

# Caritas Research

Issue#6 Spring/Summer 2006

In our last issue we noted that research comes in many forms and focused on survey-based research projects. In this issue we focus on another form, “chart review” based research. This research is performed by reviewing patient charts and analyzing the data retrospectively. In this issue, several researchers have kindly provided us with summaries of their chart review based research projects.

In this issue, we also profile general surgeon, Dr. William Mackey. We think you'll find his profile both informative and entertaining!

Please note Research Corner beginning on page 8, which includes a variety of interesting items submitted by various researchers.

Our thanks to all those who contributed to this issue.

*Caritas Research Centre*

## Improving patient outcomes - it's all in the chart

Chart reviews are almost a way of life at the Craniofacial Osseointegration and Maxillofacial Prosthetic Rehabilitation Unit (COMPRU). Based at the Misericordia Community Hospital, COMPRU offers a comprehensive program of reconstruction and rehabilitation for people born with parts of the head or neck missing, or who lost some of these features through cancer or injury.

“While you're going along day-to-day and working with patients in the clinic, you don't really have a chance to get the 'big picture' of what you're doing,” says speech pathologist Dr. Jana Rieger, who is the Director of COMPRU's Head and Neck Surgery Functional Assessment Laboratory. “Most of all, we need to know whether we're meeting patients' needs. A chart review can do that. It can confirm what you're thinking that a particular treatment is working well, for example or it can be an important reality check that leads to better care.”

To illustrate this point, Dr. Rieger cites the ongoing chart review of COMPRU patients whose surgery for cancer in their mouth involved removing the tumour as well as reconstructing their soft palate (the soft tissue at the back of the mouth that plays a key role in speech and swallowing). COMPRU has about five years of data on these patients and has continually reviewed their charts over this period. The reviews showed that patients tended to fall into two groups one that regained normal speech after surgery, and one group that didn't.

The second group was comprised of patients with extensive cancer who had to have a large portion of their



*Dr Jana Rieger, COMPRU*

soft palate removed. “Looking back at the data with our surgeons and prosthodontists, we realized we had to try to do things differently for patients who have larger tumours,” says Dr. Rieger. “As a result, our surgeons are now performing a novel procedure for soft palate reconstruction that has proven to have a much better outcome for patients. Had we not done chart reviews to look back at the data, we would not have recognized this problem.”

Chart reviews usually compare a group of patients who have undergone a similar treatment. They are often inspired by questions that come from the clinic. A physician might see a patient in the office, observe certain symptoms or outcomes, and then decide to do a chart review to determine whether other patients are having

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similar experiences.

Chart reviews can also be motivated by the medical literature. "You read something in a medical journal and you wonder whether the same thing is happening in your patients," explains Dr. Rieger. "The end result is a chart review."

She notes that the ability of a chart review to fully answer why something is happening often depends on the type and quality of information that has been collected in the clinic. "Although a chart review sounds like something you do entirely after the fact, the most successful chart reviews are planned beforehand. You have to think about what you might want to know at some point down the road and then make sure you are collecting that information when you have the patients in the clinic."

COMPRU has an advantage because it has implemented an ISO (International Standards Organization) system that sets out certain points where patients should be seen and what kind of data should be collected at these visits. "As much as possible we try to have a consistent schedule for our patients," adds Dr. Rieger. "When you set yourself up this way, it's much easier to do chart reviews that provide the information you need."

For a researcher like Dr. Rieger, the information is where the excitement lies. "A chart review, like any kind of research, is a process of discovery. When you start to get enough data, when you start to see patterns emerging it's thrilling. And when that information leads to changes in treatment and better outcomes for patients, it is also very rewarding."

## Use of narcotic analgesics in the Emergency Department treatment of migraine headache

Investigators: Colman I, Rothney A, Wright S, Zilkalns B, Rowe BH.

**Background/Aim:** Acute headaches are common problems presenting to the emergency department (ED) within this and other Canadian regions. These headaches can be the result of serious, life-threatening disorders (such as meningitis or brain hemorrhages) or minor, less-serious problems (for example: flu, dehydration, minor head injuries, and stress), and they present a real dilemma for emergency diagnosis and treatment. The Department of Emergency Medicine at the University of Alberta and within Capital Health has been interested in this problem for a number of years. We have been conducting research on traumatic and spontaneous headaches through funding received by the group from a variety of publicly-funded organizations.

Migraine headaches represent a common cause of headache presentation in the ED. Current management for severe migraines includes an intravenous fluid infusion accompanied by intravenous medications. For example, metoclopramide (Maxeran), ketorolac (Toradol), dihydro-ergotamine (DHE), and/or narcotics (for example: morphine, demerol, codeine) can be administered to patients in crisis. While treatment with narcotics is common, it is potentially ineffective and may lead to dependency or abuse. This study examined the different treatment approaches across these five EDs in one Canadian center, focusing on the use of narcotic pain relievers and factors associated with their use. The study involved Emergency Physicians and Neurologists.

**Methods:** Five hundred acute migraine headache patient charts were randomly selected from five Edmonton EDs. The Grey Nuns and Misericordia hospitals within Caritas and the Royal Alexandra, University and Sturgeon Hospitals were chosen, mainly because they see the highest volume of patients in the region. Each ED is staffed by a full-time emergency physician group and all are open 24 hours a day. Charts were reviewed by a research nurse or physician and a structured review was performed to determine medication use. Data were analyzed, comparing those who

received narcotics as first-line treatment to those who did not, using standard statistical testing (Chi-square, t-tests, and logistic regression).

**Results:** Surprisingly, the majority of patients (60%) received some form of narcotics as a first-line treatment, despite the fact that this is not the general recommendation in guidelines. Numerous factors were associated with narcotic treatment as a first treatment, but only four variables remained significant in the final statistical model. For example, having taken anti-headache medications prior to coming to the hospital made it 2.6 times more likely that narcotics would be used. The hospital of presentation also increased the odds of receiving first-line narcotics, suggesting that hospitals could benefit from some sort of standard headache protocol. Having received a more urgent triage score reduced a patient's risk of receiving first-line narcotics by approximately 60%. Finally, having a longer duration of headache decreased the odds of receiving first-line narcotics slightly. Finally, those patients who received narcotics were more likely to relapse back to the ED with another headache within a week.

**Conclusions:** The results suggest that acute migraine management in these EDs does not meet current consensus guidelines and could be improved. Factors associated with narcotic use are predictable and we believe that physicians should make a concerted effort to replace narcotics with more evidence-based first-line treatments in this patient group in the future. Since this study was published, the University Hospital has eliminated demerol from the list of medications available in the emergency department to make it a "Demerol Free Zone". This has dramatically reduced the use of narcotics and demonstrates how simple interventions may help improve care for patients with migraine headaches.

Colman, I., A. Rothney, et al. (2004). "Use of narcotic analgesics in the emergency department treatment of migraine headache." *Neurology* 62(10): 1695-700.

# Chart reviews and health records: quality information is key to quality research

For many of us, “medical research” conjures up a picture of a person working in a laboratory. But these days a lot of research takes place outside the lab. One example is a chart review, which is research based on information contained in patient records.

Last year more than 20 chart review-based research projects were approved at Caritas.

These included projects to study the outcome of hernia repair using minimally invasive techniques, analyze injuries due to body checking in minor hockey, and assess the appropriateness of administering intravenous immunoglobulin.

When researchers wish to do chart reviews at Caritas hospitals, their first step is to contact the Caritas Research Centre. Centre staff can assist health professionals with the process of approval for chart reviews. These include a review by the Health Research Ethics Board (a joint committee of the University of Alberta Health Sciences faculties, Capital Health and Caritas Health Group) and administrative approval from Caritas.

Once the approvals are completed, it's time to contact Health Records. First, though, check your preconceptions about health records at the door. “Health records are much more than paper put in a folder that sits on a shelf,” says Karen Noga, Manager, Patient Information Services at the Grey Nuns Community Hospital and Edmonton General Continuing Care Centre. “Health records are all about quality health information. Health records staff manage the security, privacy and accuracy of patient records. We receive, organize and manage records. People often don't realize all the different processes that go into managing a chart.”



*Karen Noga, Manager, Patient Information Services, GNCH/EGCCC*

Indeed. A hospital record represents a tremendous amount of information contained in a variety of paperwork:



*Christine Lamash, Manager, Patient Information Services, MCH*

order sheets, admission notes, daily notes, procedure notes, operating room notes, nursing notes, vital signs. Charts are kept for inpatients, outpatients and emergency patients. Physicians usually dictate reports and these must be transcribed and added to the chart. Medical transcription is one of the key areas within Health Records departments.

Once the patient has been discharged, the chart is assembled, with the documents pertaining to the visit arranged in order, and it is checked for deficiencies. It then goes to a coding specialist. This Health Information Management professional reviews the chart, assign codes to all procedures and diagnoses, and collect a variety of information on an abstract of the chart. The collection of the various data elements is done as per regional, provincial, and national guidelines. Coding is done using ICD-10-CA/CCI, the Canadian version of the international standard diagnostic classification system developed by the World Health Organization. In addition to enabling the efficient storage and retrieval of diagnostic information for clinical and epidemiological purposes, these records are the basis for the compilation of national mortality and morbidity statistics.

Once the codes are entered into a database, the charts can go into a permanent file once they are completed by the medical staff. At Caritas, paper charts are eventually microfilmed. When a research request comes through for example, a researcher might be interested in all patients who had surgery on a particular knee ligament a health information analyst will search the database in order to identify the appropriate charts. Records processing staff must pull the paper charts or microfilm. Researchers cannot remove charts from the health records department. They work in the department, often bringing laptop computers to enter the data.

Research requests are highly variable from just a few charts to thousands of charts. Last year, the health records departments at Caritas hospitals handled about 51 requests and pulled a total of approximately 1294 charts.



*Health Records, Chart Review area, GNCH*

“Privacy and confidentiality are key concerns and there are particular sections of the Health Information Act that deal with disclosure for research purposes,” says Christine Lamash, Manager of Patient Information Services at the Misericordia Community Hospital. “We follow these regulations and ensure that researchers understand them as well.” Regulations include having researchers agree to use the health information only for the purpose of the proposed research, and not to publish health information in a form that could identify individuals. If a researcher wishes to contact individuals,

consent must be first obtained from those individuals.

Both Ms. Noga and Ms. Lamash look forward to the day when more information is stored electronically. They note that netCARE, Capital Health's electronic health record system, does not replace the paper records stored by their departments. netCARE contains a subset of key medical information vital to patient care.

The bottom line for health records departments is ensuring the quality of information. This is not just important for research, it is essential to all aspects of today's healthcare system. “There's a wealth of information in charts,” says Ms. Noga. “Quality information is vital for quality research. But that's only one aspect of what health information is used for. Quality information ensures that the very best care is to given patients, and it is vital for healthcare planning and facility funding.”



*Health Records, MCH*

## Emergency Department management of acute migraine in children: a practice variation study

Investigators: Richer, L, Klassen T, Rowe BH

**Background:** Guidelines for the treatment of children with headache and migraine are limited given the absence of randomized controlled trials on which to base them. Unfortunately this leads to significant variation in practice among physicians. Non standard practice and the use of narcotic analgesics is especially common in adult emergency departments within Capital Health and Caritas (Colman, Rothney et al. 2004). We conducted a similar study of the treatment of children with headache and migraine presenting to Capital Health and Caritas emergency departments.

**Methods:** A review of children aged 5 to 17 years presenting with headache to four regional hospitals in Edmonton including the Stollery Children's Hospital, Royal Alexandra Hospital, Grey Nuns Hospital, and Misericordia Hospital during the 2003/2004 fiscal year was

conducted. A standardized retrospective chart abstraction was performed and migraine or probable migraine cases were identified.

**Results:** Three hundred and four headache cases were identified of which 58.2% (n=177/304) met sufficient criteria for migraine or probable migraine. Oral simple analgesics (27.7%) and intravenous therapy with a dopamine antagonist (e.g. prochlorperazine or metoclopramide), non-steroidal anti-inflammatory (NSAID), or dihydroergotamine (28.2%) were prescribed most frequently. However, narcotic medications were prescribed surprisingly often in 13.6% of migraine patients. Notably, 29.4% received no treatment at all. Some common therapeutic strategies included: (1) dopamine antagonist alone (35.6%); (2) combination of a dopamine antagonist and NSAID (10.2%); and (3) a simple analgesic or NSAID

by mouth (28.8%). Dihydroergotamine (6.8%), narcotics alone (6.2%) and steroids (1.7%) were used infrequently in migraine patients. The outcome of the patients could not be determined although 98.4% of patients were discharged home. No significant side-effects were documented.

**Conclusions:** Clinical areas of uncertainty in the treatment of pediatric migraine include: (1) the use of oral therapy vs. intravenous therapy; (2) combination therapy (e.g. dopamine antagonist and NSAID) vs. dopamine

antagonists alone; (3) the outcome of children when no therapy is prescribed; and (4) the efficacy of less common therapies including dihydroergotamine, steroids, and possibly narcotics. Future clinical trials are required to help physicians and emergency departments establish pediatric specific evidence-based guidelines in the treatment of migraine.

Colman, I., A. Rothney, et al. (2004). "Use of narcotic analgesics in the emergency department treatment of migraine headache." *Neurology* 62(10): 1695-700.

## Increased risk of colorectal cancer in ulcerative colitis patients diagnosed after age forty

Investigators: Karvellas C.J., Fedorak R., Wong C.K.W.

**Background/Aim:** The association between ulcerative colitis (UC) and colorectal cancer (CRC) is well established. Retrospective data suggests that there is a 5.4% incidence of colorectal cancer amongst patients with pancolitis, and that cancer surveillance should be provided to patients following 8-10 years of extensive UC. Our aims were to identify pre-malignant risk factors for UC patients and to determine whether the current recommendations for cancer surveillance might need reviewing.

**Methods:** We conducted a case-controlled retrospective study of adult patients with UC who were diagnosed with CRC from 1991 to 2002 (inclusive) in five hospitals in Edmonton, Alberta, Canada.

**Results:** Thirty-one cases of CRC (68% male) were identified from an estimated UC population of 2700. For this group, the mean ages at diagnosis were 44.4 years for UC and 60.1 years for CRC. The median duration of UC at

the time of CRC diagnosis was 16.0 years. Patients diagnosed with UC after age 40 (n=14, mean age 64 yrs) progressed more rapidly to CRC than did patients diagnosed before age 40 (n=15, mean age 23 yrs). The mean durations of UC prior to the development of CRC were 22 years and 10 years, respectively, for patients with a diagnosis of UC before forty and after forty years of age (odds ratio, 11.5,  $p = 0.00029$ ). Only 4 patients (13%) were enrolled in an appropriate cancer-screening program. Nine of these UC patients over 40 (29%) developed CRC prior to the 10-year point.

**Conclusions:** Patients diagnosed with UC after age 40 developed CRC more rapidly than did those diagnosed before age 40 years. This finding suggests that patients who are diagnosed with UC after age 40 should be provided with earlier CRC surveillance than that currently recommended for these patients.



iCARE, the integrated Centre for Care Advancement through Research has moved into 8000 ft<sup>2</sup> of newly renovated space in the Environmental Engineering Building on the University of Alberta campus.

Under the leadership of Dr. Shoo Lee, this outcomes research centre has been established as a joint venture between Capital Health and the University of Alberta. It is unique in that it is the first centre in Canada where researchers, care providers, decision and policy makers will work together to identify and study problems in the health care system and then apply the answers to real world programs.

In this initial phase of development, the Centre will house 9 principal investigators with University of Alberta appointments along with their research staff and students. The activities of the Centre will be supported by a core scientific staff employed by Capital Health and consisting of information technology development staff, project managers, scientific writers and statisticians.

iCARE is actively recruiting researchers and scientific staff. More information on the centre and these employment opportunities can be obtained by contacting the Centre at:

Tel: 492-9200

Fax: 492-2145

3rd floor, Environmental Engineering Building

112 Street & 87th Avenue

University of Alberta

Edmonton, Alberta, T6G 2G2

[www.icareabouthealth.ca](http://www.icareabouthealth.ca)

# Drug utilization review on a tertiary care unit

Investigators: Llanes RL, Fassbender K, Baracos VE, Watanabe S.

**Background:** Drugs are indispensable for the management of symptoms in palliative care patients, and account for a significant proportion of expenditures on a Tertiary Palliative Care Unit (TPCU). Drug expenditures for the Grey Nuns Community Hospital TPCU increased by 40% in 2002 compared to 2001. Fifty-five percent of the increase was attributable to injectable fentanyl, oral and injectable ondansetron, and total parenteral nutrition (TPN). As there was no increase in the unit cost of these drugs between 2001 and 2002, the increased expenditures reflected increased utilization.

**Aim:** The hypothesis was that the increased utilization of these drugs reflected appropriate prescribing. The objective was to compare the indications for prescribing these drugs in 2002 against evidence- and consensus-based criteria.

**Methods:** Patients who received these drugs while admitted to the TPCU from during 2002 were identified through the pharmacy database. Evidence- and consensus-based criteria for drug utilization were developed. Prescribing indications were retrospectively compared against the criteria. Prescriptions were categorized as (1) meeting criteria, (2) not meeting criteria, or (3) uncertain.

**Results:** The drugs were prescribed during 48 out of 234 admissions. Prescriptions for fentanyl met criteria in 26 of 29 cases. Indications were unsuccessful therapy with morphine, hydromorphone, and oxycodone (20), requirement for rapid titration from fentanyl patch (5), renal failure (2), and sublingual administration for breakthrough pain (1). Prescriptions for ondansetron met criteria in 19 of 21 cases. Indications were nausea refractory to metoclopramide and dexamethasone (13), and nausea related to radiotherapy or chemotherapy (6). Prescriptions for TPN met criteria for initiation in only one of five cases. However, in all cases, TPN had been started prior to admission. In cases where death was considered imminent, TPN was continued pending consultation with the patient and family regarding discontinuation.

**Conclusions:** The increased prescribing of fentanyl and ondansetron on the TPCU satisfied evidence- and consensus-based criteria in most cases, apparently justifying the associated increase in expenditures. A cost effectiveness analysis would be the next step in evaluating costs vs. benefits. The issue of discontinuing TPN in palliative care patients requires further investigation.

# Narcotic Overdose Registry of Edmonton (NORE)

Investigators: Dong KA, Blitz S, Rowe BH & Wild C

**Introduction:** Overdoses (ODs) are common among illicit opioid users and while many overdoses are witnessed by other drug users, health care responses are often sporadic or delayed. There is a need to develop innovative health promotion strategies to address the consequences associated with frequent overdose; however, little is known about the circumstances surrounding non-fatal opioid overdoses that present to the emergency department (ED).

**Methods:** A retrospective study of all narcotic overdoses (ICD 10 codes 965.00-965.09) presenting to one of five participating EDs in the Capital Health (CH) region of Alberta in 2004 was conducted.

**Results:** A total of 563 charts were reviewed. The mean age of presentation was 37.0 years (SD 15.0 years), and 54% of patients were female. Most overdoses occurred at home or in another private residence (54%). The most common opioids in ODs were codeine, morphine and

oxycodone; heroin ODs accounted for a small proportion of cases. Coingestants were common (85%) and most frequently included acetaminophen, alcohol and/or cocaine. EMS was called in 72% of cases; and 51% of all cases received triage scores of 1 or 2, requiring urgent assessment. Hospitalization occurred in 20% of cases while discharged patients stayed on average 9.4 hours in the ED; 0.5% died in the ED or after admission.

**Conclusions:** Most narcotic overdoses that present to the ED occur in a private location and frequently include multiple drugs. Most patients require urgent assessment in the ED, consume valuable resources and contribute to ED overcrowding; fortunately, death appears rare. Overdose prevention programs should stress the dangers of mixing drugs, teach early overdose recognition and encourage early EMS activation.

# Invasive pneumococcal disease in Alberta: changing epidemiology in the era of conjugate vaccines

Investigators: Dr. Gregory J. Tyrrell, Dr. Tom Marrie, Dr. Jim Kellner and Dr. Shainoor Vrani

Invasive *Streptococcus pneumoniae* (ISP) disease was listed as a disease under surveillance in Alberta in 1999. Listing of ISP as a disease under surveillance has resulted in all cases of ISP in Alberta being reportable to Alberta Health and Wellness and all isolates from cases of ISP forwarded to the National Centre for Streptococcus (NCS) in Edmonton for serotyping. In September 2002, the province of Alberta introduced a protein conjugated pneumococcal vaccine (PCV7) for all children 2 years of age and under. Therefore, all children born September 2002 onward have been eligible for PCV7 and in theory, should be protected from ISP.

The implementation of the pneumococcal conjugate vaccine into Alberta in 2002, coupled with all cases of ISP in Alberta being notifiable to Provincial Public Health Authorities and the location of the NCS here in Edmonton, provided us with a unique opportunity to examine the effects of this vaccine and generate unique Canadian data pre and post PCV7 introduction. While a number of studies have been done in the United States examining the epidemiology of ISP, very little work has occurred in Canada linking the clinical course of disease with the information regarding the isolate from laboratory analysis.

The specific aims of the research are to:

- 1) Determine the incidence of invasive pneumococcal disease in Alberta and clinical presentation of patients with ISP.
- 2) Determine the impact of the introduction of PCV7 on health care utilization in Alberta, i.e. costs with respect to specific age groups, overall

cost, quantity of vaccine used/year, what percentage of children are actually being vaccinated.

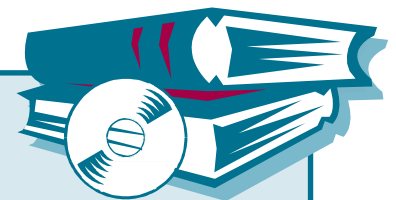
- 3) Determine the impact of process of care on outcome pre and post PCV7 (conjugate vaccine), e.g. type of therapy received, where received urban versus rural, was step-down therapy given and if so what type in Alberta.
- 4) To characterize the circulating pneumococcal isolates from years 2000-2004 (pre and post Prevnar) with respect to serotype, antimicrobial resistance, and DNA molecular analysis.

We are currently one year into the study.

Approximately 2,000 patients in Alberta have been identified in the study time period with ISP, and the charts for these patients are currently being reviewed through the use of a data collection tool developed by the study coordinators. In addition, *S. pneumoniae* strains are also currently being analyzed at the NCS. Preliminary evidence indicates that the vaccine has greatly reduced ISP in children 2 years of age and under as well as having some reduction in the numbers of circulating ISP strains that cause disease in other age groups.

While the results are preliminary with the analysis being only into year one of two years, it is expected that the introduction of PCV7 into the 2 year old age group will have a dramatic effect on the rates of ISP in children, as well as perhaps some beneficial effect in disease reduction in adults as well through the reduction in circulating strains.

## News from Library Services!



Caritas Libraries have the following resources available to assist with your research. Drop by the MCH Weinlos Library or the GNCH Health Sciences Library today!

|  |           |
|--|-----------|
| Canadian essentials of nursing research, 2004  | GNCH      |
| Issues in palliative care research, 2003   | GNCH      |
| Physician assistant's guide to research & medical literature, 2006                     | MCH       |
| Qualitative research in nursing : advancing the humanistic imperative, 2003            | MCH       |
| Reading research : a user-friendly guide for nurses & other health professionals, 2003 | GNCH; MCH |
| Research projects & research proposals : a guide for scientists seeking funding 2004   | GNCH      |
| Research proposals : a guide to success, 2002  | GNCH      |
| Statistics in clinical practice, 2003  | MCH       |
| Studying a study & testing a test, 2005  | MCH       |
| Writing clinical research protocols : ethical considerations, 2006                     | MCH       |



## Research Corner

**An Urban Survey of Paediatric Environmental Health Concerns: Perceptions of Parents, Guardians and Health Care Professionals** recently published in the *Paediatrics and Child Health: Journal of the Canadian Pediatric Society* was co-authored by: Dr. Buka, Paediatric Environmental Health Specialty Unit at the Misericordia Hospital, along with W. Todd Rogers, PhD, Centre for Research in Applied Measurement and Evaluation, University of Alberta; Alvaro R. Osornio-Vargas, PhD, Universidad Nacional Autonoma de Mexico-Instituto Nacional de Cancerologia, Mexico City, Mexico; Harold Hoffman, FRCP, Department of Occupational Health, Public Health Sciences, University of Alberta; Marni Pearce, PhD, Health Canada; Yuen Yee (Shirley) Li, PhD, COMPRU.

This paper reports on a survey conducted in Edmonton to gather information to determine the magnitude of need for pediatric environmental health services in the community, and address concerns of parents, guardians and health care professionals about the influence of environmental factors on children's health. After data analysis, it was found that the greatest concern was with outdoor and indoor air pollution and water quality. A startling finding was that both groups surveyed showed similar levels of concern for the same factors. The health care professionals raised a high concern also on the need for resources, specific training and public education regarding pediatric environmental health. The results of the survey call for increasing the knowledge of society, including health care professionals, to address the adverse effects of environmental factors in children.

**The Pediatric Investigators Collaborative Network on Infections in Canada Study of Predictors of Hospitalization for Respiratory Syncytial Virus Infection for Infants Born at 33 Through 35 Completed Weeks of Gestation** Law BJ, Langley JM, Allen U, Paes B, Lee DS, Mitchell I, Sampalis J, Walti H, Robinson J, O'Brien K, Majaesic C, Caouette G, Frenette L, Le Saux N, Simmons B, Moisiuk S, Sankaran K, Ojah C, Singh AJ, Lebel MH, Bacheyie GS, Onyett H, Michaliszyn A, Manzi P, Parison D. *Pediatric Infectious Disease Journal*. 2004; 23: 806-14. The Edmonton data for this study was collected primarily from Caritas sites.

**Reasons for Delay in Discharge from a Geriatric Assessment Unit, A Quality Assurance Project** Fingas A., Parmar, J. poster presentation at the 2006 Canadian Geriatrics Society Annual Scientific Meeting in Vancouver, B.C., April 20-22.

The Misericordia Geriatric Assessment Unit (GAU) has 15 beds. This study aimed to identify reasons for delay in discharge from GAU, with purpose of using this information for proactive and focused discharged planning. Investigators concluded that the most common reason for delay was psychosocial 41.8%, followed by medical 39.8%, rehabilitative 10.2% and unknown 8.2%. Psychosocial needs to be identified early by all team members to facilitate timely discharges. The team needs to be provided with the skill set, time and resources to address these issues. Medical reasons were also a common cause for delayed discharge despite careful scrutiny at admission. The patient population on GAU remains frail and medical complications should be anticipated and treated.

**Evaluation of a Self-Medication Program on a Geriatric Assessment Unit** presented at the Canadian Therapeutics Congress in Toronto, Ontario, May 10-13. Cheryl A. Wiens, Pharm.D., Viena Nguyen, B.Sc., Alexandra Marin, MD, C. Allyson Jones, Ph.D. This study was completed in 2005 on the GAU at the Misericordia Community Hospital.

# Elucidating the neurobiological correlates of postpartum depression

Written by: Panteha Khalili PhD. Brain Neurobiology Research Program, Department of Psychiatry, University of Alberta

The postpartum period is a time of great vulnerability for development of mood disturbances in women. Postpartum mood disturbances range from postpartum blues to postpartum depression to postpartum psychosis.

Postpartum blues usually manifests itself as a mild form of postpartum mood disorder, beginning within the first 2-4 days after delivery and lasting no more than 2 weeks. Postpartum blues is highly common; it occurs in up to

85% of all new mothers. Because of its mild and transitory nature, it normally does not require any medical or psychiatric interventions. An estimated 13% of new mothers however develop a more disabling, persistent, and much more serious form of depression that is referred to as postpartum depression.

Postpartum depression is a serious form of clinical depression that usually develops after the first two weeks and within the first year following delivery. The prevalence of this disorder has been described to be as high as 26%. The majority of affected mothers suffer from this illness for more than 6 months and, if untreated, a quarter of patients are still depressed a year later.

Depressed mothers have an increased risk of relapsing and/or continued psychiatric illness.

Postpartum depression has many negative consequences for the affected mother, her infant, and the family as a whole. The resulting problems in mother-infant bonding have been shown to have long-lasting negative impact on emotional, behavioral, and cognitive development of the infant. There is a growing interest in devising screening programs for its detection. Early identification can lead to prompt intervention, which will in turn improve outcomes for both mothers and infants. Being informed about the risk factors of postpartum depression is of crucial importance in its early identification. Studies carried out to date have consistently shown that psychosocial factors play an important role in affecting the susceptibility of women for development of postpartum depression. Occurrence of stressful life events, marital conflict, and the absence of personal support from spouse, family, and friends have consistently been associated with an increased risk for depression in the postpartum period. Past history of Major Depression (MD) and/or a history of Premenstrual Dysphoric Disorder (PMDD), however, appear to be the strongest predictors for development of postpartum depression. There is also some evidence that severe postpartum blues increases the risk for development of subsequent postpartum depression.

Debate exists on whether postpartum depression is indeed different from nonpuerperal depression. While some researchers and clinicians do not believe that postpartum depression differs qualitatively from nonpuerperal depression, others contest this view. Biological etiology of this mood disorder is still undetermined, but explanations have often focused on hormonal dysregulations. There has been extensive research into the potential hormonal abnormalities that may characterize women with postpartum depression. So far, no consistent differences have been observed in hormonal measurements between those who have had a history of postpartum depression and those without it. Based on recent research studies, women with a history of

postpartum depression however tend to be significantly more sensitive to the mood destabilizing effects of steroid hormones than those without a history of postpartum depression. Consequently, postpartum period, which is a time of significant reproductive hormone changes, poses a greater risk for development of postpartum depression in

this highly hormone sensitive subgroup of women. Although the hormonal changes associated with pregnancy and post partum have been exclusively studied, the role of brain neurochemicals in initiation and progression of PPD is yet to be determined.

Dysregulations in brain chemicals have been associated with various mood disorders, and it may well be that such

dysregulations also contribute to development of postpartum depression.

Today, neuroimaging technologies provide unprecedented opportunities for elucidation of the neurobiological correlates of various mood disorders. One such technique called Magnetic Resonance Spectroscopy (MRS) allows for non-invasive determination of the concentration of important brain metabolites such as Gamma-aminobutyric acid (GABA), N-acetyl aspartate (NAA), choline (Cho), creatine (Cr), myo-inositol (mI), glutamine and glutamate (Glx). MRS is performed in a fashion similar to MRI with the addition of a few steps before the data acquisition, a change not discernible to the patient who is undergoing the examination. While some researchers have recently begun to utilize MRS technology to study brain chemical changes associated with premenstrual dysphoric disorder (PMDD), no such study has yet been performed to investigate potential neurochemical dysregulations associated with postpartum depression. With emerging evidence suggestive of the association of the amino acid neurotransmitter systems with the pathophysiology and treatment of mood disorders, it is timely to undertake a study that investigates the levels of these neurochemicals in healthy pregnant, as well as, healthy and depressed postpartum women. To this end, the Brain Neurobiology Research Program at the University of Alberta, in collaboration with the department of Bioengineering, has developed a state-of-art approach for non-invasive measurement of various brain neurochemicals using Magnetic Resonance Imaging (MRI). Using this approach, we are aiming to identify the brain chemical imbalances that precede the onset of postpartum depression or are associated with the occurrence of postpartum depressive symptoms. This study will provide the first MRS information regarding the neurobiological causes/correlates of postpartum depression and will also serve as an important step toward selective use of prophylactic treatments for those exhibiting neurochemical imbalances known to precede the onset of postpartum depressive symptoms.

## State-of-the-art technology being used in postpartum depression study.

# More leading edge disorder research by two local dietitians

Written by Dianne Drummond, Dietitian, Capital Health, Mental Health and Suzanne Hare, Dietitian, Caritas Health Group Nutrition & Food Services

The literature reports that eating disorders are more common in undergraduate dietetics programs than in other university groups. When we presented a poster on this topic at the 2004 ICD conference in Chicago many participants expressed interest, highlighting that this concern is mirrored in many countries around the world. However, discussion revealed that few had formal protocols to assist students with eating disorder concerns. Additionally, anecdotal reports revealed that some schools were screening students for eating disorders and excluding them from their programs, while others were removing discussion about eating disorders from their curriculum because the topic was problematic to many of their students. This obvious concern for the problem and gap in knowing how to deal with it spurred us to develop a research project to begin to address this issue.

The project involves a questionnaire for heads of undergraduate university nutrition programs, university nutrition professors and dietetic internship coordinators, asking questions to assess the concern, and determine if screening for eating disorders exists, as well as what supports are available for individuals identified with an eating disorder. Dietitians of Canada is partnering with this project to help create a network for distribution of the questionnaire to international colleagues.

We have worked on research projects together over the past 15 years. This current project represents a partnership between Capital Health Mental Health and Caritas Health

Group Food & Nutrition Services. Like other work we have done together, this project has already experienced tremendous support. Last month a message posted on the International Congress of Dietetics website generated 29 responses from dietitians around the world in just one week. Replies came from countries such as South Africa, Trinidad, Fiji, Philippines, Jamaica, USA, India, UK and Canada. One person commented “I think this type of research is long overdue. Thanks for taking this on.” Another said “I feel this is an area of great concern, and feel that we are not well prepared to address it.”

We have recently had the opportunity to bring a student from the Hogeschool van Amsterdam School of Food & Nutrition to Canada to work with us on this project. Emma Smid has assisted us at the Grey Nuns Community Hospital for fifteen weeks on the international distribution of the questionnaire, as well as the collection and analysis of results. Working with Emma has been a wonderful opportunity and truly provided an international flavor to this global research project.

This research is “thinking outside the box” to create global partnerships which will make a significant impact on the health of nutrition students around the world. As well, it will facilitate discussion globally on the rising concern of eating disorders in this university group, and provide bench-mark knowledge and information to assist in developing policies and procedures to address this rising concern.

## What is solid research evidence?

Written by Dr. Donna Wilson, Caritas Nurse Scientist

Research can be controversial. The current debate over the benefits of red wine is a good example. One study finds red wine in small daily amounts is beneficial for cardiovascular health while another finds it is not beneficial for general health. This controversy is one of many factors slowing the adoption and use of research findings. To reduce this controversy and provide solid evidence for practice, a technique called “systematic research literature review” or “integrative research literature review” has been developed. The Cochrane group was one of the first to realize how useful it would be to assess all of the research findings that exist on a single topic, while also judging the quality of each research study’s methods, so as to determine the state of evidence on that topic. Many systematic or integrative reviews have

been conducted to date and published. One such review was on polypharmacy among senior citizens (Frazier, 2005). This review found 16 published studies on this topic, each identifying adverse health outcomes with polypharmacy. These include: reduced quality of life, malnutrition, aspiration pneumonia, hypotension, hypoglycemia, mobility problems, fractures, emergency department visits, hospital admissions, long hospital stays, nursing home admissions, drug dose and many other types of errors, and death. Not only does this review help to raise concern about the likelihood of adverse health outcomes among seniors who take more than one medication daily, but it also provides much concrete information gleaned from these studies. A very useful article!

# Bill Mackie

## Physician Profile

Bill Mackie surgeon, golfer, skier and steer decorator. Yes, you read that right. Although you won't find the certificate for steer decorating on his office wall, Dr. Mackie has the proof at home. It dates back to the 1983 Calgary Stampede, when as Ponoka's deputy mayor he participated in this fun event on opening day. His partner was the mayor of Sarnia, Ontario. They didn't win but they did manage to get a ribbon on the steer's tail the objective of the event.

"Steer decorating is a lot more difficult than it looks," says Dr. Mackie. "I believe that I'm the only surgeon in Canada who has performed in the Stampede."

It was also an impressive showing for a relatively "new" Albertan. Dr. Mackie and his family moved from Scotland to Ponoka in December 1974 with "\$90 in hand." The relocation to Canada was partly inspired by a summer job in Montreal that Dr. Mackie had when he was a medical student at the University of Glasgow. "That experience piqued my interest in Canada. After working for a while in Scotland, I had two children, no money, a car that was rusting out, and a big mortgage. We thought we could do better in Canada."

Dr. Mackie took a job as a GP/surgeon at the Ponoka Medical Centre; he operated in the morning and saw patients in the afternoon. Although Dr. Mackie and his family (which had expanded to three children in Canada) loved Ponoka, he could see the limitations of the job and decided to pursue F.R.C.S. (C.) certification through the University of Alberta. After that, he planned to join Dr. Euan Frew, a friend from Glasgow, in a surgical practice in Nanaimo B.C. but as his year as Chief Resident came to an end, the U of A's Chair of Surgery Dr. Tom Williams asked Dr. Mackie to stay on as a teaching fellow

"The invitation came as a surprise," says Dr. Mackie. "I was a little schmuck from Scotland. I had never thought about getting a job at a university."

After his fellowship year, Dr. Mackie joined Drs. Marshall Hunting, George Bondar and Walter Pisesky in surgical practice. He went on to become Chief of General Surgery at the University and Grey Nuns Hospitals from 1995 to 1998, and Chief of Surgery at the Grey Nuns Hospital from 1998 to 2004. He is now a general surgeon at the Grey Nuns, a Clinical Professor of Surgery at the

University of Alberta, and on the consulting staff of the Cross Cancer Institute.

"I enjoy clinical surgery and teaching residents," says Dr. Mackie. "My approach is to give residents a little rope, not to spoon feed them. I let them go ahead and then watch them carefully. If I see things going wrong, I step in and say 'Let's think about this'. I believe this is the best way to learn."

Dr. Mackie's friendship with Drs. Hunting and Williams sparked his involvement in the Canadian Association of General Surgeons (CAGS). He became Treasurer in 1993 and has been on the executive since then. He served as President in 2005, is currently past president, and will step down from the executive in 2007.

As a member of CAGS, Dr. Mackie was part of the team that created the Canadian Surgery Forum, an annual educational and networking venue for Canadian surgeons. The first forum took place in 2001, attended by about 250 people. The 2005 meeting had more than 500 attendees.

"The growth in attendance shows that the forum is meeting a need," says Dr. Mackie. "I'm very proud to have been involved in the development of the forum."

"Canada has been very good to me. Participating in national societies like CAGS is a way to put back into what has been given to me."

While he is cutting back on some volunteer obligations as he gets closer to retirement, Dr. Mackie is still devoted to his surgical practice. A general surgeon, he has an interest in colorectal and pancreatobiliary disease and significant experience in surgery for colorectal cancer and inflammatory bowel disease. Since 2004, he has been accumulating experience in advanced laparoscopic surgery including colectomies, incisional herniae and appendectomies.

"What I enjoy most about surgery is identifying a problem and fixing it without complications, without harm to patients. Like any good tradesman, I enjoy seeing a job well done."



# Caritas Research Centre

## 2005 in Review

In 2005 a total of 71 research projects were approved.

- 21 clinical trials
- 24 chart review-based studies
- 26 were either epidemiological, pilot, program evaluation, qualitative, statistical analysis, sequel, surveys or technology assessments

The Caritas Research Steering Committee approved eight Caritas Research Grant requests totaling \$28,351.23.

Twenty-two separate clinical trial agreements were reviewed by the Coordinator, Treasury & Risk Management and Caritas Legal Counsel.

Caritas Research Day was held on January 28, 2005. 89 attended.

The Research section of the Caritas website was revamped.

Caritas Research was published in January, June and November.

In September, Caritas was pleased to announce that Donna Wilson, RN, PhD, accepted the joint appointment of Research Scientist between the University of Alberta and Caritas.

Dr. Wilson circulated a brief questionnaire to Caritas nursing staff in the Fall of 2005.

- 2,300 surveys were sent out and 302 returned.
- 8.7% indicated they were planning, conducting or completing a research study
- 30.4% indicated they were either a student currently or thinking of upgrading their education.
- 8.7% indicated they were either planning or working on one or more papers either for a course or for a publication.
- 28.4% expressed interest in a scholarly writing course.

- 106 surveys were returned with one or more ideas for nursing research.

Dr. Wilson also began a number of research studies and other projects, one was an 11-year Caritas health services utilization analysis project and another was a Scholarly Writing course. She also met with various Caritas personnel and is assisting them with planning and/or writing research ethics applications.

Anne Willans delivered multiple presentations on the Safety Culture Survey at Misericordia Nursing Education Fairs, in addition to presentations on the Research Centre and nursing research at Nursing Rounds and Nurse Educator Committee meetings.

Dr. MacDonald delivered a total of 26 presentations at various clinics, Caritas sites and the University of Alberta throughout the year.

## Staff Changes

The Caritas Research Centre would like to announce the retirement of long time Caritas employee and Manager of the Research Centre, Anne Willans. Anne worked in Mental Health for 18 years before coming to the Centre in 2002.

Effective May 2006 Jo Ann Nettleton, Director, Education and Research, assumed responsibility for providing leadership and direction to the Caritas Research Centre. She will work closely with Anne and Dr. MacDonald as she assumes a leadership role for the Centre. Dr. MacDonald will remain in his current role with the Centre.



Check out the new Caritas website. This new website includes a Research section designed to assist researchers. <http://www.caritas.ab.ca>



Unless otherwise specified, articles in this newsletter were written by Connie Bryson. Connie is an Edmonton-based freelance writer specializing in science, technology and business topics. She is the winner of the 1999 ASTech Excellence in Science and Technology Journalism Prize.

## Caritas Research Centre

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