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Better Method for Assessment of Kidney Function at Children's Hospital, London Health Sciences Centre

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Among the over 22,000 patients at Children's Hospital, London Health Sciences Centre, over 1,000 children and adolescents use the nephrology and hypertension service (http://www.lhsc.on.ca/Patients_Families_Visitors/Childrens_Hospital/Programs_and_services/NephrologyHypertension.htm). Many of these patients need to have an accurate measurement of their kidney function. The decision about treatment often depends on whether or not kidney function is normal. Kidney function cannot be measured directly. Measurement of urea in 1773 marked the beginning of efforts to quantify renal function[1]. The concept of urea clearance as a measure of renal function was first introduced by Møller in 1929 who defined clearance as "the volume of blood that a one minute's excretion of urine suffices to completely clear of urea"[2].

In 1934, while studying water reabsorption in the renal tubule of amphibians, Richards found that the polysaccharide inulin is freely filtered through collodion membranes, not absorbed, and not filtered by the aglomerular kidneys of toadfish[3]. Shortly thereafter, Homer Smith introduced the concept of "Inulin Clearance" for the measurement of glomerular filtration rate (GFR, the unit for the measurement of kidney function)[4]. This cumbersome method was the standard until the 1970ies. It required a bolus injection and infusion of inulin, bladder catherization, timed urine collection and multiple blood tests[5]. Fortunately, this method was replaced by a nuclear medicine method in the 1970ies.

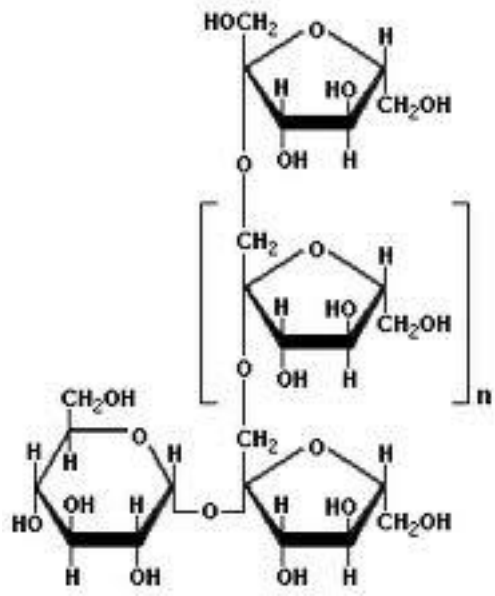

Figure 1: Chemical structure of inulin

What's Inside . . .

^{99}Tc DTPA clearance studies

Diethylenetriamine penta-acetic acid (DTPA), which shares most of the characteristics of inulin, is a chelate that is usually labeled with $^{99}Tc^{m}$ and is in wide use for renal imaging. Infusion clearances show a tight correlation with inulin clearance over a wide range of GFR[6]. There is good agreement between ^{99}Tc DTPA clearance and ^{51}Cr EDTA clearance in children, which is the preferred method in Europe[7]. No urine collection and no bladder catheterization are necessary. In oncology and many other disciplines where the treatment depends on kidney function, this test is currently standard. Unfortunately, it still involves two intravenous lines, one for the application of the DTPA, and the other for multiple blood samples that are typically collected at 2, 3 and 4 hours post injection. It also involves exposure to a small amount of radiation.

It is preferable to use an endogenous marker (from inside the body) that is produced at a constant rate, shares the features of inulin and thus eliminates the need for a compound injection. Popper and Mandel[8] proposed the use of serum creatinine in the 1930's and it remains the most widely used marker for estimation of glomerular filtration rate. This is despite its shortcomings. Only more recently advances in the search for a better surrogate endogenous marker have been made.

Creatinine

Serum creatinine is the most widely used endogenous marker to predict GFR. Creatinine is a metabolic product of creatine and phosphocreatine found in muscle and as such reflects muscle mass and varies little from day to day[9]. Serum creatinine features convenience and low cost. Nevertheless, serum creatinine remains a crude marker of GFR. Creatinine concentrations are insensitive to detection of mild to moderate reductions in GFR. There is substantial intra-patient variability due to differences in muscle mass[10]. In childhood, there is age and muscle mass dependency on serum creatinine and accurate assessment of normal GFR even with the use of body length/creatinine ratios remains difficult. In certain pediatric patient clientele such as patients with spina bifida, neuromuscular disease, anorexia nervosa, or liver cirrhosis, serum creatinine is completely unusable because of the abnormal muscle mass in these children who are often wheelchair bound[11]. It is also known that creatinine is also undergoing tubular secretion which leads to overestimation of kidney function in the low range[12]. Furthermore, there is considerable variability in the reference range for serum creatinine based on the method used for its determination[13]. Even though we use the latest and best creatinine method at Children's Hospital (the enzymatic method), accurate estimation of GFR cannot be based on serum creatinine alone.

Small molecular weight proteins

Small molecular weight proteins have long been proposed as markers of GFR as they are normally almost freely filtered through the normal glomerular membrane[14]. In a normally functioning kidney these small molecular weight proteins should then be almost completely reabsorbed and degraded by the proximal tubular cells. Several proteins have been tested such as beta-2 microglobulin and beta-trace protein, however, of all these markers, Cystatin C appears to be the most promising.

Cystatin C

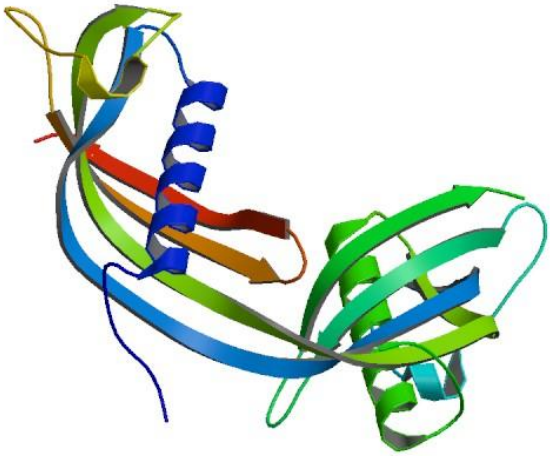

Figure 2: Three-dimensional image of the small molecular weight protein Cystatin C.

Cystatin C (CysC) is a low-molecular mass protein that was initially known under the synonyms post-γ-globulin. The amino acid sequence of the single polypeptide chain of human cystatin C was determined in 1981[15]. CysC seems to be produced by all human nucleated cells and functions as a

housekeeping protein that acts as a cysteine proteases inhibitor[16]. Studies of the serum level of cystatin C in large patient cohorts have failed to correlate the serum level to any pathophysiological state besides those affecting the glomerular filtration rate (GFR), which also supports a stable secretion of cystatin C from most human tissues. The superiority of this marker over creatinine was confirmed in a meta-analysis[17].

There appears to be no diaplacental transfer of cystatin C[18]. Unlike serum creatinine that crosses the placenta, cystatin C can thus be used to assess the GFR of the newborn and even the fetus. The reciprocal of cystatin C correlates better with a gold standard GFR measurement than the reciprocal of serum creatinine[19]. Cystatin C as a marker of GFR was found to be independent of body composition[20]. Development of automated and rapid particle-enhanced immunoturbidimetric and immune-nephelometric methods, also more precise than the original assays[21], has allowed large-scale use of serum cystatin C as a clinically useful GFR-marker.

Children's Hospital has been very involved in the pioneer work to establish cystatin C as a marker of GFR. There are only 2 centres in Canada that have approval of the assay, who routinely measure cystatin C and we are particularly advanced with regards to reporting. In the hospital's computer system Powerchart, we do not only have cystatin C values available, but the values are translated into estimated eGFR using a validated formula that is derived from the largest paediatric study that is available. The formula reads:

log(GFR)=1.962+(1.123*log(1/Cystatin C))[22]

This formula was prospectively validated and was found to be not only the most reliable in children, but also in adults[23]. This allows for a longitudinal and frequent assessment of GFR without any nuclear medicine GFR measurement. There is also ongoing work to establish this marker as dialysis adequacy marker, which appears to be superior to all other tools[24]

Summary: The nephrology team at Children's Hospital performs world-class research on new methods for the measurement of kidney function in children that eliminate the need for cumbersome nuclear medicine studies.

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COMING SOON . . .

The newly revised manual chapter No. 15, Hypertensive Disorders of Pregnancy (formerly Gestational Hypertension) will be appearing soon in the "Members Only" section on the new Southwestern Ontario Maternal Newborn Child & Youth Network (MNCYN) website.
http://www.mncyn.ca/home

CONGRATULATIONS . . .

L-R: Penny Nelligan, Director, Standards, Programs and Community Development Branch, Ontario Ministry of Health Promotion; Paula Morrison, Program Manager, Infant Health Services, Chatham-Kent Public Health Unit; Beverly Guttman, Senior Project Manager, Provincial Council for Maternal and Child Health; Vanessa Burkoski, Provincial Chief Nursing Officer.

. . . to the Chatham-Kent Public Health Unit on receiving the "Baby-Friendly" designation for its work in supporting, protecting and promoting breastfeeding.

The Baby-Friendly™ Initiative (BFI) is an international program established by UNICEF and the World Health Organization (WHO) as part of an international nutrition strategy and is based on the "Ten Steps to Successful Breastfeeding".

Extracted from The Provincial Council for Maternal and Child Health (PCMCH)
Progression January 2011
Photo with permission of Paula Morrison
Chatham-Kent Public Health Unit

Addressing Obesity in Pregnancy: A Lifestyle Approach

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Worldwide, 1 billion adults are overweight and over 300 million are obese, thereby making obesity a global epidemic[1]. Rates are expected to almost double by 2015[2]. Weight status is classified by body mass index (BMI), which measures weight (kg) divided by height (m^2). A BMI of 18.5-24.9 is considered normal, 25-29.9 is overweight and ≥30 is obese. Overweight and obesity are risk factors for chronic diseases, such as diabetes, cardiovascular disease and cancers and present significant costs to the health care system. US statistics indicate that 29% of women of childbearing age (20-39 yrs) were obese, 8% of whom were morbidly obese (BMI ≥ 40), and between 11-21% were obese in a Canadian population[3,4]. Additionally, women are at risk of becoming overweight in subsequent pregnancies.

Maternal Risks of Obesity in Pregnancy

Women who are overweight/obese have a greater likelihood of experiencing ovulatory infertility, which may be due in part to the strong correlation between obesity and insulin resistance. In addition, studies suggest a negative effect of obesity on assisted reproductive technology and a greater risk of miscarriage. Pre-existing diabetes (specifically type 2 diabetes) is more likely in obese women, and they are at an 8 times greater risk of developing gestational diabetes[5]. Risk is also significantly increased for gestational hypertension and pre-eclampsia; this may increase further in those with poor glycemic control. Caesarian section is more common, and women experience more complications of surgery (infections, impaired wound healing, bleeding, endometriosis and postpartum hemorrhage). Failed attempts at vaginal birth after caesarian section occur more often. Lastly, thromboembolism is more likely to occur in the obese parturient.

Fetal Risks of Obesity in Pregnancy

Congenital anomolies, specifically spina bifida, occur more often in offspring of obese mothers. While the cause is not exactly known, hyperinsulinemia may play a role. Similar rates of neural tube defects persisted after controlling for folic acid status, however women with a BMI ≥ 35 may benefit from increased folic acid intake. A very significant risk factor is unexplained stillbirth, which may be associated with decreased ability to perceive reduced fetal movement, hyperlipidemia (contributing to atherosclerosis affecting placental blood flow) and sleep apnea (resulting in oxygen desaturation and hypoxia)[6]. Macrosomia and large for gestational age (LGA) are risks to the offspring both at birth, in terms of trauma and risk for shoulder dystocia, as well as increasing future risk for obesity and metabolic syndrome (glucose intolerance, hypertension, dyslipidemia). Therefore, obesity in the mother becomes a vicious cycle as lifestyle factors and in utero environment increase the risk for the offspring.

Weight Gain in Pregnancy

Previous guidelines for weight gain based on the 1990 Institute of Medicine (IOM) recommendations were focused on preventing low birth weight babies. Today, more women are entering pregnancy at a heavier weight and are gaining too much weight during pregnancy. The newly revised 2009 IOM guidelines for weight gain better reflect this population and are also using the World Health Organization BMI criteria. The most significant change is that there is now a specific weight gain range for obese women, as well as weight gain for twin pregnancies based on BMI.

Table 1 (Data Source: IOM 2009. Weight Gain During Pregnancy: Re-examining the Guidelines)

BMI	Total Weight Gain	Weekly Weight gain (2nd and 3rd trimester)
<18.5	12.5-18 kg (28-40 lbs)	0.5 kg/wk (1 lb/wk)
18.5-24.9	11.5-16 kg (25-35 lbs)	0.4 kg/wk (1 lb/wk)
25-29.9	7-11.5 kg (15-25 lbs)	0.3 kg/wk (0.6 lb/wk)
≥ 30	5-9 kg (11-20 lbs)	0.2 kg/wk (0.5 lb/wk)

First trimester weight gain should be 0.5-2 kg (1.1-4.4 lbs)
Twins: normal 17-25 kg (37-54 lbs), overweight 14-23 kg (31-50 lbs), obese 11-19 kg (25-42 lbs)

A Canadian survey assessing women 15 years and older showed ~1/3 entered pregnancy overweight or obese[7], placing them at risk for poor pregnancy outcomes (GDM, complicated delivery and LGA babies). Many women gain more weight than recommended, especially those who are overweight or obese, however there is great variability in studies. In one study, 70% of obese women gained >15lbs[8]; other studies have demonstrated that over 1/3 of pregnant women exceeded the 1990 IOM weight gain recommendations[8,9,10]. Examining a Canadian population, 52% of the women gained more than the recommended weight in pregnancy[11]. Gaining excess weight is associated with greater post-partum weight retention at one year. Average weight retention is 0.4-3.8 kg, with more than 25% of women retaining ≥ 4.5kg post-pregnancy. There is a strong association with weight gain and weight changes postpartum and the development of overweight and future weight gain in women[12]. Additionally, controlling the rate of weight gain is especially important; a recent study showed that early large gains are associated with increased risk for gestational diabetes[13].

Starting pregnancy at a normal weight has a positive effect on overall maternal health, outcomes of pregnancy and decreases the likelihood of disease[14]. Pre-conception counselling may be beneficial to women striving to meet this goal.

SOGC Guidelines on Obesity in Pregnancy

In February 2010, new guidelines were published to provide recommendations on the counselling and management of obesity in pregnancy. The purpose was to increase awareness of managing obese pregnant women, improve communication amongst the OB team and to promote education of Canadians to enter pregnancy at a healthy weight. Key recommendations as they relate to weight gain in pregnancy are[6]:

1) Encourage women to enter pregnancy with a BMI < 30kg/m^2 and ideally < 25kg/m^2. This can be achieved through health examinations or other gynecological care to discuss weight loss pre-conception.
2) Calculate BMI from pre-pregnancy height and weight and provide counselling to women with a BMI > 30kg/m^2 on the pregnancy risks associated with obesity.
3) Provide counselling to obese women about weight gain, nutrition and food choices.
4) Advise women that they are at risk for medical complications (ie. GDM, GHTN) and discuss regular activity as a method of decreasing these risks.

Minimizing the Risks – The Role of the Health Care Practitioner

Preconception counselling is fundamental for obese women planning a pregnancy. Encouraging healthier weights through healthy eating, activity and weight loss is an optimal starting point. While addressing weight and weight gain may be a sensitive topic for many health care providers, the benefits for these women should take precedence. Calculating BMI at yearly health

care visits and discussing plans for conception with obese women of child-bearing age can be a frontline approach. Recommended interventions for obesity include reducing energy intake, preferably through a nutritionally-balanced diet (recommended by a qualified health professional, such as a Registered Dietitian) and engaging in 30-60 minutes of moderate activity daily[15]. Weight loss of 5-7% is a realistic starting point, and may also help to reduce the risk of other medical complications[16]. At the time of conception it is important to discuss recommended weight gains for BMI and ways to achieve this goal. Women with multiple risk factors for GDM should be screened in the first trimester, and if negative, repeated in subsequent trimesters. Risk factors include: previous GDM or macrosomic infant, member of high risk population (Aboriginal, Hispanic, South Asian, Asian, African), age ≥ 35 years, BMI ≥ 30 kg/m^2, PCOS, acanthosis nigricans and corticosteroid use[17].

Preconception and pregnancy are pivotal times in one's lifecycle that may lead to increased motivation and desire for healthy lifestyle changes. Continuing with these changes throughout pregnancy and postpartum may reduce risk of excessive weight gain and weight retention, respectively. Ongoing monitoring of weight, either by the dietitian or other health care provider may increase compliance with weight gain goals. Finally, offering support when needed and encouraging the help of family and friends is essential for obese women.

For information on nutrition counselling services, please contact your local health unit.

Resources

Middlesex-London Health Unit: http://www.healthunit.com/articlesPDF/15939.pdf
Health Canada: www.hc-sc.gc.ca/fn-an/nutrition/prenatal/index-eng.php
Eat Right Ontario: www.eatrightontario.ca
Dietitians of Canada: www.dietitians.ca
Canadian Society for Exercise Physiology: http://www.csep.ca/english/view.asp?x=698

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Champlain Maternal Newborn Regional Program
Programme régional des soins à la mère et au nouveau-né de Champlain

DID YOU KNOW . . .

The Perinatal Partnership of Eastern and Southeastern Ontario has a new name and a new website under construction. For now, you can find more information about Champlain Maternal Newborn Regional Program at the PPPESO website
http://www.pppeso.on.ca/en/pppeso/Home_p2974.html

Children's Hospital
London Health Sciences Centre

What is HIP Kids?

As part of the Healthy Eating and Activity Program at Children's Hospital, London Health Sciences Centre, we provide programs that support improvement in healthy eating and activity in children and families on an outpatient basis. Central to this effort is a program called Hip Kids - Health Initiative Program for Kids - that works with paediatricians and family doctors in the community to develop a screening, referral and treatment program for children, ages 8 to 18 who are struggling with weight.

The program is a year long education and counseling-based program that provides family-centered and multidisciplinary care. Participants are supported by a paediatrician, social worker, fitness specialist, and dietician. The team works with the child/youth and family to develop goals for nutrition and physical activity that are realistic and reflect the uniqueness of the individual. It is not a specifically a weight loss program. Rather, the focus is on developing healthy eating and activity behaviours that the individual can sustain over the lifespan.

Participants are scheduled to attend the program for 1.5 hours every 2 weeks for the first 3 months and then monthly for the remaining 9 months. 5 of these visits are group classes. Clinic takes place Monday or Wednesday evenings between the hours of 4 and 9 pm in the Paediatric Medial Day Unit (PMDU) at Children's Hospital.

Following doctor's referral and BMI over 95 percentile, we offer group orientations followed by an individual assessment with our Social Worker. Success in the program is dictated by motivation to change and the level of family involvement.

Funding is generously provided by the Children's Health Foundation. However, a program deposit of $200 is required at entry. The fee is refunded at completion of the program after all equipment is returned. Transportation and parking costs are additional. If you would like to find out more about the program, please see our website at www.lhsc.on.ca/REACH.

For more information, contact:
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Public Health Update: What's New?

Enhanced 18-Month Well-Baby Visit: The Community Early ID Partnership

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Early identification of a developmental concern and early intervention can make a significant difference in a child's success later on in life! Research shows that about 1 in 8 children experience some kind of a developmental delay, which is often not identified until a child enters the school system. In the past, there has been a 'wait and see" approach to child development. It is now known that when a delay is identified early, a child can receive the help that he/she needs to overcome the delay.

Development in the first three years of life significantly affects life long learning, behavior and health. 70% of parents have concerns about the social and mental development of their child, and about their parenting skills, but only 28% actually discuss these concerns with their primary care provider (The Guidelines Advisory Committee 18-month Clinical Report, 2006). Recent studies show that 25-30% of children are entering the school system without the skills necessary to learn (Offord Centre, Early Development Instrument (EDI)).

The Nipissing District Developmental Screen (NDDS) is a simple tool that a parent/caregiver can complete to check and see if a child is meeting his/her developmental milestones. It is a checklist of questions about the child's communication, large motor skills, cognitive skills, social-emotional skills, and self-help skills. This tool is available to assess development from one month to six years of age. This tool also provides suggestions for parents/caregivers for activities that can be done with children to stimulate development. If a parent answers "no" to one or more questions on the screening tool, an appointment should be made with a Primary Health Care Provider for a further assessment.

18 months is a key stage in the development of a child. It is the age when a child is learning to talk, to become more independent and assertive. It is a stage where often developmental concerns can be discovered. **The 18 month well baby visit** is the last of a series of regularly scheduled primary care visits coupled to immunization and potentially the last time a child is seen before school entry. Recognizing the importance of this visit and the important role of Primary Care, the Ontario Ministry of Children and Youth Services convened an Expert Panel on the 18-Month Well-Baby Visit to develop a provincial strategy to support standardized developmental assessment and evaluation at 18 months for every child in Ontario. The initiative introduces a process, using standardized tools such as the Nipissing District Developmental Screen and the Rourke Baby Record, that encourages discussion with parents on their child's development, identifies children who will require referral to specialized services, and raises awareness about local community resources. The Offord Centre for Child Studies plays a lead role in supporting communities to move this initiative forward and has chosen Middlesex-London as one of four provincial pilot sites.

The Middlesex London Community Early ID Partnership has been established locally and includes representation from local Physician Champions, Nurse Practitioners, tykeTALK, Thames Valley Children's Centre, CPRI, Madame Vanier, All Kids Belong, OEYC's, Literacy Specialists, LHSC, Community Resource Centres, CAS, Merrymount, YMCA Child Care Services, Investing in Children, London Public Libraries, Children's Museum and various Middlesex-London Health Unit programs.

The Middlesex London Community Early ID Partnership recognizes the importance of building strong relationships between parents, Primary Care Providers, public health, child development services and community agencies to create a culture that enhances the developmental health and well-being of all children. A multi-strategy and multi-disciplinary approach to promoting child well-being and early identification of developmental concerns is being implemented. The current and planned implementation strategies include providing parents and caregivers with education and resources about normal child growth and development, building partnerships between parents, primary care providers and local community resources, providing education for primary care providers, and the development of a timely, coordinated referral pathway for children in need of follow up for developmental concerns.
Information is being provided to parents and caregivers in a variety of ways including a social marketing campaign, development and distribution of information resources through the Ontario Early Years Centres (OEYC's), libraries and other parenting/family services, articles in parent focused magazines, community health fairs, and community screening clinics. The "As We Grow Together Journal" is a newly developed resource for parents intended to provide anticipatory guidance from birth to 18 months of age about normal growth and development.

A Physician Outreach initiative has been implemented resulting in over 300 physicians being visited by a Public Health Nurse to review the Enhanced 18-month Well-Baby Visit, and to provide each practice with a binder of resource materials and a local referral pathway Resource Map. Presentations targeted to Primary Health Care Providers have been offered in a multitude of settings. A subcommittee of Physician Champions and other Primary Care Providers has been established to act as coaches, mentors, and to help plan additional educational opportunities.

The Ontario Public Health Standards, Child Health require that children at risk of poor health and developmental outcomes are supported and referred to services prior to school entry. The willingness and commitment in our community to work together to promote optimal growth and development throughout the early years continues to advance our efforts in this area. The Community Early ID Partnership will continue to exemplify the true meaning of interdisciplinary capacity building. Please contact Joanne Simpson, Public Health Nurse, Early ID Lead, at 519-663-5317 ext. 2586 for more information about local initiatives or if you feel that you would be interested in becoming involved in this very important and worthwhile initiative.

Don't Wait and See….
Find out About a Child's Development
<u>Now!!</u>

Regional Perspectives:

The Partner

Journal Scope

This issue of The PARTNER signifies a very important milestone for the Southwestern Ontario Maternal, Newborn, Child and Youth Network (MNCYN). Starting with this edition, the newsletter will feature relevant advances and best practices in Paediatric care, in addition to quality Perinatal articles and information. Furthermore, our Public Health and Community Care partners will regularly contribute articles and updates of general interest. We trust that these developments will serve to enhance learning and growth, by promoting and advocating for a consistent standard of care throughout the region.

While on the topic of learning, I would like to take a few moments to highlight some of our current successes and give you a glimpse into what you can expect from your Network in the near future:

Paediatric "Lunch and Learn" Series
On November 18, 2010, the Paediatric Advancement Program has successfully launched a "Lunch and Learn" series, targeting both hospital and community nursing staff and physicians. Early feedback from audiences across our region has been extremely favourable. Upcoming topics – suggested by you - include:

- Care of the child with gastroenteritis;
- Intraosseous access: use in the emergency department and inpatient units;
- Paediatric Injury Prevention – Concussion.

For more information, or to propose a topic of interest, please contact Erin.Fleischer@lhsc.on.ca

Prevention of Shaken Baby Syndrome
Partner hospitals across our region are implementing the *The Period of Purple Crying Program,* with the view to reduce the incidence of SBS. We hope this program will help parents and caregivers understand the frustrating features of crying in normal infants, which can lead to shaking or abuse. As we are getting closer to 100% implementation, I would like to sincerely congratulate everyone involved in moving forward this important initiative. I would also like to thank our Public Health partners, who have contributed to purchasing educational materials and are providing follow-up in the community. As a next step, the Network is planning a media campaign to reinforce key program messages. If interested in participating, we would love to hear from you!

MNCYN Website
Expected to come on-line in April 2011, we hope the MNCYN website will evolve into an indispensable communication and learning tool for health care providers across Southwestern Ontario. Initially, the website will include a calendar of upcoming events and links to community resources and partner organizations. PARTNER Newsletter updates will also be available on the site, as well as a repository of Perinatal and Paediatric order sets. One of the features I anticipate the most is an interactive electronic whiteboard, where healthcare professionals will be able to share best practices and general information.

I hope you found this update, and especially The PARTNER's new format, interesting and informative. If you have any thoughts on how we can further improve this or any other aspect of our work, please contact me at your convenience - your suggestions are always welcome.

Felix Harmos
Regional Leader
South Western Ontario Maternal, Newborn, Child, & Youth Network

Please join us in welcoming Mary Hughes as the team assistant supporting the Maternal, Newborn, Child Youth Network (MNCYN). Mary comes to us from the London Regional Cancer Program where she most recently worked as a unit clerk in clinic services and chemotherapy. She also has prior experience as an admin assistant for the VON, Windsor Regional Hospital and the Royal Ontario Museum. You can reach Mary at 519-685-8500 ext. 52292 (MNCYN).

You Asked Us:

Question:

Imagine that you are in attendance at the delivery of a newborn child. The mother has had a healthy pregnancy, and the labour and delivery have been uneventful. As the baby is being delivered, the mother asks, "Is my baby a boy or a girl?" You check the genitalia and are surprised to note that you cannot clearly identify the gender of the child. You are faced with a disorder of sexual development. What do you tell the parents? How do you manage this child?

Answer:

A Disorder of Sexual Development (DSD) is a congenital condition with atypical development of chromosomal, gonadal, or anatomic sex. Patients with a DSD can often be categorized as either an over-virilized female or an under-virilized male. Common diagnoses include congenital adrenal hyperplasia, partial androgen insensitivity syndrome, or conditions associated with gonadal dysgenesis.

Patients with a diagnosis of a DSD need to be managed at a tertiary care center by a specialized interprofessional health care team. (*Consensus statement on Intersex disorders and their management, Houk et al, 2006)*.

Children's Hospital at London Health Sciences Center is proud to announce the formation of a DSD team that can be called to assist with cases such as been described above. Our DSD team members include pediatric specialists in endocrinology, genetics, gynecology, urology, nursing, psychology and social work. Our activities include professional information sharing, patient assessment and intervention and case conferences. Patients can be referred to the DSD Team for urgent assessment by contacting the Pediatric Endocrinology service through the Children's Hospital switchboard.

Dr. Robert Stein
Paediatric Endocrinology
Children's Hospital, London

Children's Hospital
London Health Sciences Centre

For your information:

Lunch & Learn Videoconference Series

Paediatric Advancement Program

Who: Any staff caring for paediatric patients
When: As indicated on the schedule below from 12-1 pm
Where: Hosted from LHSC – London, Rm E5-320 (also videoconferenced to hospital sites across Ontario via Ontario Telehealth Network)
How: To participate in this event by videoconference, contact your local OTN telemedicine site coordinator to reserve a room and system that is videoconferencing enabled at your site. Contact scheduling@otn.ca to register your camera for the selected event.
Registration deadline: One week prior to each session. Handouts, if available, will be posted on the OTN network for printing.

Hosted by the Paediatric Advancement Program, Southwestern Ontario Maternal Newborn Child and Youth Network

For more information, or to suggest a topic, contact: erin.fleischer@lhsc.on.ca

Date	Topic	Speaker
Apr. 28, 2011	PAP: Intraosseous access: use in emergency dept and inpatient units	Dr. Paul Dick Dept. of Paediatrics Grey Bruce Health Services
May 12, 2011	PAP: Paediatic Injury Prevention – Concussion	Denise Polgar Injury Prevention Specialist Children's Hospital, LHSC
May 26, 2011	PAP: Diabetes	Ruth Duncan, CNS Children's Hospital, LHSC
Jun 23, 2011	PAP: Blood Transfusions	Kathleen Eckert, ART Transfusion Safety Office LHSC

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Baby Talk: Lessons from the NICU

Date	Topic	Speaker
	12 noon – 1 pm **OTN webpage:** **HTTP://TEST1.VIDEOCARE.CA/OTN/EVENTS_CALENDAR.PHP?MODE=VIEW** **OTN Archived Webcast: http://webcast.otn.ca**	
Apr. 19, 2011	Vascular Access and Maintenance in the Newborn	Janet Barr, RN Peripheral & Central Venous Consultant, LHSC
May 17, 2011	Period of Purple Crying: What's New	Denise Polgar Injury Prevention Specialist Children's Hospital, LHSC

Upcoming events:

MARK YOUR CALENDARS . . .

- **MATERNAL NEWBORN NURSING COURSE**
  London: Fall 2011
  Mondays: Sept. 26 - Nov. 14, 2011

St. Joseph's Health Care, London
Offered in collaboration with Fanshawe College.
Continuing Education: NRSG-6027
Videoconferencing available outside of London

Contact:
Gwen Peterek
Perinatal Outreach Program
Phone: (519) 646-6100 ext 65901
Fax: (519) 646-6172
Gwen.peterek@sjhc.london.on.ca

download a form from our webpage:
www.mncyn.ca

- **2011 ONTARIO DRUG ENDANGERED CHILDREN (DEC) CONFERENCE**
  Date: May 24-25, 2011
  Location: Arden Park Hotel, Stratford
  Contact:
  WWW.CITY.STRATFORD.ON.CA/ODECCONF/INDEX.HTML

- **23RD ANNUAL PERINATAL OUTREACH CONFERENCE**

"Managing Risk in Pregnancy: Optimizing Outcomes"

Date: Sept. 16, 2011
Location: Lamplighter Inn, London
Contact: Perinatal Outreach Office
(519) 646-6100, ext. 65859
perinout@sjhc.london.on.ca
Brochure: www.mncyn.ca

- **PAEDIATRIC ADVANCED LIFE SUPPORT PROVIDER COURSES (PALS)**

Dates: June 16-17, 2011 (0830-1630)
Aug. 18-19, 2011 (0830-1630)
Location: Simulation lab, Labatt Health Sciences Bldg, UWO
Contact: PALS course coordinators:
Stephen.adams@lhsc.on.ca
Katie.wheeler@lhsc.on.ca

- **TRAUMA NURSING CORE COURSE**

Dates: June 17-18, 2011
Location: University Hospital
339 Windermere Rd. London

Contact: Scott Kertland
TNCC Course Director:
scott.kertland@lhsc.on.ca

- **PAEDIATRIC TALK TRAUMA CONFERENCE**
  Date: September 29, 2011
  Location: Lamplighter Inn, London
  Contact: Kristine Hooghiem
  Kristine.hooghiem@lhsc.on.ca

- **1ST NATIONAL CAPWHN CONFERENCE**

(Canadian Association of Perinatal & Women's Health Nurses)

Date: October 27-29, 2011
Location: The Fairmont Empress Hotel and Victoria Conference Centre, Victoria BC
Contact: www.capwhn.ca

- **CME COURSES**

Course: Annual Clinical Day in Family Medicine
Date: May 11, 2011
Location: Best Western Lamplighter Inn,London
Contact:
Sheena.blasing@sjhc.london.on.ca

Course: Paediatric Day - Stratford
Date: October 9, 2011
Location: Arden Park Inn, Stratford
Contact: lisa.hammar@hpha.ca

HTTP://WWW.SCHULICH.UWO.CA/CONTINUINGPROFESSIONALDEVELOPMENT/INDEX.PHP?PAGE=CMEPROGRAMS

- **ADVANCES IN LABOUR & RISK MANAGEMENT (ALARM)**
  Dates & Location:
  Kingston: Aug. 26-27, 2011
  Toronto: Dec. 4-5, 2011
  Contact: (800) 905-0667

This will be the final issue of this publication in paper form. Future issues will now be distributed electronically.

To ensure that you continue to receive your copy, please contact Sheila.johnston@sjhc.london.on.ca to request your e-mail address be added to our distribution list.

Southwestern Ontario
Maternal, Newborn, Child and Youth Network

This newsletter is a publication of the Southwestern Ontario Maternal Newborn Child & Youth Network

Letters, queries and comments may be addressed to:

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To have your name included on our mailing list, please contact the above, or
E-mail: Sheila.johnston@sjhc.london.on.ca

Visit our new webpage at www.mncyn.ca