in Women with Obesity</td>
<td>Shali Mazaki Tovi, IL</td>
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<td>Kresten R Petersen, DK</td>
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<td></td>
<td>Menopause and HT</td>
<td><strong>Infection/prophylaxis</strong></td>
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<td>Anette Tønnes, DK</td>
<td>Ronald Lamont, UK</td>
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<td>Discussion</td>
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**Chairs:** Dorte Glintborg, Alexandar Smarason

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<thead>
<tr>
<th>12.30 - 13.00</th>
<th>Plenary session, auditorium A. Chair: Reynir Tomas Geirsson</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Obesity from a scientific perspective</td>
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<tr>
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<td>Award for best poster</td>
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<td>Ole Mogensen, DK</td>
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</tbody>
</table>

**13.00** Sandwiches and farewell
Conference floor plan
Plenary speakers
Auditorium A
WEDNESDAY 24TH OCTOBER

09.00 – 09.30 Roland Devlieger, MD, PhD, University of Leuven and University Hospitals Leuven

Roland Devlieger is the head of the department of Fetal and Maternal Medicine, University Hospitals Leuven and is Associate Professor at the University of Leuven, Belgium. He earned his medical degree and PhD from the Catholic University of Leuven and completed an elective in obstetrics and pediatrics at the University of Pretoria and Stellenbosch, South Africa. Following that, he completed subspecialty training in maternal and fetal medicine at the University of Leiden, The Netherlands.

Professor Devlieger’s main research interests include fetal surgery and fetal infections, maternal obesity and pregnancy, pregnancy after bariatric surgery, and nutrition in pregnancy. He is past President of the Flemish Obstetrical Working Party 2007-2010 and is Associate Editor of Gynecologic and Obstetric Investigation.

Presentation title: Bariatric surgery and consequences in pregnancy and later life

Bariatric surgery is the most reliable way to sustain weight loss in the morbidly obese and the number of women undergoing bariatric surgery has increased dramatically, both in Europe and the rest of the world. In women of reproductive age, fertility is often enhanced after bariatric surgery, while contraceptive effectiveness might be decreased. Pregnancy after surgery improves many pregnancy outcomes like hypertensive complications and gestational diabetes, but adds new risks mainly related to nutritional deficiencies (Fe, Vitamins,…) and surgical complications (internal herniation, malrotation,…). Women experiencing pregnancy after bariatric surgery therefore have important reproductive health care needs. The specific needs of these high-risk pregnancies are best addressed by a multidisciplinary team including obstetricians, surgeons, endocrinologists, pediatricians, psychiatrists and nutritionists. Recommendations regarding preconceptional, prenatal and postpartum follow-up will be reviewed and summarized in this talk. As most clinical recommendations are largely based on limited or inconsistent scientific evidence or consensus expert opinion, further large prospective trials and registries are urgently needed. Participation in a newly launched, multicentre registry will be proposed to the participants.

12.30 – 13.00 Ole Mogensen, Professor, Chief Consultant, DMSeci, Odense University Hospital

Ole Mogensen is professor at the University of Southern Denmark and head of the research unit at the dept. of Gynaecology and Obstetrics at the hospital. He is a certified gynaecological oncologist and has published extensively within the research area of gynaecological cancer. In 2011 he was awarded the Danish Cancer Society honorary prize for particular achievements in treatment of cancer patients, and the “Openess Award” from the Region of Southern Denmark for introducing a new surgery technique for ovarian cancer. Ole Mogensen is a highly estimated key-note speaker at both international and national conferences.

Closing remarks: During this very final session it will be my honour and pleasure to award the best poster. Furthermore, the conference will be summarised from a scientific perspective. What do we know and what are the future scientific challenges? It is our hope with this first Nordic Congress on Obesity in Gynaecology and Obstetrics to provide an innovative Nordic platform for growing common scientific projects.
Presentation title: **Female bodyweight and IVF outcome**  
**Author:** Anja Pinborg, Ass. professor, consultant, Copenhagen University Hospital Rigshospitalet

IVF treatment to overweight and obese women is a challenge and these women are at a disadvantage compared with their normal-weight counterparts with regard to pregnancy and live birth rates. Women referred to IVF treatment should be counselled of the negative implications of increased BMI on the reproductive outcome and their general health. Weight loss and a healthy lifestyle should be encouraged, however weight loss intervention studies are still lacking.

Presentation title: **Endometrial gene expression and obesity**  
**Authors:** Blesa D, Ruiz M, Simón C, Fundación Instituto Valenciano de Infertilidad (FIVI)

**Background:** Due to hormonal regulation, the endometrium goes through cyclic modifications which can be simply divided into the proliferative phase, the secretory phase, and the menstrual phase. Successful embryo implantation depends on several factors including the endometrium’s state of receptivity. Global transcriptomic, gene expression, analyses of the different phases of the endometrium give us a hint on what can be the expected for a normal non-pathological human endometrium. These endometrial phase-specific transcriptomic profiles and common patterns of temporal gene expression can be used as molecular markers.

**Methods:** We have developed a receptivity diagnostic tool based on a specific 238 gene set that we call Endometrial Receptivity Array (ERA). The ERA test is composed of a custom gene expression microarray and a class prediction software. The predictor compares microarray expression data obtained from a test sample against a set of normal samples at different endometrial cycle stages and gives a class prediction.

**Results:** The ERA test is helping us to identify a gene expression profile truly marker of endometrial receptivity. We will review the obesity related literature and how the transcriptomic receptivity profile can be altered in these patients.

**Conclusions:** This is the first molecular tool based on microarray technology that can be used clinically in reproductive medicine to evaluate the endometrium. It is also a new molecular research tool for endometrial research as it contains a finite number of genes involved in endometrial receptivity that simplifies data analysis.

Presentation title: **Male obesity – consequences in relation to sperm quality and assisted reproduction**  
**Author:** Mona Bungum, Laboratory director, PhD, Reproductive Medicine Center, Malmö University Hospital, Lund University

A combination of changes in life-style and diet patterns in the Western world has resulted in increasing numbers of overweight and obese adults. In contrast to the well accepted knowledge of the effects of a high body mass index (BMI) on female fertility, male factor infertility as a result of obesity has been generally overlooked. This despite the threefold increase in the incidence of obesity in patients with male factor infertility reported. Assisted reproductive techniques (ART) are increasingly used to treat infertility and subfertility. Now many European fertility clinics require women to reduce weight to a specific BMI threshold before initiating ART treatment, however, in the male partner the practice is not the same. The data are conflicting regarding the influence of increased male BMI on semen quality, and also in regard to the outcome of ART. Large-scale intervention studies are lacking and therefore it is still uncertain whether male weight loss gain natural or assisted fertility.
9.30 – 10.45 Short oral presentation of the best submitted abstracts
Presentation title: Contraception in Women with Obesity
Authors: Kresten R. Petersen¹ Consultant, Sven O. Skouby²
¹Odense University Hospital, ²Copenhagen University Hospital Herlev

Background: Overweight women are at increased risk of complications during pregnancy and labor. Planned pregnancy is therefore important in these women making safe and effective contraceptive methods essential. Obese women has been reported to be less compliant to contraceptive methods, and it has been suggested that hormonal contraceptives is less effective in these women.

Methods: Review of the evidence on the effectiveness and side effects of hormonal and non-hormonal contraceptive methods among overweight and obese women. The special contraceptive issues in women having bariatric surgery are also addressed.

Results: In spite of limited evidence the copper intra-uterine device (IUD) and the barrier methods seems to be as effective in obese women as in women with normal-weight. In studies comparing the effectiveness of hormonal contraception in overweight or obese women and women of lower weight or BMI it was found that the efficacy of implants and injectable contraceptives seemed to be similar. Comparative studies of the combined oral contraceptive pill and patch suggest that efficacy may be decreased in obese women but the evidence is limited and reduced compliance may be involved.

Obesity is an independent risk factor of thrombosis that should be taken into account when considering the prescription of estrogen containing contraceptives. A few studies report decreased plasma levels of orally administered contraceptive steroids after jejunoileal bypass surgery but it is still to be determined if this results in increased contraceptive failure.

Conclusions: Based in the present, limited evidence non-hormonal contraceptives, implants and injectables can be used as in non-obese women. The efficacy of oral hormonal contraception may be reduced but other factors that obesity per se may be involved.

Presentation title: Obesity, Menopause and Hormone Therapy
Author: Anette Tønnes Pedersen, Consultant and Associate Professor, Copenhagen University Hospital Rigshospitalet

From midlife, increasing age is in general associated with a lower basic metabolic rate. The menopausal transition is associated with a change in fat distribution due to reduced hormone production and changed balance between the male and the female sex steroids. Thus the prevalence of obesity is proportionally higher in postmenopausal women compared to premenopausal women.

Obesity in the climacteric and menopause is related to several issues. Vasomotor symptoms are more frequent in obese women compared to women with a normal weight. Postmenopausal obesity is a significant risk factor for breast cancer. Postmenopausal status as well as obesity is associated with a higher risk of coronary heart disease, stroke and venous thromboembolism. The effect modification by obesity on the postmenopausal risk of cardiovascular disease needs further elucidation. A low BMI confers a higher risk of osteoporotic fractures in postmenopausal women, however obesity might only be associated with a slightly lower risk.

Obese women seeking hormone therapy should be advised individually based on their need for symptom relief weighted against co-morbidity and the risk of developing cardiovascular disease and breast cancer.
## Infection/prophylaxis

### Presentation title: Adipokines

**Author:** Shali Mazaki-Tovi, M.D., Sheba Medical Center, Tel-Hashomer

During the last decade, accumulating evidence has demonstrated that adipose tissue is an important endocrine organ involved in the regulation of systemic metabolism, as well as in the orchestration of the immune response. Adipose tissue can exert its systemic effects through several mechanisms, the most important of which is the secretion of bioactive mediators from adipocytes and other cells, collectively termed "adipokines. The discovery of adipokines and their important role in physiological and pathological conditions provides a plausible molecular mechanism for the association between adiposity and metabolic- and inflammatory-related diseases.

A "physiological adaptation" of normal pregnancy includes insulin resistance, hyperlipidemia, increased weight and fat deposition. These changes are considered components of the metabolic syndrome, although physiological alterations during pregnancy do not necessarily meet the threshold values for the definition of the metabolic syndrome. Teleologically, an increased maternal resistance to insulin and the amplified production of glucose are aimed to ensure adequate glucose transport to the developing fetus. Human pregnancy is also characterized by activation of the innate immune response and suppression of the adaptive immune response. It is postulated that these immunologic alterations aim to promote tolerance to the fetus and protect the mother against infection.

Characterization of the role played by adipokines in normal gestation and complications of pregnancy may provide insight for improving prediction and diagnosis of metabolic- and inflammatory-related complications of pregnancy. Moreover, the implicit promise of such research is that the discovery of novel adipokines and new mechanisms of disease will identify adipokines as a target for pharmacological intervention aimed at preventing complications of pregnancy and/or their sequels on the mother, fetus, and neonate.

### Inflammation and infection

#### Presentation title: Infection/prophylaxis

**Author:** Ronald F Lamont, Consultant and Honorary Reader at Imperial College and at University College at Northwick Park Institute of Medical Research Campus, London. Also guest professor at University of Southern Denmark.

Before the mid-nineteenth century, surgical procedures commonly resulted in postoperative sepsis and death. In the 1860s, when Joseph Lister introduced the principles of anti-sepsis, the incidence of postoperative infectious morbidity and mortality fell markedly from 50 to 15%. In the 1960s, using an animal model, Burke demonstrated that if antibiotics were given before wound contamination, the rate of infection decreased. Despite this, infection remains a significant cause of post-surgical morbidity and mortality.

Obesity increases the risk of perioperative complications of the skin and underlying tissue, including wound infection (WI), dehiscence, pressure ulcers, and deep tissue injury. Despite the use of laparoscopic surgery, aseptic technique, and prophylactic antibiotics, WI is a common postoperative complication in this population.

The incidence of surgical-site infection (SSI) is more than five times higher in obese patients and eight times higher in morbidly obese patients than in patients of normal weight. Following hysterectomy for uterine cancer/hyperplasia Women with a BMI exceeding 40 kg/m² had worse surgical outcomes than their less obese counterparts. Similarly, following caesarean section (CS), increasing BMI was directly associated with increased risk of SSI.

The use of prophylactic antibiotics for abdominal hysterectomy significantly reduces the risk of febrile morbidity, and pelvic/wound infection and single dose antibiotic prophylaxis is well-established for abdominal and vaginal hysterectomy. Furthermore, cumulative meta-analysis data indicate that if the various studies had been pooled at an earlier date, the use of controls in subsequent trials who received no treatment would have been unnecessary.

Following CS, maternal mortality and morbidity may result from a number of infections including endometritis, urinary tract infection and SSI which, if deep rather than superficial, increases hospital stay and cost per case. Antibiotic prophylaxis for women undergoing abdominal obstetric or gynaecological surgery may require to be increased. Similarly, in patients with a fat layer of >3cm, wound fat layer drainage significantly reduces the rate of post-op SSI.
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General information

Registration
Registration for NOCOGO will take place at the registration desk in the LEGOLAND Conference centre. Please note that this is a separate entrance from that of the Hotel LEGOLAND. Registration will take place on Monday the 22nd of October from 10.30 – 13.00 and again from 17.00 – 19.00 before the official opening of the congress.

For those arriving on Tuesday the 23rd, please make sure to arrive early enough to register before the beginning of the scientific programme at 8.00. Registration will be possible from 7.30

Language
The official language of NOCOGO is English. Both plenary and parallel sessions and following discussions will be in English. No translations will be provided.

Abstract and Poster presentations
As part of the programme on Wednesday the 24th of October, a session is left open for presentations of abstracts and posters received. The chosen abstracts will be notified directly and will be announced at the congress. The posters are on display outside the auditoriums.

Badges
Each participant will receive a name badge upon registration. Please wear the name badge throughout the congress and social events as this ensures your admission to NOCOGO activities.

Technical Equipment for Speakers
All rooms in the congress venue are equipped with a projector, PowerPoint software, remote control for slide advance, laser pointer and audio equipment.

Instructions for PowerPoint presentations
We kindly ask you to follow the instructions to ensure a successful and smooth progress of the timetable.

In each auditorium there is a laptop available which you are kindly requested to use. Please bring your presentation on a USB pen.

Professional technicians will help you to transfer your presentation on the provided computers. In order to avoid queues and delays you must contact the technicians in the break prior to your presentation session.

If you are presenting in the first morning session, please do this the evening before. The technicians will be present on Monday at 18.00 in both auditoriums to assist presenters for Tuesday morning.

Preview computer
In the hotel lobby you will find a computer at your free disposal.

Hotel Legoland
In the conference book you find a map of the venue.

Check in/out of Hotel Legoland: The rooms are available for check-in from 15.00 and check-out must be finalized by 11.00.

Parking tickets can be issued for all 3 days from the reception.

The code for wireless internet access is enclosed in your registration envelope.

The breakfast room Panorama is open from 06.00 – 10.00.

The auditoriums (A + B) are situated at the foyer opposite the reception in the conference building.

Social programme information
All refreshments are served in the foyer

Monday 22nd:
Reception at 17.00 – 19.00 takes place in the foyer

Conference dinner at 20.00 takes place in the restaurant Panorama

Tuesday 23rd:
Lunch at 12.45 – 13.45 takes place at the “Multihuset”

Congress dinner:
We all meet at the hotel lobby at 19.15 and stroll through the LEGOLAND® Park together to the King’s Castle.

Here we shall enjoy a feast fit for kings and queens with the best of local food by the hand of a master chef. Wine will be served generously and also a taste of a Danish speciality – the cherry wine – will be served with the desert.

After dinner a band will play all the well-known tunes and the floor is open for dancing until 01.00.

Wednesday 24th:
Lunch at 13.00 takes place at the foyer.

The King's Castle of LEGOLAND®
Sort Sol – “Black Sun” – An amazing phenomenon of nature
<table>
<thead>
<tr>
<th>NO.</th>
<th>PRESENTER</th>
<th>TITLE</th>
<th>INSTITUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andersen LB</td>
<td>Obesity is associated with vitamin D insufficiency in early pregnancy</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>2</td>
<td>Aziz M</td>
<td>Polycystic ovary syndrome: Insulin resistance and low-grade inflammation according to Phenotypes</td>
<td>Copenhagen University Hospital Herlev</td>
</tr>
<tr>
<td>3</td>
<td>Bang M</td>
<td>Changed strategy in treatment of pregnant women</td>
<td>Copenhagen University Hospital Hvidovre</td>
</tr>
<tr>
<td>4</td>
<td>Bogaerts A</td>
<td>Postpartum weight retention in obese mothers</td>
<td>KULeuven, Belgium; University Hospital Leuven, Belgium; Tilburg University, NL</td>
</tr>
<tr>
<td>5</td>
<td>Frederiksen-Møller B</td>
<td>Early and late onset preeclampsia in relation to BMI?</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>6</td>
<td>Furrer AM</td>
<td>Bariatric patient care in the Department of Gynecology and Obstetrics, Lillebaelt Hospital</td>
<td>Lillebaelt Hospital, Denmark</td>
</tr>
<tr>
<td>7</td>
<td>Gade M</td>
<td>Hirsutism in non-diabetic women with PCOS: Focus on women’s satisfaction of treatment and background variables</td>
<td>Herning Hospital, Denmark</td>
</tr>
<tr>
<td>8</td>
<td>Gottfredsdottir H</td>
<td>Discussing overweight and obesity during pregnancy: Midwives and doctors experience</td>
<td>University of Iceland</td>
</tr>
<tr>
<td>9</td>
<td>Heslehurst N</td>
<td>The implementation of antenatal, intrapartum, and postnatal clinical pathways for obese pregnant women: A mixed methods study</td>
<td>Newcastle University, UK</td>
</tr>
<tr>
<td>10</td>
<td>Jangaard K</td>
<td>The experiences and perspectives of obesity and care in hospital settings in bariatric pregnant, parnullerent and postnatal in-patients</td>
<td>Lillebaelt Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>11</td>
<td>Johannsen EC</td>
<td>Management of pregnant women after Roux-en-Y Gastric Bypass (RYGB) surgery at the Department of Gynaecology and Obstetrics, Lillebaelt Hospital, Kolding</td>
<td>Lillebaelt Hospital, Denmark</td>
</tr>
<tr>
<td>12</td>
<td>Karlsen K</td>
<td>Motivational Interviewing: a part of the weight loss program for overweight and obese women prior to fertility treatment</td>
<td>Odense University Hospital</td>
</tr>
<tr>
<td>13</td>
<td>Kjær MM</td>
<td>Gastric Bypass – The impact of delivery and birth weight in a Danish national cohort</td>
<td>Copenhagen University Hospital Hvidovre/University of Copenhagen</td>
</tr>
<tr>
<td>14</td>
<td>Lazanyi M</td>
<td>Maternal Body Mass Index and mode of delivery</td>
<td>Royal Women’s Hospital, Melbourne, Australia</td>
</tr>
<tr>
<td>15</td>
<td>Lindgren LM</td>
<td>Cancer-risk in endometrial polyps in pre- and postmenopausal women. A retrospective study of 969 cases</td>
<td>Copenhagen University Hospital Hvidovre</td>
</tr>
<tr>
<td>16</td>
<td>Lundberg TP</td>
<td>Metabolic risk profile and glutamic acid decarboxylase autoantibodies postpartum in women with previous gestational diabetes mellitus</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>17</td>
<td>Munck DF</td>
<td>Pregnancy in a non-communicating uterine horn. A case report</td>
<td>Odense University Hospital Svendborg</td>
</tr>
<tr>
<td>18</td>
<td>Piosik Z</td>
<td>Ultrasound guidance of obstetric epidural analgesia: a facilitating method easy to apply</td>
<td>Roskilde University Hospital, Denmark</td>
</tr>
<tr>
<td>19</td>
<td>Sandal G</td>
<td>Midwifery clinic for women with a BMI above 30 and effects on pregnancy weight gain and obstetric outcomes</td>
<td>Odense University Hospital</td>
</tr>
<tr>
<td>20</td>
<td>Sturk RK</td>
<td>Outcome in obese deliveries</td>
<td>Karolinska Institute, Soder Hospital, Stockholm, Sweden</td>
</tr>
<tr>
<td>21</td>
<td>Svendlund R</td>
<td>The effect of increased physical activity during pregnancy and postpartum among physically inactive women</td>
<td>Regionshospital Randers, Denmark</td>
</tr>
<tr>
<td>22</td>
<td>Tanvig M</td>
<td>Maternal weight retention two years postpartum – results from the LiP and LiPO studies</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>23</td>
<td>Tanvig M</td>
<td>Maternal factors influencing infant abdominal circumference and birth weight - a population based study</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
<tr>
<td>24</td>
<td>Viftrup-Lund M</td>
<td>Metformin exposure in first trimester pregnancies of non-diabetic women with PCOS: Pregnancy loss and fetal malformations</td>
<td>Herning Hospital, Denmark</td>
</tr>
<tr>
<td>25</td>
<td>Vinter CA</td>
<td>Postpartum weight retention and breastfeeding among obese women from the LiP (Lifestyle in Pregnancy) Study</td>
<td>Odense University Hospital/ University of Southern Denmark</td>
</tr>
</tbody>
</table>
1. Abstract title: Obesity is associated with vitamin D insufficiency in early pregnancy
Institute: all Odense University Hospital, University of Southern Denmark
Contact e-mail: louise.bjoerkholt.andersen@ouh.regionsyd DANMARK.dk
Background: The prevalence of Vitamin D insufficiency (serum 25-OHD2+D3 <50 nmol/l) in pregnant women is found to be relatively high in international literature, however largely un-elucidated in Denmark. Current research suggests that Vitamin D insufficiency in pregnancy is detrimental for the health of mother and child.
Methods: Using data from the Odense Child Cohort, we investigated the serum 25-OHD2+D3 level of 1348 women in gestational weeks 8-16. Associations to socio-demographic variables were investigated through multiple regression analysis for the year as a whole and separately for winter (November to April) and summer (May to October).
Results: Vitamin D insufficiency, defined as serum 25-OHD2+D3 <50 nmol/l, was found in 27.8% of the cohort. OR for 25(OH)D < 50 nmol/l in winter was 1.87, p=0.00. When data was analyzed separately for summer and winter months, body mass index (OR 1.12 per unit increase in BMI, p=0.00) and smoking (OR 3.06, p=0.03) were only significant in winter months, while in summer months, parental origins from outside Europe were significant compared to Danish origins (OR 5.9, p=0.02).
Conclusions: We found that 27.8% of women in the study were Vitamin D insufficient in early pregnancy. The findings further establish that groups at risk of Vitamin D insufficiency in pregnancy include multipara, overweight or obese women, smokers and women with ancestral origins outside Europe. The results suggest that the Danish recommendations for supplementary Vitamin D intake in pregnancy are insufficient.

2. Abstract title: Polycystic ovary syndrome: Insulin resistance and low-grade inflammation according to Phenotypes
Authors: Aziz M1, Siedlmann, JJZ, Faber J3, Wissing ML4, Naver K5, Skouby S1
Institute: (1) Dept. of Obstetrics and Gynecology, Herlev Hospital, University of Copenhagen, (2) Unit for Thrombosis Research, University of Southern Denmark, (3) Dept. of Endocrinology, Herlev Hospital, University of Copenhagen, (4) Dept. of Obstetrics and Gynecology, Holbaek Hospital, University of Copenhagen, (5) Dept. of Obstetrics and Gynecology, Hvidovre Hospital, University of Copenhagen
Contact e-mail: mubiaz@hotmail.com
Background: Polycystic ovary syndrome (PCOS) is associated with obesity, insulin resistance (IR) and hyperandrogenism; conditions leading to CVD through vascular endothelial dysfunction and chronic low-grade inflammation. However, women with PCOS defined by the Rotterdam criteria are clinically heterogeneous. Our objective was therefore to investigate levels of validated inflammation markers in relation to four different PCOS phenotypes defined by BMI and IR (25<BMI<25; IR).
Methods: A cross-sectional study recruiting patients consecutively from April 2010 to February 2012. BMI, HOMA-IR and body composition (DEXA) were determined. The inflammation markers plasminogen activator inhibitor 1 (PAI-1) and C-reactive protein (CRP), and plasma testosterone were analyzed by highly specific immunoassays.
Results: Hundred forty-nine PCOS women, fulfilling the Rotterdam criteria, were included. Phenotypes were distributed as 1) BMI<25/-IR: 35%; 2) BMI<25/+IR: 10%; 3) BMI>25/-IR: 16%; 4) BMI>25/+IR: 38.5%. A strong, positive correlation between CRP and total fat mass was observed, r = 0.65, n = 149, p < 0.001. This association was independent of IR. There was no correlation between CRP and any of the Rotterdam criteria. PAI-1 was highest in insulin resistant women. We observed a strong, positive correlation between PAI-1 and HOMA-IR, r = 0.57, n = 149, p < 0.001. PAI-1 was also positively correlated with total fat mass, android fat and free testosterone, r = 0.57, r = 0.54, r= 0.51 n = 149, p < 0.001.
Conclusions: IR, android fat and total fat mass are significantly associated with low-grade inflammation in PCOS. Of the three Rotterdam criteria only hyperandrogenemia is significantly related to proinflammation.

3. Abstract title: Changed strategy in the treatment of pregnant women with GDM
Authors: Bang MD, Storm C
Institute: Hvidovre Hospital, Denmark
Contact e-mail: marieotte.birgitte.da.cunha.bang@regionh.dk
Background: Local strategies for screening and treatment of gestational diabetes mellitus (GDM) has been insufficient resulting in a lower detection rate than expected and may result in less effective treatment of GDM. 2–3% of pregnant women develop GDM. At Hvidovre Hospital we have 7000 deliveries per year. By implementation of new strategies for handling women with GDM; we seek to improve our local strategies regarding GDM.
Methods: All Midwives are offered 1 hour of update on national guidelines for screening for and treatment of GDM. Women diagnosed with GDM are offered one group based consultation within one week after diagnosis. A midwife and a dietician with special interest in GDM lead the consultation, which include information on the background and consequences of GDM and intensive training in handling of GDM including measurement of blood glucose.
Results: After introducing update lessons to the midwives, detection rate has increased from 110 in September 2010 to August 2011 to 133 in September 2011 to July 2012. The change in strategy for handling women diagnosed with GDM has resulted in more effective treatment with improved compliance regarding diet and goals for blood glucose levels. The patients satisfaction also seems improved.
Conclusions: Regular lessons in national guidelines for GDM seem effective to improve local detection rates. Group consultations for women diagnosed with GDM are easy and cheap to implement and the group consultation with a dietician and a midwife with special interest in GDM lead the consultation, which include information on the background and consequences of GDM and intensive training in handling of GDM including measurement of blood glucose.

4. Abstract title: Postpartum weight retention in obese mothers
Authors: Bogaerts, A., Van den Bergh, B., Witters, I. & Devlieger R.
Institute: KHLim-PHL, Belgium; University Hospital Leuven, Belgium; Tilburg University, Netherlands
Contact e-mail: annick.bogaerts@khiLIM.be
Background: Maternal obesity and gestational weight gain (GWG) are important determinants of postpartum weight retention (PPWR) and therefore also for the development of maternal obesity on the long run[1]. We aimed to describe weight status of obese mothers at 6 months postpartum, related to breastfeeding behavior and mothers’ psychological state.
Methods: As part of an interventional trial in obese pregnant women (n=137), PPWR at 6 months was analyzed, taking into account duration of breastfeeding and levels of anxiety (STAI, Spielberger) and feelings of depression (EPDS).

Results: Postpartum data were available from 146 obese mothers (74%). PPWR in obese mothers ranges between -17 and 19 kg (mean -0.96 kg, SD 5.8). Overall, 40% of obese mothers had any PPWR versus 60% who had weight loss at 6 months postpartum, compared to their prepregnancy weight. High PPWR (≥ 5kg) was shown in 13% of obese mothers. No significant association was found between weight status of the obese mother (loss versus any retention) and duration of breastfeeding and psychological state. For obese mothers with high PPWR (≥ 5kg) on the contrary, a significant association was found for duration of breastfeeding and psychological state (state anxiety). Those with high PPWR showed a significant higher level of state anxiety at 6 months postpartum (p=0.007).

Conclusions: To prevent immediate and long-term obesity on the long run, one has to focus on an adequate management of breastfeeding as well as on psychological support of the obese mother.

During the period Dec. 1st 2011 to April 1st 2012, it was investigated how and when the work environment is affected. The survey was conducted immediately after the staff had treated or cared for an obese patient with a BMI ≥ 30.

Methods: Data was collected from any staff member caring for a bariatric patient and registered electronically at the end of a shift. In the electronic data collection the employee also had a wide range of personal questions based on the working environment and the experiences with the obese patient.

The individual employee experiences are important knowledge in the study of the appropriate bariatric care and management of obese patients. At the end of the investigation, April 1st 2012, data was collected from more than 800 employee experiences of the working environment in caring for obese patients.

Results: Results presented show the correlation between patient BMI and the working environment. Challenges that must be addressed are minimization of the risk of injury to the staff at the Department of Gynecological and Obstetric at Lillebaelt Hospital.
8. Abstract title: Discussing overweight and obesity during pregnancy: Midwives and doctors experience
Authors: Gottfredsdottir, H.
Institute: Faculty of Nursing, department of Midwifery, University of Iceland
Contact e-mail: helgagot@hi.is
Background: Weight gain during pregnancy is one of the main factors related to birth outcome and has prediction for the infants health. It is important that professionals have confidence to discuss weight gain with pregnant women and encourage healthy life style approach.
Methods: Three focus groups were formed with 3-4 participants each and semi structured interviews conducted with professionals working in antenatal care. Participant comments were transcribed and analyzed using systematic content analysis.
Results: Analysis revealed five main themes related to the content of care and service delivery. 1) overweight integrated with social factors, 2) be careful about what you say, 3) weight measurement during pregnancy, 4) emphasis on healthy life-style rather than weight, and 5) multidisciplinary care requirements.
Conclusions: Maternal overweight and obesity has a major impact on service in the antenatal clinic. That calls for a multidisciplinary care which has not fully been implemented in the setting. Some professionals use salutogenic approach in their care but there is a need to discuss how to get balanced information to pregnant women during this important time.

9. Abstract title: The implementation of antenatal, intrapartum, and postnatal clinical pathways for obese pregnant women: A mixed methods study
Institute: Newcastle University, UK
Contact e-mail: nicola.heslehurst@ncl.ac.uk
Background: The UK recently published maternal obesity guidelines and standards. South Tees NHS Trust (Northeast England, ~5500 births/year) developed obesity pathways incorporating antenatal, intrapartum, and postnatal clinical and weight management. This research explored pathway compliance, and healthcare professionals (HCPs) and obese pregnant women’s experiences.
Methods: A simultaneous mixed methods model integrated three research components. Integration incorporated triangulating methods, respondent groups, and investigators. Research components were qualitative interviews with obese pregnant women (n=17, saturation reached), qualitative and quantitative survey research with HCPs (n=186, 68% response), and casenote audit (n=59 randomly selected).
A convergence coding matrix identified meta-themes across research components, actively searching for agreement and disagreement.
Results: Two meta-themes were identified. 1: Communication (sub-themes: communication in practice; understanding the pathways; HCPs approach to communication; risk communication; and emotional responses to communication). 2: Pathway Content (sub-themes: clinical advice and support; weight management/lifestyle advice and support; weight measurement and recording; cost of support; time and monetary costs for women; and information leaflets). There were multiple areas of agreement between components, whereas disagreement was predominantly between respondent groups’ perspectives (HCPs and obese women). Compliance was acceptable for most clinical management aspects of the pathways. Women considered weight management to be important to their care, yet this was not implemented to an acceptable level.

Conclusions: There are clear differences between HCPs and pregnant women’s perspectives of important aspects of obesity care. While UK maternity services must ensure care meets clinical requirements, they must also meet women’s requirements to support behaviour change, pathway compliance, and patient satisfaction.

10. Abstract title: The experiences and perspectives of obesity and care in hospital settings in bariatric pregnant, parturient and postnatal in-patients: An on-going study
Authors: Jangaard K1, Furrer AM2, Buus N1
Institute: University of Southern Denmark, Lillebaelt Hospital
Contact e-mail: kajan10@student.sdu.dk
Background: Several studies indicate that obesity and obesity-related attitudes influences the interaction between obese patients and health-professionals leading to patient-experiences such as powerlessness, stigmatization, negative professional attitudes and treatment avoidance. Given the increasing prevalence of obesity it is necessary to gain knowledge of how the presence of obesity affects health-care interactions and decision making. The target group of the project will be all health-professions involved in care and treatment of in-patients at SLB. The aim of this study is to collect informations about bariatric women’s (BMI ≥35) subjective experiences at all stages of their hospitalisation during pregnancy, childbirth or/and postpartum care.
Methods: The qualitative research design will allow us to investigate women’s subjective experiences in the hospital context and the meanings that women attribute to phenomena and interactions in the setting. From an interactive perspective, individual interviews will be carried out with pregnant and postnatal bariatric women during their hospitalisation at the Department of Gynecology and Obstetrics at Sygehus Lillebaelt, Kolding. An interview-guide will be elaborated after preceding observations of care, treatment and interactions between professionals and patients in the wards. The interviews will be interpreted to extract key themes, e.g. of physical and mental barriers, possibilities and difficulties, communication-problems, emotional issues, and more.
We want to identify how obesity impacts antenatal, intra- and postpartum care interactions from a patient perspective in the clinical setting. The interviews will be interpreted on the basis of interactionist and other relevant theories, e.g. Goffman’s theory of stigma.
Results: The study is ongoing, and we will present preliminary findings and reflections on the methods used.

11. Abstract title: Management of pregnant women after Roux-en-Y Gastric Bypass (RYGB) surgery at the Department of Gynaecology and Obstetrics, Lillebaelt Hospital, Kolding
Authors: Johannsen EC, Milman N, Wielandt HB
Institute: Lillebaelt Hospital, Kolding, Denmark
Contact e-mail: eva.christina.johannsen@slb.regionsyddanmark.dk
Background: The number of fertile women treated with bariatric surgery increases. Accurate professional aid for antenatal care and the management of possible postoperative malabsorption during pregnancy and birth increases, in particular treatment of iron deficiency anemia. The objective of this study is to evaluate the hematological status and the role of intravenous iron therapy in pregnant women after Roux-en-Y Gastric Bypass (RYGB).
Methods: Descriptive cohort study with focus on the hematological
status and the individual grade of iron deficiency treated with either or parenteral iron supplementation.

**Results:** The presentation considers 13 pregnant women admitted for delivery at the Department of Gynaecology & Obstetrics, Lillebaelt Hospital, Kolding, Denmark from 01.01.2012 – 01.08.2012, who underwent RYGB and subsequently became pregnant. Data on history including weight loss, conception, time to conception after bariatric surgery, complications during pregnancy, the delivery and the outcome are included in the presentation. The women reported a substantial weight loss after bariatric surgery. The delay between surgery and conception varied from 2 months to several years. Patients were followed with hemato logical status at least once in each trimester. The need for intravenous iron treatment was evident among one fifth of the patients. No adverse effects were observed.

**Conclusions:** Pregnancy after RYGB requires frequent follow-up of hemato logical status. Parenteral iron therapy appears to be well tolerated and adequate. "An important issue is the need to develop a suitable antenatal care program and data must be collected in order to evaluate possible impact on the fetus.

**12. Abstract title:** Motivational Interviewing: a part of the weight loss program for overweight and obese women prior to fertility treatment

**Authors:** Karlsen K1, Humaidan P1, Sørensen LH2 and Ravn P1

**Institute:** 1Department of Gynecology and Obstetrics, Odense University Hospital, Odense, Denmark. 2Department of Gynecology and Obstetrics, Fertility Centre, Viborg Hospital, Skive, Denmark

**Contact e-mail:** Kamilla_Karlsen@hotmail.com

**Background:** Overweight and obesity is a growing problem in many parts of the world associated with several health consequences including a negative impact upon reproductive health. Overweight and obesity are furthermore associated with a higher risk of pregnancy complications. Overweight women should thus be encouraged for weight loss before spontaneous or assisted conceiving. The aim of this study is to investigate whether motivational interviewing (MI) increases weight loss among obese or overweight women prior to fertility treatment. Method. Prospective study. Setting. Skive Fertility Centre, Hospital Viborg, Denmark. Population. 241 women with BMI > 30 kg/ m2 approaching Skive Fertility Centre in the period 2006 to 2011. Methods: All women with BMI > 30 kg/ m2 were informed that they had to lose weight before they could receive fertility treatment. They were given advice about diet and physical activity. Additionally they were asked if they wanted to receive MI. MI were given by a nurse trained for MI sessions. Among other data age, height and weight were obtained. Main outcome measures. Weight loss measured in kg and decrease in BMI.

**Results:** We studied 187 women: 110 received MI intervention group, n= 110), 64 received motivational support by phone or e-mail only, and 13 women did not wish any motivational support (control group, n= 77). Mean weight loss was greater in the intervention group compared with the control group, 9.3 kg and 7.3 kg, respectively (difference p<0.001). Mean decrease in BMI was greater in the intervention group compared with the control group, 3.3 kg/m2 and 2.6 kg/m2, respectively (difference p<0.001). The mean time period of intervention was comparable in the two groups, 7.9 month and 7.3 month, respectively, difference not significant (NS).

**Conclusions:** We found that the group receiving MI lost significantly more weight than the control group indicating that MI may be a valuable tool in weight loss programs for obese and overweight women prior to fertility treatment.

**13. Abstract title:** Gastric Bypass – The impact of delivery and birth weight in a Danish national cohort

**Authors:** Kjaer MM, Lauenborg J, Breum BM, Nilas L

**Institute:** Hvidovre Hospital, University of Copenhagen, Denmark

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**Background:** The number of pregnancies after bariatric surgery is increasing. In many countries, Roux-en-Y Gastric Bypass (RYGB) is the first choice operation. The weight loss is achieved through a combination of food restriction and malabsorption.

**Aim:** To describe the impact of RYGB on delivery and fetal birth weight.

**Methods:** Nationwide register-based study covering all Danish singleton deliveries after RYGB during 2004-2010. Each woman with RYGB was matched with four women without bariatric surgery on date of birth, age, BMI and parity. Data were extracted from The Danish National Patient Registry and The Medical Birth Register.

**Results:** Study population consisted of two groups; one including 286 women with a singleton delivery after RYGB and a second including 1070 women without bariatric surgery. Risk of labor induction and caesarean section was identical in the two groups. Children born after RYGB had a shorter mean gestational age (39+1 vs. 39+5 weeks , p<0.001) and a lower mean birth weight (3264 vs. 3574 g, p<0.001). No difference in the risk of preterm birth (odds ratio (OR) 1.29 (95% CI 0.77-2.10) was shown, but a lower risk of large-for-gestational-age infants (LGA) (OR 0.90 (0.81-0.99)) and a higher risk of small-for-gestational-age infants (SGA) (OR 2.90 (1.56-5.26)) was seen in the RYGB group.

**Conclusions:** Children born after RYGB have a lower mean birth weight, a 11-fold lower risk of LGA and an almost 3-fold higher risk of being SGA compared to children born by women without bariatric surgery matched on time of birth, age, BMI and parity.

**14. Abstract title:** Maternal Body Mass Index and mode of delivery

**Authors:** Lazanyi M1, Benson J2, Gellard C2

**Institute:** 1Royal Women’s Hospital, Melbourne, Australia 2Geelong Hospital, Geelong, Australia

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**Background:** Overweight and obese mothers have an increased risk of elective and emergency Caesarean delivery. The aims of this audit were to identify (1) incidence of overweight and obese mothers delivering at the Geelong Hospital (TGH) and (2) the rate of Caesarean delivery based upon maternal BMI.

**Methods:** A retrospective audit of mothers delivering at TGH between March 1 2011 and 29 February 2012 were reviewed.

**Results:** 2163 mothers delivered at TGH over the study period. 2089 mothers had a BMI recorded at the booking visit (96.6%). 57.4% of mothers were overweight or obese (n = 1200). The distribution of BMI and rate of Caesarean section is shown in table 1. Increasing maternal BMI is associated with increased total (emergency and elective) and emergency Caesarean section rate.

**Conclusion:** There is a direct correlation between increasing BMI and CS rates in overweight and obese women.
and glutamic acid decarboxylase autoantibodies (GAD-Ab) could be a predictor of later type 1 diabetes. Our hypothesis is that women with previous GDM and GAD-Ab have clinical features that resemble type 1 diabetic patients. The aim of this study therefore is to describe the metabolic profiles 3 months post partum in GAD-Ab positive women versus GAD-Ab negative women with previous GDM.

**Methods:** During 1997-2010 407 women with previous GDM were tested post partum with fasting blood samples, oral glucose tolerance test (OGTT) and clinical examination. The median time for OGTT was 98 days post partum, the women had a median age of 32.5 years and 83% had Caucasian background.

**Results:** Twenty-two women out of 407 (5.4%) were GAD-Ab positive at follow-up 3 months postpartum. There were no significant differences between GAD-Ab positive and negative women regarding blood pressure, lipid profiles, Hba1c and BMI postpartum. Fasting glucose concentrations and 2-hour glucose concentrations during a 75g OGTT were significantly higher in GAD-Ab positive women compared to GAD-Ab negative women (P= 0.02 and P= 0.05 respectively). Fasting C-peptide levels were significantly lower in GAD-Ab positive women than in GAD-Ab negative women (P=0.02) and fasting insulin showed the same tendency (P=0.05).

**Conclusions:** GAD-Ab positive women had significantly lower fasting c-peptide, higher fasting glucose and higher 2-hour glucose than GAD-Ab negative women. These findings suggest that GAD-Ab positive women with previous GDM have phenotypic characteristics similar to type 1 diabetes patients. Furthermore, GAD-Ab negative women from this population resemble the clinical features of type 2 diabetes.

### Rate of Caesarean section according to BMI

<table>
<thead>
<tr>
<th>BMI kg/m²</th>
<th>Total n = 2089</th>
<th>NVB n = 1165</th>
<th>CS (total) n = 303</th>
<th>CS (emergency) n = 293</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 18</td>
<td>14</td>
<td>5</td>
<td>2 (14.3%)</td>
<td>1 (7.1%)</td>
</tr>
<tr>
<td>18 - 29</td>
<td>875</td>
<td>212 (24.3%)</td>
<td>116 (11.0%)</td>
<td></td>
</tr>
<tr>
<td>25 - 29</td>
<td>634</td>
<td>366</td>
<td>169 (26.7%)</td>
<td>72 (15.3%)</td>
</tr>
<tr>
<td>30 - 39</td>
<td>463</td>
<td>250</td>
<td>166 (35.9%)</td>
<td>71 (20.5%)</td>
</tr>
<tr>
<td>≥ 40</td>
<td>103</td>
<td>36</td>
<td>61 (59.2%)</td>
<td>33 (27.2%)</td>
</tr>
</tbody>
</table>

* CS Caesarean section

### 15. Abstract title: Cancer-risk in endometrial polyps in pre- and postmenopausal women. A retrospective study of 969 cases

**Authors:** Lindgren, LM, Jensen, AK., Krogh J., Nilas L

**Institute:** Hvidovre Hospital, Denmark

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**Background:** Extended use of ultrasound in the evaluation of both symptomatic and asymptomatic women has increased the number of identified endometrial polyps. The aim of this study was to compare the risk of malignancy in symptomatic and asymptomatic women with endometrial polyps.

**Methods:** Women with histologically verified endometrial polyps, diagnosed at Hvidovre Hospital (Copenhagen, Denmark) in the period 1994-2010 were included. All patient files were reviewed and data on possible risk factors were collected. Statistic calculations were performed using SAS version 9.1.

**Results:** We identified 969 cases with EPs. 28 (2.9%) of the endometrial polyps showed cancer or atypical hyperplasia. The risk of malignancy was 1.0% (n=5) to 1.3% (n=2) in premenopausal and asymptomatic postmenopausal women respectively, but 6.5% (n=21 of 323) in cases with postmenopausal bleeding. Univariate regression analysis showed a significant association between the risk of malignancy in endometrial polyps and age > 52 years (p=0.074), body mass index (BMI) >25 kg/m² (p=0.0026), menopausal status (p=0.012) and presence of post-menopausal bleeding (p<0.0001). In multivariate regression analysis the only remaining risk factors for malignancy were postmenopausal bleeding (OR 5.6, 95% CI 1.9 to 17.1, p=0.0023) and BMI >25 kg/m² (p=0.0026). We identified 969 cases with EPs. 28 (2.9%) of the endometrial polyps showed cancer or atypical hyperplasia. The risk of malignancy was 1.0% (n=5) to 1.3% (n=2) in premenopausal and asymptomatic postmenopausal women respectively, but 6.5% (n=21 of 323) in cases with postmenopausal bleeding. Univariate regression analysis showed a significant association between the risk of malignancy in endometrial polyps and age > 52 years (p=0.074), body mass index (BMI) >25 kg/m² (p=0.0026), menopausal status (p=0.012) and presence of post-menopausal bleeding (p<0.0001). In multivariate regression analysis the only remaining risk factors for malignancy were postmenopausal bleeding (OR 5.6, 95% CI 1.9 to 17.1, p=0.0023) and BMI >25 kg/m² (p=0.0026).

**Conclusion:** A high BMI is an independent risk factor for malignancy in endometrial polyps. Polyps in symptomatic postmenopausal women require removal and histological examination. The risk of malignancy in otherwise healthy asymptomatic pre- and post-menopausal women is low and may be left untreated, and included in a follow-up program.

### 16. Abstract title: Metabolic risk profile and glutamic acid decarboxylase autoantibodies postpartum in women with previous gestational diabetes mellitus

**Authors:** Lundberg TP1, Snogdal LS1, Jensen DM1

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**Background:** Women with previous gestational diabetes mellitus (GDM) have increased risk of subsequent diabetes (primarily type 2) and metabolic syndrome. However, GDM is a heterogeneous condition and glutamic acid decarboxylase autoantibodies (GAD-Ab) could be a predictor of later type 1 diabetes. Our hypothesis is that women with previous GDM and GAD-Ab have clinical features that resemble type 1 diabetic patients. The aim of this study therefore is to describe the metabolic profiles 3 months post partum in GAD-Ab positive women versus GAD-Ab negative women with previous GDM.

**Methods:** During 1997-2010 407 women with previous GDM were tested post partum with fasting blood samples, oral glucose tolerance test (OGTT) and clinical examination. The median time for OGTT was 98 days post partum, the women had a median age of 32.5 years and 83% had Caucasian background.

**Results:** Twenty-two women out of 407 (5.4%) were GAD-Ab positive at follow-up 3 months postpartum. There were no significant differences between GAD-Ab positive and negative women regarding blood pressure, lipid profiles, Hba1c and BMI postpartum. Fasting glucose concentrations and 2-hour glucose concentrations during a 75g OGTT were significantly higher in GAD-Ab positive women compared to GAD-Ab negative women (P= 0.02 and P= 0.05 respectively). Fasting C-peptide levels were significantly lower in GAD-Ab positive women than in GAD-Ab negative women (P=0.02) and fasting insulin showed the same tendency (P=0.05).

**Conclusions:** GAD-Ab positive women had significantly lower fasting c-peptide, higher fasting glucose and higher 2-hour glucose than GAD-Ab negative women. These findings suggest that GAD-Ab positive women with previous GDM have phenotypic characteristics similar to type 1 diabetes patients. Furthermore, GAD-Ab negative women from this population resemble the clinical features of type 2 diabetes.


**Authors:** Munch DF, Markauskas A, Risk El Saidi G, Jørgensen JS

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**Background:** Pregnancy in a rudimentary uterine horn is a rare and a potentially life-threatening form of ectopic pregnancy. Reported incidences vary from 1:100.000 to 1:140.000 pregnancies.

**Methods:** We present a case of a 21-week ruptured pregnancy in a rudimentary uterine horn in an obese woman with PCOS.

**Result and conclusions:** The pregnancy was uneventful until gestational age (GA) 21. Routine ultrasound scans at GA 13+0 and at GA 19+3 showed an intrauterine fetus corresponding to dates. The visibility of the scan was reduced due to obesity. She had a BMI at 36.29kg/m². At GA 21+5 she developed abdominal pain and had decreasing haemoglobin. 10 days later, laparotomy was performed and provided evidence of a ruptured pregnancy in a rudimentary horn. On vital indication the rudimentary horn pregnancy was removed.

**Methods:** The patient was admitted to our hospital, she was examined and operated. During operation, photographs of the pregnancy and rudimentary horn were taken. A review of records on the present woman and a review of the literature on pregnancy in a rudimentary horn were made.

**Result and conclusions:** This case is being reported because of the rarity and severity of non-communicating rudimentary horn pregnancy. In order to highlight the difficulties of diagnosing it our case is important to report. Any doctor must consider this diagnosis, when faced with a pregnant woman with repeated stomach pain and decreasing levels of Hgb. Future progress in ultrasound technique might make prerupture diagnosis easier, thus improving the prevention of maternal mortality and morbidity. Termination of pregnancy in a rudimentary horn is recommended.
18. Abstract title: Ultrasound guidance of obstetric epidural analgesia; a facilitating method easy to apply  
Authors: Piosik Z°, Wojdemann KR°, Alling-Møller LM° and Sprehn M°  
Institute: a) Department of Anaesthesiology, Roskilde University Hospital, Denmark, b) Department of Obstetrics and Gynecology, Roskilde University Hospital, Denmark, c) Department of Anaesthesiology, Odense University Hospital, Denmark  
Contact e-mail: zofia.piosik@gmail.com  
Background: Due to obscured anatomical landmarks by weight gain and tissue edema in pregnancy, performance of obstetric epidural analgesia is regarded as a difficult procedure. Use of preprocedural ultrasound guidance of obstetric epidural analgesia is known to facilitate the performance of the procedure and reduce the epidural failure rate. However, limited accessibility of ultrasound equipment – in part – is presumed to prevent the use of this technique in clinical practice. We describe a logistic favorable and easy accessible setting to overcome this problem.  
Methods: Most gynecologic and obstetric departments possess an ultrasound scanner with a curved array probe, mainly for use in acute situations during delivery. The curved array 3-6 MHz probe was preset for 6-13 cm depth, high resolution and maximal contrast. Ultrasonography of the spine was trained on 25 voluntary persons, before the technique was applied preprocedural. The epidural was performed by conventional procedure according to the landmarks identified by ultrasound.  
Results: Midline of the spine, the optimal puncture site, angle and the approximate distance to the epidural space was identified in 25/25 consecutive parturients (BMI range 18-41, median 29). Optimal puncture site and angle identified by ultrasound showed good correlation with the actual passage of the needle, results showed in poster. The ultrasound technique was well accepted by all parturients.  
Conclusion: Our study demonstrates that the quality of an easy accessible setting with obstetrical ultrasound equipment can facilitate the use of ultrasound guidance in performance of obstetric epidural analgesia.

19. Abstract title: Midwifery clinic for women with a BMI above 30 and effects on pregnancy weight gain and obstetric outcomes  
Authors: Sandal G, Andersen L, Faaborg K, Boa A  
Institute: Odense University Hospital, Denmark  
Contact e-mail: gsanda@webspeed.dk  
Background: There is an increasing number of pregnant women with a high BMI, giving an increase in maternal and neonatal risks. In October 2010 the University Hospital of Odense established a midwifery clinic that cares for pregnant women with a BMI above 30. The abstract shows the difference in weight gain during pregnancy as well as effects on obstetric and neonatal outcomes among women attending the midwifery clinic compared with women undergoing standard care in the year previous to the establishment of the clinic.

Methods: Pregnant women with a BMI > 30, who has been followed in our clinic and who delivered in 2011 (group 1), will be compared with the same category of women who delivered in 2010 (group 2). We have compared the number of shoulder dystocia, pre-eclampsia (PE), gestational diabetes mellitus (GDM), umbilical cord pH, caesarean sections, newborns weighting more than 4500 grams and postpartum hemorrhage (PPH) greater than 500 ml. Furthermore we have compared the gestational weight gain in group 1 to those with a BMI > 30 who delivered the same year, but were followed by other midwives (group 3).

Results: Weight gain less than 10 kg: Group 1: 50,7% (n=134) and Group 3: 38,9% (n=154).  
Conclusions: Obese women with a BMI > 30 who are followed in the dedicated midwifery clinic seem to have had less gestational weight gain and significantly less GDM and PE. Further studies are needed to create stronger evidence.

20. Abstract title: Outcome in obese deliveries  
Authors: Kaplan Sturk, R1, Åkerud, H2, Volgsten, H2 Hellström-Westas, L2, Wiberg-Itzel, E1  
Institute: 1Department of Clinical Science and Education, Section of Obstetrics and Gynaecology, Karolinska Institute, Soder Hospital, Stockholm, Sweden, 2Department of Women’s and Children’s Health, Uppsala University, Uppsala, Sweden  
Contact e-mail: rebecka.kaplan-sturk@sodersjukhuset.se  
Background: In 2008, nearly 25% of Swedish pregnant women had an overweight at admission to the antenatal clinic and almost 12% of them were considered as obese. The aim of this study was to evaluate the maternal/fetal outcome at delivery related to the BMI (body mass index) of the woman at enrolment at the antenatal clinic.  
Methods: A prospective cohort study was performed at two tertiary centre labor wards in Sweden. 825 women with full-term, singleton pregnancies and cephalic presentation in spontaneous active labor were included in the study. Delivery outcome was related to BMI at enrolment at the antenatal clinic.  
Results: In this group of healthy Swedish women a high frequency of abnormal CTG traces, according to the definition of FIGO (Federation of Gynaecology and Obstetrics), was shown the last 30 minutes before delivery (>60%). Among women with obesity (BMI 30-34,5) a low frequency of fetal blood samples for analysis of lactate in fetal scalp blood were performed and a high frequency of spontaneous vaginal delivery without intervention was shown. Women with severe obesity (BMI ≥35) had a significantly higher frequency of operative termination (p=0.003). The frequency of neonates delivered with an adverse fetal outcome at delivery was highest among women with obesity/sever obesity (p<0.05).  
Conclusions: Swedish healthy women with a BMI> 30 has a higher frequency of abnormal CTG registrations 30 minutes before delivery, a higher frequency of spontaneously vaginal deliveries, and a higher frequency of newborn delivered with an adverse fetal outcome.
21. Abstract title: The effect of increased physical activity during pregnancy and postpartum among physically inactive women

Authors: Svendlund R., Ladefoged ML., Sendergaard N., Høggaard A., Bor P.
Institute: Regionshospitalet Randers, Denmark
Contact e-mail: rikksven@rm.dk

Background: The Danish National Board of Health recommends at least 30 minutes daily exercise during pregnancy. Our aim was to evaluate the efficacy of introducing an exercise program and enforcement of mental motivation in order to improve the physical activity and health in previously sedentary pregnant women.

Methods: Prospective controlled trial. Pregnant women at 12 gestational week were asked to complete a questionnaire describing their physical activity before pregnancy. According to this questionnaire physically inactive woman were identified and included into the study as an intervention or control group. The intervention groups participated in a supervi-sed and organized exercise program for 1 hour weekly both during pregnancy and after birth and were encouraged to increase their daily walk by 3000 steps. The control group was only informed according to normal procedures on the importance of being active.

Results: A total of 207 out of 794 women (26%) who completed questionnaire at 12th gestational week had a physical inactive life before pregnancy. Only 154 of these women were included into the study. Physical activity (≥ 2½ hour pr week) was significantly increased in the intervention group (n=65) versus the control group (n=89) at 38 weeks of gestation (31% vs. 6%). Weight loss 5 months after birth was significantly increased in intervention group (55%) compared to control group (34%). Pain related to lower back and sick leaves during pregnancy reduced in the intervention group.

Conclusion: The combination of physical training and mental motivation is a success regarding to increase of physical activity of previously sedentary pregnant women.

22. Abstract title: Maternal weight retention two years postpartum – results from the LiP and LiPO studies

Authors: Tanvig M1,2, Vinter CA2, Christesen HT3, Ovesen PG4, Beck-Nielsen H1, Jensen DM1
Institute: 1Department of Endocrinology, Odense University Hospital, 2Department of Gynaecology and Obstetrics, Odense University Hospital, 3HC Andersen Children’s Hospital, Odense University Hospital, 4Department of Gynaecology and Obstetrics, Aarhus University Hospital, Skejby
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Background: Maternal factors such as obesity and smoking influence neonatal size at birth. Our aims were; 1) to examine the impact of maternal pregestational Body Mass Index (BMI) and smoking on infant abdominal circumference (AC) and birthweight, and 2) to define reference curves for AC and birthweight in offspring of healthy, non-smoking, normal weight women.

Methods: Data on all mothers and their offspring born in Denmark 2004-2010 were obtained from the Danish Medical Birth Registry. Information on live singletons without congenital malformations born at gestational age (GA) 35+0 to 41+6 (weeks+days) were extracted and analyzed using linear and multivariate regressions.

Results: Birth AC and weight increased with increasing pregestational BMI, and decreased with smoking (p<0.0001). Normative curves were created for offspring of healthy, non-smoking mothers with normal pregestational BMI. Mean AC ranged from 30.1cm, and 30.2cm, at GA 35 weeks to 33.9cm, and 34.1cm, at GA 41 weeks, girls and boys respectively. Mean birthweight ranged from 2,581g, and 2,666g, at GA 35 weeks to 3,705, and 3,852g, at GA 41 weeks, girls and boys respectively. Birth weight correlated more to Z-score of birthweight than to Z-score of AC (p < 0.0001).

Conclusions: Birth AC and weight are affected by maternal smoking status and pregestational BMI. Pregestational BMI correlated more to birthweight than to AC. Using data from healthy, non-smoking mothers with normal pregestational BMI we have provided new normative curves for birth AC and weight.

23 Abstract title: Maternal factors influencing infant abdominal circumference and birth weight - a population based study

Authors: Tanvig M1,2, Wehberg S1, Vinter CA3, Jørgensen JS4, Ovesen PG5, Beck-Nielsen H1, Jensen DM4
Institute: 1Department of Endocrinology, Odense University Hospital, Odense, Denmark, 2Research Unit of Clinical Epidemiology, Center for National Clinical Databases (South), University of Southern Denmark, Odense University Hospital, Odense, Denmark, 3Department of Gynaecology and Obstetrics, Odense University Hospital, Odense, Denmark, 4Department of Gynaecology and Obstetrics, Aarhus University Hospital, Skejby, Denmark, 5H.C. Andersen Children’s Hospital, Odense University Hospital, Odense, Denmark
Contact e-mail: mette.tanvig@ouh.regionsyddanmark.dk

Background: Maternal factors such as obesity and smoking influence neonatal size at birth. Our aims were; 1) to examine the impact of maternal pregestational Body Mass Index (BMI) and smoking on infant abdominal circumference (AC) and birthweight, and 2) to define reference curves for AC and birthweight in offspring of healthy, non-smoking, normal weight women.

Methods: Data on all mothers and their offspring born in Denmark 2004-2010 were obtained from the Danish Medical Birth Registry. Information on live singletons without congenital malformations born at gestational age (GA) 35+0 to 41+6 (weeks+days) were extracted and analyzed using linear and multivariate regressions.

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Conclusions: Birth AC and weight are affected by maternal smoking status and pregestational BMI. Pregestational BMI correlated more to birthweight than to AC. Using data from healthy, non-smoking mothers with normal pregestational BMI we have provided new normative curves for birth AC and weight.
Women with gestational weight gain <9kg, as recommended within Institute of Medicine, had significantly lower postpartum weight retention compared to women who exceeded 9 kg (median -0.7 versus 1.5, p<0.001). Ninety-two percent in each group breastfed. The rate of breastfeeding was significantly higher among women with postpartum weight retention <5kg compared to those >5kg (94.2% versus 85.1%, p=0.034).

Conclusions: The lifestyle intervention during pregnancy in obese women resulted in significantly lower gestational weight gain, but no sustainable effect was measured six months postpartum. Women who adhered to gestational weight gain recommendations had significantly lower postpartum weight retention. Breastfeeding was negatively associated with weight retention postpartum.

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Background: Metformin is used to increase fertility rates of women with PCOS. Our objectives were to determine whether metformin affects the rate of pregnancy complications particularly first trimester abortions and GDM or whether it influences the number of live births, infants’ height, weight, gestational age at birth, and congenital malformations.
Methods: A cohort of women taking metformin at start of pregnancy answered a questionnaire, hereby gaining information about the first pregnancy outcome associated with metformin, infant birth data, GDM, pre-eclampsia, smoking and alcohol use, medication during pregnancy, and family history of diseases. These data were compared with the corresponding medical records.
Results: The response rate was 65 %, 76 women were included. Exposure to metformin was 58 (median 53) days after last menstrual period. Their mean age at metformin treatment was 29 years, follow-up was performed 5 years after. Initially their weight and BMI was 88 kg (range 59,139) and 30.8 kg/m2 (range 18,46); weight and BMI were significantly decreased (p < 0.02) at follow-up. Index pregnancy resulted in 68 live deliveries of eight twins and 58 singletons, 9 (12%) spontaneous abortions, and one induced abortion. Of the 66 live births 7 were preterm and 8 post term deliveries. In 11 deliveries (17%) GDM was diagnosed. Two fetal malformations were reported.
Conclusions: Our rate of spontaneous abortions is comparable with the risk in the general population. Our low incidence of malformations and uncomplicated obstetrical history warrant further investigation on adverse and beneficial effects of metformin in early pregnancy.

25. Abstract title: Postpartum weight retention and breastfeeding among obese women from the LiP (Lifestyle in Pregnancy) Study
Authors: 1Vinter CA, 2Jensen DM, 3Ovesen P, 4Beck-Nielsen H, 1Lamont RL, 1Jørgensen JS
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Background: Postpartum weight retention may have important implications for future health and weight development. There is limited knowledge about the postpartum effect of a lifestyle intervention program in obese women during pregnancy.
Objective: To study the effects of restricted gestational weight gain on weight retention six months postpartum among obese women from the “Lifestyle in Pregnancy” (LiP)-study, and to determine the effect of breastfeeding on postpartum weight retention.
Design: The LiP-study was a clinical trial in 360 obese women randomized to a lifestyle intervention program with diet counseling and physical activity or to a control group during pregnancy. A number of obstetric outcomes and gestational weight gain was recorded. Follow-up six months postpartum was to examine maternal weight development, lifestyle habits, and breastfeeding status.
Results: A total of 46.3% of women from the intervention group and 57.4% of women in the control group had retained weight six months postpartum, though the difference was not significant (p=0.088).