

# Caritas Research

Issue#8 Winter 2007

This issue of Caritas Research expresses the broad nature of Caritas' involvement in the Capital Region. Practical and innovative solutions are highlighted as well as original research supported by the Caritas Research Centre.

*Dr. Fred MacDonald  
Medical Director, Caritas Research Centre*

## Research on women's and children's health in the spotlight

When Dr. Thierry Lacaze moved to Edmonton from Paris to develop a pediatric research office at the University of Alberta, he was excited about what could be accomplished but he never imagined just how big that accomplishment would be. Dr. Lacaze is now leading the development of the Women and Children's Health Research Institute (WCHRI), an initiative that brings together researchers, clinicians, administrators and policy makers under a single umbrella to address priority areas in women's and children's health.

"It's thrilling to see this evolve," says Dr. Lacaze. "Initially my focus was clinical research in pediatrics, but then a lot of opportunities presented themselves that made me think we should be doing something much more comprehensive not only in terms of research topics but also in the disciplines we could involve in the research. We're creating something unique with the WCHRI."

The WCHRI is a collaborative initiative of the University of Alberta and Capital Health. It was launched in May 2006 with a funding announcement of \$37 million from the Stollery Children's Hospital and Royal Alexandra Hospital Foundations. On the clinical side, the Institute is centered at the Stollery Children's Hospital and the Lois Hole Hospital for Women with activities occurring throughout the region; academic leadership comes from the U of A Faculties of Medicine and Dentistry, Nursing,



*Dr. Thierry Lacaze, MD, PhD, FRCPC;  
Director of the Women & Children's Health Research Institute*

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Physical Education and Recreation, Rehabilitation Medicine and Education, as well as the Department of Psychology.

“It's tremendous how so many disciplines have come together to support this initiative,” says Dr. Lacaze. “We're responding to a national deficiency in research in women's, children's and youth health.”

The WCHRI is still in the early stages of development. The administrative structure has been formalized, partnerships are being explored and infrastructure arrangements have been made. Investigative activity will take place in three dedicated facilities: basic science labs in the U of A's Health Research Innovation Facility (HRIF) West; clinical research units at the Edmonton Clinic (the new ambulatory clinic to be built across from the University Hospital) and the Lois Hole Hospital for Women under construction on the Royal Alexandra Hospital campus.

The WCHRI has identified four research themes. They are described as developmental trajectories sensitive pathways and transitions in the development of fetuses, newborns, children, youth and women where risks may arise, opportunities may appear, and prevention, health promotion and early intervention may be highly effective.

1. Preconception, pregnancy, birth and early beginnings. This trajectory emphasizes the critical interplay of biology and environment from preconception to early childhood development. WCHRI research strengths include maternal hypertension, prenatal insults (such as alcohol, infection and trauma), impaired fetal growth, heart malformation, brain or lung injury, and the mechanisms, epidemiology, economic and psycho-social consequences of preterm birth.
2. Child and youth development. The central tenet within this trajectory is that healthy child and youth development is contingent on the health of the family unit. WCHRI research strengths include organ transplantation, cardiovascular and pulmonary development, oncology and haematology, infectious diseases, chronic care for a variety of ailments, development of school-related skills, language learning and communication, speech disorders and therapy, developmental disabilities and delays, parent-child interactions, post-traumatic disorder and post-partum depression in women, risk-taking behaviours in adolescents and young adults.
3. Women's health. This trajectory will focus on all health issues that affect women of all ages including preconceptual health, pregnancy, birthing, and urogynecological disorders. The research, centred at the Lois Hole Hospital for Women, will lead to

further development of gender-specific and gender-sensitive practice guidelines, services delivery models and more targeted health promotion strategies to support women's health and well-being.

4. Mental health and addictions. This complex health issue will require a collaborative approach as well as strong links with service providers to enhance the development of effective treatment strategies. For example, children's mental health research needs to integrate genetic, developmental, educational, sociological and family-related areas of investigation. Adolescent mental health is highly influenced by external pressures and societal expectations. Mental health issues, especially mood and anxiety disorders, affect women disproportionately.

The WCHRI will be open for membership by the spring of 2007. Both institutions and individuals (academic and non-academic) can qualify for membership, which will allow access to facilities, workshops, networking, research grant reviews, clinical trial coordination and an internal grant competition.

Dr. Lacaze hopes the WCHRI membership will extend beyond the U of A and Capital Health. In particular, he sees great potential for a partnership with the Caritas Health Group. This could include clinical research at the Misericordia and Grey Nuns Hospitals, as well as links with the Caritas-based team that specializes in community-based participatory research. In community-based research, a coalition of community members and researchers participate in defining research questions, securing expertise, formulating a general design for the project, fund funding, and are involved in interpreting outcomes and mobilizing new knowledge based on the research.

The next five years will be extremely busy for the WCHRI. By the end of that time, Dr. Lacaze expects that the research infrastructure will be in place and operating, research projects underway, strong links to national networks for clinical research established, and the framework for transdisciplinary research developed.

“I travelled from Vancouver to Halifax when we were developing the WCHRI,” he adds. “Yes, there are similar institutes in Canada, but they are all medically focussed. We have a real opportunity here to broaden the interpretation of health so that it includes the emotional, psycho-social, demographic and economic factors that determine health. I sense great interest among researchers in breaking down the barriers between disciplines so that we can undertake truly transdisciplinary research. That is by far the biggest promise for the WCHRI and if we succeed it will have the biggest pay-off in terms of having an impact on women's and children's health.”

# Body checking in minor hockey:

## An analysis of injuries treated in ER departments in the Capital Health region

Written by: Brian H. Rowe, Department of Emergency Medicine, University of Alberta

### Background

Ice hockey is recognized as Canada's national sport, with over 500,000 youth registered each year in minor hockey. Unfortunately, ice hockey injuries are among the most common sport and recreational injuries in children, ranking second only to basketball injuries. The primary mechanism of injury in 50 to 86% of injuries in children's ice hockey is body checking. Few studies have examined the effects of body checking in the younger 9-12 year age groups, and those that have reached conflicting conclusions.

In 2002, Hockey Canada changed the age classifications for minor hockey. Prior to the change, 10 and 11 year olds played at the Atom level (no body checking) while 12 and 13 year olds played at the Pee Wee level (body checking allowed). After the policy change, 11 year-olds were placed in the Pee Wee division (body checking allowed) with 12 year-olds; the Atom division included 9 and 10 year olds (no body checking). The objective of this study was to examine the effect of the policy change on injuries to 11 year-old hockey players and compare this information with injury trends among 10 and 12 year-olds.

### Methods

The study location was the Capital Health (CH) region, which serves the greater Edmonton area in Alberta. CH maintains a database of all emergency department (ED) visits in the region. A search of the database identified 10, 11, and 12 year-olds assessed and treated at seven EDs with hockey related injuries during the two years prior to the policy change and the two years after the policy change. We also conducted a chart review for the 11 year-old players, extracting detailed information on the nature and circumstances of injuries for the same time period. Rate ratios (RR) and 95% confidence intervals (95% CI) were calculated to compare post-change injury rates with pre-change rates.

### Results

The rate of injuries sustained by 11 year-olds playing at the Pee Wee level (with body checking) increased significantly compared with those who played at the Atom level (RR=1.9; 95% CI: 1.4, 2.4). The rate of severe injuries was over two times greater among 11 year-old Pee Wee players (RR=2.4; 95% CI: 1.6, 3.6). Injury rates for 10 and 12 year-old players changed little over the study period.

### Interpretation

The results of our study clearly show that 11 year-olds exposed to body checking (Pee Wee level) sustained twice the rate of injuries compared with those not exposed to body checking (Atom level). The rate of severe injuries was over two times greater for 11 year-olds exposed to body



checking compared with those not exposed to checking. Rates of most region-specific body injuries increased significantly in 11 year-olds following the policy change, with no significant change in injury rates for 10 and 12 year-olds.

Some may argue that if 11 year-olds were taught to check properly, then the differences in injury rates would disappear. However, research conducted at the Bantam level (14 and 15 year-olds) has shown that teaching proper checking technique has little influence on injury rates. Others might argue that if children are introduced to body checking at an early age, they may be less susceptible to contact-related injuries as they grow older. Yet Macpherson et al observed a greater risk of checking related injury among 10 to 13 year olds in Ontario (body checking at the Atom level) than in Quebec (body checking delayed until Bantam). The evidence suggests significant harm, and no discernable health benefit, accompanying the introduction of body checking at a younger age.

The introduction of body checking to 11 year-olds was associated with the large increase in their injury rates. From a public health perspective, the age at which body checking is introduced should be raised. While this may be controversial and unpopular, it is likely to lead to less injuries (some of which are serious and life long), and at the same time address the issue of childhood inactivity and declining sports participation in the teenage years.

### Full publication:

Hagel BE, Marko J, Dryden D, Couperthwaite A, Sommerfeldt J, Rowe BH. Effect of bodychecking on injury rates among minor ice hockey players. *Canadian Medical Association Journal* 2006, 175(2):155-160.

# Research on exercise and transplant recipients has a message for us all

You can't spend more than a few minutes with U of A Faculty of Rehabilitation Associate Professor Dr. Mark Haykowsky and PhD candidate Kenneth Riess without making a silent promise to "get to the gym tonight." Their enthusiasm for the health benefits of exercise is infectious.

"The typical Canadian is sedentary," says Dr. Haykowsky. "The majority of Canadians do not expend enough energy every day. We've engineered physical activity out of our lifestyle. Now we're paying the price with all kinds of health problems, particularly cardiovascular disease. The bottom line is that it's very expensive to treat people in the hospital. If you can prevent cardiovascular disease, that's the way to go."

Dr. Haykowsky's research program focuses on assessing the cardiovascular benefits of exercise in a diverse range of people: older individuals, transplant recipients, athletes and patients taking chemotherapy for breast cancer. One of his interests is exercise training of transplant recipients and both he and Mr. Riess are leading studies in this area.

One study, due to finish in June 2007, is a randomized controlled trial of exercise training for heart transplant recipients. Dr. Haykowsky hopes to enrol 70 people. While there have been several studies on this topic, this is the first investigation to have a control group. One half of the participants receive "usual care", which means they continue to do what they normally do; the other half attends a 12-week exercise program. This rigorous program runs five days a week and involves aerobic, interval and strength training. The cardiorespiratory fitness, cardiac and vascular function and lean body mass of both groups are evaluated after 12 weeks.

"One of the interesting things about heart transplant recipients is that although their hearts pump very well, their oxygen consumption their fitness is 20 to 40 per cent lower than an age- and activity-matched healthy individual," explains Dr. Haykowsky. "We want to understand why fitness doesn't follow when the transplanted heart is pumping well."

He suspects there is another weak link the delivery of blood to the muscles. "This current trial is designed to test whether exercise can improve vascular function. We think this may be key to improving the fitness of transplant recipients."

Another novel aspect about the trial is the intensity of the exercise program. "It's like a mini Tour de France workout," says Dr. Haykowsky. "In the past we might have taken it pretty easy on these people. Now we push them



*Ken Riess (Ph.D. Candidate - left) and Dr. Mark Haykowsky (right) with a study participant from one of their exercise intervention trials.*

quite hard but in a safe manner and in a controlled laboratory environment."

Mr. Riess is leading a similar randomized control trial on kidney transplant recipients. He hopes to enrol 40 people; the study will end in 2008. The control group receives usual care while the other group is enrolled in a 12-week exercise program. It involves a three-day-a-week regimen of aerobic and resistance training. The fitness of both groups is evaluated after 12 weeks.

"Kidney transplant recipients tend to have somewhat higher fitness levels than heart transplant recipients," explains Mr. Riess. "However they still face considerable health challenges because of their increased risk for cardiovascular disease. This exercise program is geared to reducing cardiovascular risk lowering blood pressure and improving the lipid profile."

Both researchers have found marked improvements in fitness in the groups taking the exercise programs. "We can take a 70-year-old man who had a heart transplant a year ago and within 12 weeks bring him to the fitness of a 55 or 60-year-old," notes Dr. Haykowsky. "That is very rewarding. We can counteract the deconditioning associated with a sedentary lifestyle."

"And the satisfaction is not only in the numbers," adds Mr. Riess. "People often tell us how the program has changed their lives. One of the participants in my study told me how for the first time he had been able to walk from the parking lot to the lab without stopping. He was thrilled."

Dr. Haykowsky points out that although the fitness of transplant recipients is often measured against the fitness of a sedentary individual, the goal is to improve fitness far beyond the sedentary level. "We're not happy with sedentary no one should be, whether you're a transplant recipient or not. Cardiorespiratory fitness has been shown to be the best predictor of mortality in healthy and disease populations. We want to get people above the couch potato level. This is vital because fitness decreases with age. Our motto is that it's never too late to exercise.

"The take-home message is to try to maintain physical activity. For fitness benefits, the guidelines now

say to be active 20 to 30 minutes every day. It doesn't have to be all at one time. If you drive to the store, park far away and walk. If you take the elevator at work, use the stairs instead. If you expend enough energy in the day, you'll get health benefits. You won't turn into an athlete, but from a health perspective you'll live longer than the couch potato."

*Dr. Haykowsky is a CIHR New Investigator. His trials are funded by the Heart and Stroke Foundation, MSI Foundation and the Canadian Breast Cancer Research Alliance.*



## De-Mystifying HREB and the Research Application Process

### Where and When:

08:30 - 12:00

Wednesday, March 14, 2007

Boardroom (1N-106), Misericordia Community Hospital

### Presented by:

**Judith Abbott, Health Research Ethics Board (HREB)**

and

**Donna Wilson, Caritas Nurse Scientist**

### Workshop:

This workshop will be of interest to individuals who require a better understanding of HREB and their application process. In addition to providing an overview of HREB, this workshop will provide instructions on completing the application form and the application process.

There is no charge for this workshop.

To register contact Mary-Ann Clarkes at the Caritas Research Centre  
**735-2274** or email [caritasresearch@cha.ab.ca](mailto:caritasresearch@cha.ab.ca)

# Low back disorders among nurses and their control

Written by: Edgar Ramos Vieira PT, MSc, PhD., Faculty of Rehabilitation Medicine, University of Alberta

Work-related low back disorders (WLBD) are related to high physical efforts during work. Thus, it is not surprising that nurses are among the professionals with the highest rates of WLBD. Bending, twisting, lifting heavy weights and making forceful movements, as during patient handling and transfers, are long established risk factors for WLBD. The quantification of risk factors is important for the assessment and prevention of WLBD.

This research studied the problem of WLBD among nurses at the Misericordia Hospital using a holistic methodology. First the injury records from both Workers Compensation Board and from the hospital health and safety department were reviewed retrospectively (review of five-year injury records). In addition, a survey of 47 nurses was performed<sup>1</sup>. WLBD (n = 159) represented 23% of all injuries, 16% of first aid injuries, 17% of medical aid injuries, and 62% of all lost time injuries. Overexertion represented 74% of all WLBD and 83% of all WLBD resulting in time off work; from these, approximately 70% happened transferring or handling patients in bed. The departments where WLBD occurred most often were orthopaedics (32%) and ICU (17%). Sixty five percent (65%) of the orthopedic nurses and 58% of the ICU nurses reported to have suffered WLBD while working as a nurse. Thirty percent (30%) of the ortho nurses and 25% of the ICU nurses reported to have low back pain at the time they were filling out the questionnaire. The mean (standard deviation) reported weight handled was 47 kg ( $\pm 30$ ) by the ortho nurses and 26 kg ( $\pm 10$ ) by the ICU nurses. The rate of perceived job exertion on a 10-point scale was 7 or very strong for the ortho nurses, and 6 or strong for the ICU nurses. Patient transfers, turning and repositioning patients in bed were considered the most physically demanding tasks of the job by the ortho and ICU nurses, respectively.

The forces used and the activity of back and abdominal muscles of 25 nurses were measured during lifting, pushing, and pulling. The job simulated force [79% ( $\pm 16$ ) of the maximum] was higher than the preferred level [56% ( $\pm 21$ ) of the maximum]<sup>2</sup>. Additionally, the physical loads were measured while 36 nurses performed nine nursing tasks involving transferring, turning and repositioning patients in bed<sup>3</sup>. Peak lumbar flexion during stretcher to bed, bed to chair, and chair to bed transfers was the same as when the nurses were asked to bend forward as far as they could. The average lumbar flexion during the stretcher to bed transfer was higher than 50% of the maximum. The compression force on the spine [4754 N ( $\pm 437$ )] and the percentage of the population that would not be strong enough to perform the task [37% ( $\pm 9$ )] were



*Edgar R. Vieira*

highest during the pushing phase of the bed to stretcher transfer. The shear force [487 N ( $\pm 40$ )] and ligament strain [14% ( $\pm 5$ )] were highest during the pulling phase of the stretcher to bed transfer<sup>3</sup>.

The results showed that nursing tasks impose significant demands on the lumbar spine. The physical demands of the nursing job were higher than established guidelines and represent significant risk for WLBD. Previous studies have demonstrated that nurses with high frequency of patient lifting are up to 7.5 times more likely to have WLBD than nurses with low frequency of lifting<sup>4</sup>. High flexions and forces are critical aspects of the transfers requiring most of the nurses' capabilities.

Evidence-based recommendations to reduce the risk of WLBD were provided. Fitness to work, job modifications and training programs can be designed and assessed based on the results. The following are some practical suggestions to reduce the risk of WLBD among nurses. However, it must be highlighted that a no-lifting policy must be implemented successfully for a significant reduction of low back disorders among nurses<sup>5</sup>.

**Adjust bed height:** avoid too much bending and facilitate the task by, for example, reducing the amount of force required to get a patient from sitting to standing.

**Stay active and in good shape:** exercise increases the

functional capacity of the musculoskeletal system reducing the risk of injury. A lighter upper body imposes lower loads on the spine throughout the time.

**Minimize the time in awkward postures:** don't rush because it may lead to accidents and/or overexertion injuries, but try to spend the least time in extreme postures [i.e. too much flexion, extension, rotation, lateral flexion (bending sideways)]. WLBD are caused not only by overexertion (too much) but also by the cumulative effects of prolonged activities (too long).

**Support your weight:** use your arms to support part of your weight when bent forward; for example, while waiting for others to get ready for a patient transfer. Support your thighs against the bedside and use your lower limbs force to help moving patients in bed. This will reduce the amount of back force needed.

**Ask for help:** many WLBD in nurses happen while moving a heavy or confused patient alone. Share the load and work together with other colleagues and with the patient if possible. You never know when the patient will resist or make a sudden movement.

**Plan before execution:** think about what you want to do before you start it. Make sure all equipment you need is available (belts, chairs, sliding sheets, etc) and that you have enough space to complete the task safely. Talk with your coworkers and agree on what you will do when working together (lifting or transferring a patient), use vocal clues to synchronize your movements.

**Use mechanical lifts and other assistive devices:** lifts and other devices (belts, sliding sheets and boards, etc) can significantly reduce the amount of effort required to move a patient.

**Set up the patient rooms ergonomically:** the location and position of the furniture and equipment (beds, chairs, over bed tables, bedside cabinets, IV poles, ventilators, etc) have a direct effect on how well and safely you can perform your job. Having to reach over or move furniture around all the time may increase the low back load significantly.

**Organizational issues:** try to distribute heavier patients among different staff to distribute the load evenly; make sure the transfers and x-rays are not all scheduled close to the end of the shift. By this time you are tired and more susceptible to injuries.

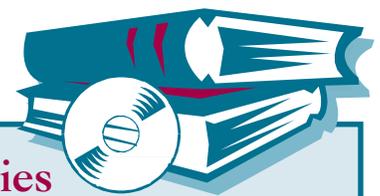
**Stretch and relax your muscles:** stretch your muscles and move your back from side to side, forward and backward. Massage your low back. These simple measures help to reset the tonus (stiffness) of your muscles and may reduce the discomfort by the end of the shift and the risk of injuries.

### Acknowledgments

Funding from the Caritas Health Group, the Alberta CIHR Training Program in Bone and Joint Health, and the Education Ministry of the Brazilian Government (CAPES, proc. no. 1340-01/8) is gratefully acknowledged.

### References

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- 2Vieira ER, Kumar S (2006a). Push, pull, stoop and squat lifting by orthopedic nurses: force and electromyographic activity. *Applied Ergonomics* (Submitted).
- 3Vieira ER, Kumar S (2006b). Analysis of the low back biomechanical demands in patient handling and transfers. *Nursing Research* (Submitted).
- 4 Stobbe TJ, Plummer RW, Jensen RC, Attfield MD (1988). Incidence of low back injuries among nursing personnel as a function of patient lifting frequency. *Journal of Safety Research* 19 (1):21-28.
- 5Vieira ER (2007) Nurses have high incidence of low back disorders even when patients are not obese - why and what can be done to reduce risk? *Bariatric Nursing and Surgical Patient Care* (Submitted).



## Caritas Libraries

### Did you know

Caritas staff and physicians can search many *e-Library* resources from home or office.

HKN (Health Knowledge Network) – journals, medical texts, evidence-based resources and databases such as MEDLINE and CINAHL \

images.MD – over 50,000 medical images

MD Consult – journals, books, clinics, patient handouts, etc.

STAT!Ref – drug and medical books, including Harrison's

ACP Medicine – internal medicine database

Contact Sheila Fynn at Grey Nuns Health Sciences Library @735-7301 or email [sfynn@cha.ab.ca](mailto:sfynn@cha.ab.ca) for more information and to register.

# Attracting family physicians back to acute care hospitals

Rene Brownoff, MD, CCFP, Olga Szafran, MHSA, Neil Bell, MD, MSc, CCFP, Sheny Khera, MD, MSc, CCFP, Egbert Krikke, MD, CCFP, Misericordia Family Medicine Centre and Department of Family Medicine, University of Alberta

During the past few years, there has been a significant exodus of urban family physicians from acute care hospitals. In a Discussion Paper titled, "Family Physicians Caring for Hospital Patients," the College of Family Physicians of Canada identified that only 16% of family physicians in cities across Canada provide inpatient hospital care and that number has been declining.

In order to better understand the local situation within Caritas, we conducted a study to identify the reasons why family physicians gave up hospital privileges and to identify factors that would encourage them to re-apply for hospital privileges. A survey questionnaire was mailed to family physicians who had active hospital privileges at the Misericordia or Grey Nuns Hospitals during 1990-2003, but who in 2004 did not have hospital privileges and were still in clinical practice in the Capital Health region during 2004.

Twenty-six of 37 (70.3%) family physicians responded to the survey. The majority of respondents were male physicians (61.5%), 40-59 years of age (65.4%), in a group family practice (65.4%), and in community-based office practice (84.6%). The average number of years of active hospital privileges before giving up privileges was 12.4 years, with the median being 9 years.

The major reasons for giving up hospital privileges were grouped into five categories, with the top two reasons in each category being:

## 1. Financial

- 65.4% - poor remuneration for caring for inpatients
- 42.3% - no pay for being on call

## 2. Workload

- 65.4% - increased office workload resulting in less time for hospital work
- 46.2% - increased demand to look after orphan patients

## 3. Regionalization

- 46.2% - decreased access to hospital beds
- 46.2% - decreased access to long-term care beds
- 30.8% - limited access to specialist services

## 4. Hospital Restructuring

- 65.4% - elimination of house staff after-hours coverage
- 50.0% - competition for beds and services from specialists

## 5. Other Reasons

- 69.2% - lifestyle issues/personal and family time
- 38.5% - decreased contact and collegial interaction with all physicians

Factors that would encourage family physicians to re-apply for hospital privilege were:

## 1. Resources

- 57.7% - the availability of after-hours support and coverage
- 50.0% - if a Family Practice Ward with specialist backup was established

## 2. Financial

- 46.2% - if on-call pay was introduced
- 42.3% - if an Alternate Payment Plan was established
- 42.3% - if free parking was available

## 3. Professional/education

- 50.0% - if family physician skills and roles were understood, embraced and respected
- 38.5% - if education was provided to enhance/maintain acute hospital care skills

The study findings indicate that the reasons for family physicians giving up hospital privileges at the Misericordia and Grey Nuns Hospitals during 1990-2003 were multi-factorial in nature. Issues related to lifestyle, workload, financial considerations, and hospital resources appeared to be of equivalent importance in the decision to give up hospital privileges. While the majority of the factors are health system factors (eg. poor remuneration, increased patient workload), some are hospital-specific (eg. house-staff coverage).

During the study period 1990 to 2003, many changes occurred in the Capital Health region and throughout Alberta. The downsizing and restructuring of the health care system by the Alberta government created major challenges for health care providers. This process had far reaching repercussions and may have attributed to the issues cited by family physicians for giving up hospital privileges, such as remuneration and on-call discrepancies, increased workload from physician shortages both in and out of the hospitals, decreased access to hospital and long-term beds, elimination of training programs, as well as the frustration of dealing with orphan patients.

Improved pay, implementation of after-hours coverage, family medicine wards and respect for the role of family physicians would appear to attract family physicians back to acute care hospitals.

*Acknowledgement: This study was funded by the Caritas Research Trust Fund*

# Who uses hospitals?

## Findings from an analysis of Caritas health services and client data

Written by: Donna Wilson, RN, PhD, Caritas Nurse Scientist and Full Professor

When the public is asked who are the most common persons using hospitals today, the answer would almost always be “well, seniors, of course!” At a recent local conference attended by healthcare professionals, there was widespread agreement that over 50% of the people who are admitted to hospital, or an emergency or day surgery department, or who have an outpatient test or procedure, are seniors. This widely-held belief about seniors being high users of hospital services is understandable - as we typically think that as people age, they become ill, and then they naturally begin to need hospital care. We also know that we have an aging population, and we have frequently heard that we will not be able to sustain a publicly-funded healthcare system because of a growing number of seniors. This problem is expected to become acute when the large baby-boom generation begins to reach 65 a time that is only five years away.

Over the past year I became interested in health promotion as a way of reducing hospital utilization. I was surprised to learn from research articles that seniors today are much healthier than seniors 20 or more years ago. As a practicing hospital nurse, I realized that I only saw sick seniors and younger persons in hospital, not the many more who are well or who had recovered from an illness. I was also surprised to learn how healthy the baby-boom generation in general is, with this good health considered an outcome of many different societal and other factors. I also learned that Alberta is the youngest province in Canada with only 10.4% of its population aged 65 and older. The latest census found 10.6% of Edmonton-area residents were seniors. The population projections for Alberta and Edmonton indicate little change, as there is an expected continuing influx of working-age persons and a growing number of babies expected for Alberta. I also read contradictory information about the people who use hospitals, and noticed that many of these reports were dated, as they used 1970s or 1980s inpatient hospital utilization data, a time when the health system was very different from what it is now. Most surgeries now are done on a day surgery basis and most diagnostic tests are also done on an ambulatory care basis; a sole focus on inpatient hospital use would thus ignore the majority of hospital users. Another problem is that most hospital utilization studies were done outside of Canada so their applicability to Canada is limited. A study of current hospital use was therefore planned, and Caritas hospital data was made available to me to assess for emerging or established utilization patterns. A wide-range of data on all persons who had used Caritas inpatient, outpatient, day surgery, ER, and sub-acute services in the 1995-2005 years were obtained,

with this data individual-anonymous to ensure I would not be able to identify any individual. The findings were checked and rechecked to ensure they are accurate they were also rechecked as they show that our concern about illness and high hospital use among seniors is not evidence-based.



*Donna Wilson, RN, PhD,*

Age-based findings among all persons who used the various Caritas hospital services are reported below, as well as age-based findings for the small proportion of persons who were identified as the highest users of each hospital service. In each year and over all years of data combined, persons under the age of 65 were the most common Caritas hospital user, with one exception sub-acute care the hospital service that was designed in the past decade for seniors needing extended rehabilitative care and those waiting placement in a nursing home. In fact 81.1% of all persons who were admitted as inpatients to a Caritas hospital in the past decade were under the age of 65. A similar finding for outpatient clinics was found 78.5% of the people who had an outpatient test or treatment were under the age of 65. An even higher proportion of the people who went to a Caritas emergency department were under the age of 65 (85.7%). Day surgery patients were even less likely to be seniors, as 90.8% of all day surgery patients were under the age of 65. In contrast, sub-acute patients were more commonly 65 years of age or older (76.0%), although fully one quarter of all of the patients using this service were unexpectedly younger in age.

The highest users of each hospital service were also found to be predominantly younger persons. Among the hospital inpatients who were admitted frequently to hospital, 80.1% were under the age of 65. Among the persons who frequently visited a Caritas ER, 87.4% were under the age of 65. Among the day surgery patients who frequently visited a Caritas day surgery unit, 94.5% were under the age of 65. Among the persons who frequently had outpatient tests or treatments, 82.4% were under the age of 65. It was also interesting to find that patients who had long hospital stays were almost equally likely to be younger (46.7%) or older (53.3%) than 65.

As such, these findings of the predominant health care client raises a number of interesting points for discussion about aging, ill health, and health services utilization. If all else, this study shows people of all ages use hospitals.

# Pressure ulcer studies result in improved patient care

For a patient in the hospital, pressure ulcers may not be their biggest concern. Nonetheless, they are a serious healthcare challenge. In the U.S., 2.5 million pressure ulcers are treated each year in acute-care facilities alone, estimated at a staggering cost of \$11 billion. The cost of treating a single pressure ulcer ranges from \$500 to \$40,000 depending on the severity of the wound. The prevalence of pressure ulcers in Canada has been found to be at least as high as in the U.S., with an average of one in four patients across healthcare settings suffering from a pressure ulcer.

These sores are a result of compression of tissue between bone and external surfaces. A pressure ulcer can range from a slight discolouration of the skin to open sores that go all the way to the bone. They frequently develop in the tail bone area, hip and heel, can prolong a hospital stay and be complicated by pain and infection, which may even result in death.

A large proportion of pressure ulcers develop in patients in hospital settings. Many of these patients are elderly and have diabetes or vascular disease. Immobile patients can develop pressure ulcers within hours of lying on a bed.

The Misericordia Community Hospital's Wound Clinic treats both inpatients and outpatients with these sores. "Pressure ulcers can be a real challenge to treat," says Terri Fortunaso, Patient Care Manager, Ambulatory Services and COMPRU. "We wanted to learn more about the prevalence of these ulcers at our site, the origin of the wounds, and how best to prevent them."

A Skin Integrity Committee was formed to work on the issue. Their first project was the design and implementation of a pressure ulcer prevalence study. This one-day study of all patients in the hospital would provide important data on the numbers and severity of pressure ulcers. The first study was done in 2004 and it was repeated in 2006. The first study received funding support from the Caritas Research Centre and in-kind support from Hill-Rom Company, a manufacturer and provider of medical technologies. Hill-Rom undertakes international pressure ulcer prevalence surveys annually, and the Misericordia team was able to link up with this survey.

The one-day nature of the studies belies their complexity in terms of advance planning, time and resources. Teams of two – a Wound Clinic member with a clinical educator – are responsible for patient assessments. Each team member attends a learning session on grading wounds and is tested to ensure consistency. On the day of the study, the teams assess all patients in the hospital for pressure ulcers and grade the sores they identify. For the first study, nursing students from the University of Alberta worked the day before the survey to get signed consents from patients. In 2006, this job was done by nursing students from the Grant MacEwan Community College.

In 2004, 141 patients were evaluated; 29 had pressure ulcers. In 2006, 139 patients were evaluated; 31 had pressure ulcers (24 of those were identified as being acquired at the facility).



*The PUP Research Team*

"We were very pleased with how well the studies went our teams received fantastic support from everyone at the Misericordia," adds Ms. Fortunaso. "Of course it's one thing to collect the data, the other is to apply the information to clinical practice. These studies have resulted in considerable change."

One of the first changes to be implemented was a modification to the existing charting sheet. "When we began, we had no way of knowing whether patients had a pressure ulcer when they entered the hospital," notes Ms. Fortunaso. "And we had no standard way of assessing patients who had skin ulcers." The Braden Scale, which is one of the standard pressure ulcer assessment tools, has now been incorporated into the Misericordia's charting mechanism. It is now used daily for skin assessment.

Another key outcome was the design and implementation of a skin assessment education program for nursing staff. Sessions were held throughout the year and covered the risk factors for the development of pressure ulcers, how to identify pressure ulcers, and the actions required to prevent them. Patients receive education about pressure sores and what they can do to prevent them.

The team also set up an algorithm to help identify the proper surface required by the patient once a pressure ulcer is diagnosed. A variety of items can be used to reduce pressure – pillows, padding, special mattresses or covers, etc. Another important change is that, after a thorough assessment, nurses now have the authority to order the surface through the charge nurse.

Ms. Fortunaso points out that the changes implemented as a result of the studies have had a significant impact on patient care. "Real improvements in care can be made once you put the time and effort into assessing current practice. We learned a lot from doing these surveys. We learned that we had to be more observant and more proactive with skin assessments. Wound care doesn't just belong in the Wound Clinic; it belongs on the floor where standards of care must be met on a regular, daily basis. If we address chronic wounds properly and swiftly, patients will recover faster and go home sooner.

"We are offering better care as a result of the study outcomes, our response, and the tools that are available to educate our staff and treat our patients."

# A Community-Based Approach to Research in Aboriginal Communities

A group of researchers based at the Misericordia Hospital is advancing health research through their work in community-based participatory research (CBPR). It differs from traditional medical research in that the people being studied take an active role in the design, implementation and dissemination of the research through their collaboration with the researchers.

“There are many social determinants of health such as income and social status, education, culture, and healthy child development,” explains Dr. Lola Baydala, director of the Misericordia Community Pediatric Research Group. “The problem is that these issues tend not to be addressed by traditional medical research. Also, traditional medical research is usually investigator-driven; the investigator tells the community what questions need to be answered and what methodologies are to be used to answer them.

In community-based participatory research, the questions come from the community, not the investigator. The community identifies what health issues are important to them and they invite the researchers to collaborate with them in researching the identified issue.”

The Misericordia Community Pediatric Research Group has made important strides in community-based participatory research through their collaborations with Aboriginal communities in Alberta. Capacity building is a key element of the work as both the community members and the researchers share their expertise. Dr. Baydala notes that the foundation of this work is the ethical expectations of Aboriginal communities. “There are many examples of research done in the past that actually harmed Aboriginal communities because ethical expectations were not understood or adhered to. A lot of work has been done recently to develop ethical guidelines and protocols for research conducted with and within Aboriginal communities.”

While different funding agencies have developed their own ethical guidelines for work with Aboriginal communities, these documents do share fundamental similarities. One of these is understanding and respecting that a community has an identity in and of itself and that it has specific ways of doing things within a framework of specific relationships. “As a researcher you have to understand how the community functions, and respect and honour that acknowledging that it may be very different than your own way of being in the world,” adds Dr. Baydala.

In honouring indigenous ways of knowing, researchers must also understand the cultural responsibilities that accompany traditional or sacred knowledge, and strictly comply with community expectations and protocols in possessing such knowledge.

Another ethical protocol is that the community has jurisdiction over the research. Ownership, control, access and possession (protection) commonly known as “OCAP” are principles that are entrenched in Aboriginal health research.



*Misericordia Community Pediatric Research Group*

“Knowledge translation is also an important consideration in research work; it refers to the dissemination of the research findings to those who would benefit from them. This is built into community-based participatory research because of the community members' involvement throughout the research process,” explains Dr. Merle Kennedy, research project manager with the Misericordia Community Pediatric Research Group.

The outcomes of community-based participatory research are often different from those of conventional research. Along with publications and presentations at conferences, outcomes of community-based research might include the development of a community program, capacity building (workshops on research methodology, for example), or a presentation to the community. One of the outcomes of a project recently completed by the Misericordia team was a manual on fetal alcohol spectrum disorder for use in schools.

At the heart of Aboriginal health research is a partnership between the research team and the community. “The only way to develop a partnership is to build relationships,” says Dr. Baydala. “That's where ethical research begins. Once you get to know the community and the community knows you, then together you start having conversations about what's important for the community and how you could answer those questions together.”

But relationship building takes time, and that can pose serious funding challenges for researchers involved in community-based participatory research. Grants for research projects do not typically factor in the time it takes to build relationships. Dr. Baydala credits support from Caritas, the University of Alberta and the Alberta Mental Health Board who have recognized the importance of CBPR and provided infrastructure and funds to support the process.

“Despite the challenges, the important thing to remember about community-based participatory research is how rewarding it is. When you honour the ethical guidelines, when you are respectful and mindful, the community is behind you 100%. And when the community is behind you, the research momentum is amazing and can lead to significant, positive change for everyone involved.”



## Research Corner

The 3rd annual Caritas Research Day held on January 25th, 2007 was a resounding success! The speakers whom presented were all very well received. In fact, the presentations were of such quality as to generate great interest and questions from the audience; so much so that it has been noted that more time

should be dedicated to post-presentation discussions for our next offering.

The Keynote Presenter: Dr. Ray Rajotte's lecture on "Islet Transplantation Program, Past, Present, Future" provided the audience with an informative and interesting view of what has been and continues to be a highly successful research venture - a great way to have started off Research Day.

As well as the presentations, a half hour was allotted at Research Day for poster presentations. During this time, the researchers 'behind' the poster work had an opportunity to answer questions regarding their posters and their research.

Thank you to all of those involved in presenting, facilitating and attending this important forum.

In the interests of providing further educational opportunities to our research contributors, we have two Workshops scheduled over the next several months:

"A Discussion on the Ethics of Clinical Trials" - Dr. Nancy Olivieri Workshop: Monday, February 26th, 2007, 13:00-15:00 hrs

"De-Mystifying HREB and the Research Application Process" - Judith Abbott, Health Research Ethics Board (HREB) & Donna Wilson, Caritas Nurse Scientist Workshop: Wednesday, March 14th, 2007, 08:30-12:00 hrs

To register for either of these workshops, please call or email the Research Centre: (780) 735-2274 or [caritasresearch@cha.ab.ca](mailto:caritasresearch@cha.ab.ca)



*Dr. Ray V. Rajotte, PhD, Peng, FRCPC, FRSC; Director, Islet Transplantation Group*

Please join me in offering a special thank you to Leslie Crawford who has been integral to operations at the Caritas Research Centre over the past 2 years. Leslie has moved to maintain a casual position with the Centre, with primary responsibility moving to Mary-Ann Clarkes.



The 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.

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