


Health System and Workforce Optimization

An approach to improving population/patient, provider and system outcomes

*Dr. Jeanne Besner, RN, PhD
Director, HSWRU*

Health Systems and Workforce
Research Unit

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Why optimization?

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- *Historical context*
- *Health Human Resources issues*
- *Evidence from research*
- *Action plan*

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Commissions/reports on health care reform:

- **Fyke Commission (Saskatchewan, 2001)**
 - Focus on quality, accountability and sustainability
 - Coordinated human resources planning & management
 - Avoid overlap, duplication & inefficiency in service delivery
 - Address morale issues among health care providers
 - Respect contributions of all staff
 - Reduce unnecessary and ineffective work
 - Produce better patient outcomes and improved job satisfaction
- **Mazankowski Report (Alberta, 2002)**
 - Address sustainability of the Alberta Health Care System
 - Focus on health and wellbeing
 - Improve accountability (value for dollars spent)
 - Develop a patient oriented system
 - Develop a workforce plan that defines roles of providers
- **Canadian Nursing Advisory Committee (2002)**
 - Maximize nursing scopes of practice
 - Create professional practice environments
 - “As nursing goes, so goes the rest of the system”



- **Romanow Commission (2002)**
 - Improve timely access and enhance quality of care
 - Transform system from one in which providers work in silos to one in which they work collaboratively to deliver seamless, integrated care across the continuum
 - Change the scopes and patterns of practice of health care providers to reflect a growing emphasis on collaborative teams and networks of health providers
- **Kirby Report (2002)**
 - Address the shortage of health professionals and find ways to increase individual and collective productivity
 - Enable the skills and competencies of providers to be utilized to the fullest and deliver health care services by the most appropriately qualified health professionals

Background / Context calgary health region (continued)

- **2003 First Ministers Accord on Health Care Renewal**
 - Timely access to high quality, effective, patient-centered health services
 - Improve continuity and coordination of care
 - Focus on population health
 - Ensure Canadians have access to needed health providers now and in future
- **2004 Plan to Strengthen Health Care**
 - Ensure adequate supply and appropriate mix of health care providers
 - Address interdisciplinary training
 - Accelerate integration of internationally educated providers

Some Facts about HHR calgary health region

- **# Professionals varies (e.g.) Per 100,000 population (1994 to 2002)**
 - No change in number of physicians at 188:100,000
 - RNs decreased 804 to 734:100,000
 - LPNs decreased 282 to 191:100,000
 - MLT & Radiation technologists from 282 to 191:100,000
 - Increase in pharmacists from 73 to 84:100,000
 - Increase in Psychologists from 14 to 20:100,000
 - Increase in Social Workers from 44 to 77:100,000
 - Increase in other professions as well (RTs, OTs, chiropractors)
- **Linked to changing health needs or patient outcomes?**
 - We don't know

Some facts about HHR

- **Supply of HHR varies by geographic area**
 - **Family physicians**
 - 118:1000 in Newfoundland Labrador
 - 85:100,000 in Ontario
 - **RNs**
 - 994:100,000 in Prince Edward Island
 - 665:100,000 in BC
 - **Medical Laboratory Technologists**
 - 94:100,000 in Saskatchewan
 - 39:100,000 in Quebec
 - **Chiropractors**
 - 8:100,000 in New Brunswick
 - 29:100,000 in Yukon
- **Associated with differences in needs or outcomes?**
 - **We don't know!**

Some facts about HHR

Aging workforce

- **Average age of health professionals in Canada - 41.6 years**
 - Calgary: 40.3 years
 - 12.3 % of employees aged 55+; eligible to retire within 5 years
- **Average age of nurses – 44.6 years**
 - Calgary: 41.1 years (RNs)
- **Average age of Canadian physicians – 46+ years**
- **Assuming retirement at 65 years**
 - **Potential loss of 29,746 Canadian RNs aged 60+ by 2006**
 - **Represents 13% of the 2001 nursing workforce**
 - **Calgary: Average age of retirement for nurses= 60 years**
 - : 13.5% RNs eligible to retire now or within 5 years
 - » 24% RPNS eligible to retire now or within 5 years
 - » 12.3% LPNs eligible to retire now or within 5 years

Source: CIHI, 2005 Chartbook
Calgary Health Region People & Finance Quarterly report (February, 2008)

Other Factors to Consider

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- **Values and practice patterns are changing**
 - (e.g.) 25% of family physicians provided obstetrical services 1993; 16% in 2001 (CIHI, 2005)
 - Lifestyle expectations limiting hours worked (NS HHR study, 2003)
- **Rapid diffusion of new technologies and treatments**
 - Estimate 50% of technologies in use 10 years from now not yet “invented”
 - Need for constant training and retraining of workers, flexibility
- **Emergence of new diseases, increase in chronic diseases and complex disorders**
 - Require different approaches to service delivery
- **Changing public expectations**
 - Patients and families want to be involved in care decisions

So, what can we do?

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Health System and Workforce Optimization

- **Collaborative Practice**
 - Requires changes in pre service education and continuing education of current providers
 - Improve professional relationships, valuing, respect
- **New service delivery models across continuum of care delivery**
 - Improve health outcomes, access, quality, safety, cost-effectiveness, sustainability, productivity
- **Improved utilization of health care providers (i.e. working to full scope of practice)**
 - Application of knowledge & skills people educated, regulated & competent to perform
 - Improve worklife satisfaction, recruitment, retention

Where do we start?

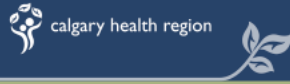
- **Evidence informed approach**
 - Apply findings from research, evaluation, experience
 - Establish and test new collaborative service delivery models
- **Guided by a set of principles**
 - Population needs driven, across continuum of care
 - Optimal utilization of knowledge and skills of all providers
 - Staffing and staff mix models linked to intended outcomes
 - Patient/population, provider and system levels
 - Evidence informed decisions, context specific
- **Supported with appropriate resources**
- **Assessed through ongoing, rigorous evaluation**
- **Iterative process of continuous refinement**
 - Phased approach, series of inter-dependent initiatives
 - Consistent approach to change management
 - “action research” as basis for learning

Evidence from Research

Population/Patient Needs Driven

- **Focus on patient characteristics**
 - **What are the risk factors associated with different types of patient populations?**
 - E.g. age, socio-economic status, ethnicity
 - LOS, re-admission within 90 days of discharge
 - Post admission co-morbidities, complications
 - **What monitoring/surveillance is needed to mitigate potential risks?**
 - By whom, over what period of time, etc.
- **Shift from disease (only) to person & family oriented care**

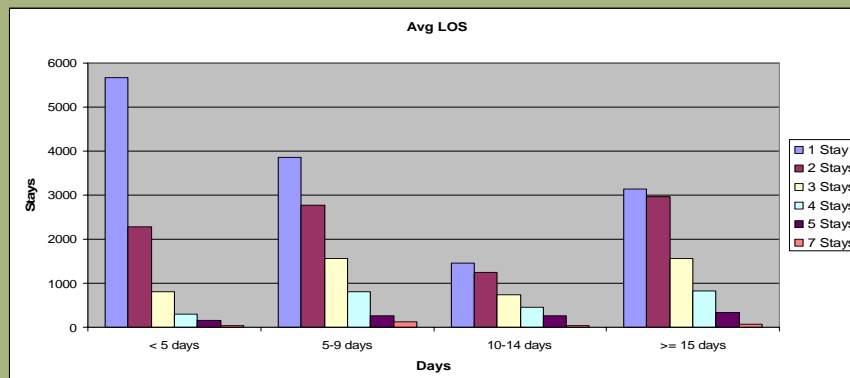
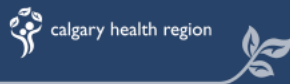
Why does that matter?



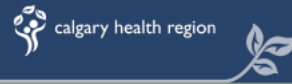
Seniors as an Example

- **1 in 8 has adequate “health literacy skills”**
 - **Inability to properly make daily decisions about own health**
 - **Hinders ability to access, understand and use health information**
 - **Low health literacy linked to poorer health**
 - **More likely to have chronic health problems**
 - **More difficulty coping with health care system**
 - **Need more medications than average adults**
- **Health system needs to be sensitive to**
 - **Languages, culture, literacy levels to meet health needs**
 - **Source: Canadian Council on Learning, 2003**

Population/Patients: Examples (continued)



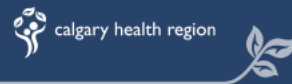
Population/Patients: Examples (continued)



Overview of the Population on One Medical Unit

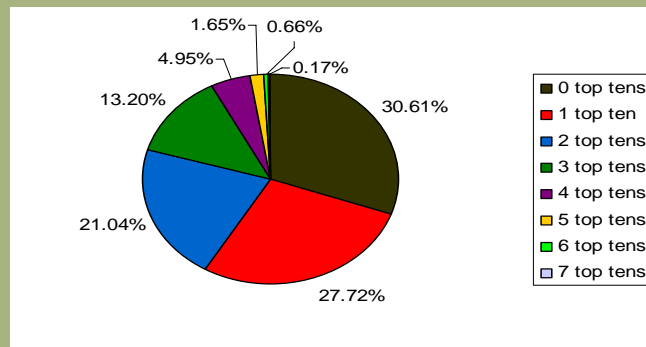
- **~ 70% of patients d/c during the year clustered into 10 or fewer ICD-10 codes**
 - Anemia, Atrial Fibrillation, COPD, Dementia, Diabetes, Heart Failure, Hypertension, Neoplasms, Pneumonia & Urinary Dx.
- **Many patients have multiple co-morbidities**
- **63% over 70 years of age**
 - Consistent with data from Seniors Health strategic plan
- **Majority discharged with no formal support**
 - 26.3% with referral to Home Care, etc.
- **Median LOS 6.1 days, Average LOS 10.7 days**

A Few Facts About Diagnoses



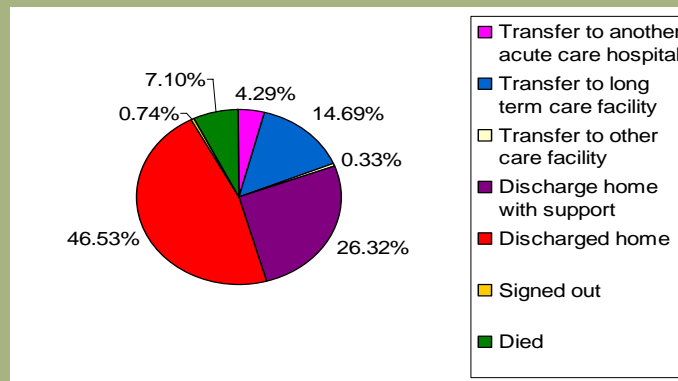
Of 1200 discharges, about 70% of patients have at least one of the “top ten” Diagnoses that characterize the unit

(i.e. Anemia, Atrial Fibrillation, COPD, Dementia, Diabetes, Heart Failure, Hypertension, Neoplasms, Pneumonia & Urinary)



Discharge Status

A majority of patients return to their own home



Optimal Utilization of Personnel

**What have we learned about providers:
Utilization, satisfaction, perceptions?**

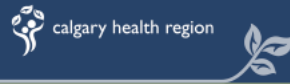
Professional roles:

- **Role ambiguity and confusion within nursing and across professions**
 - Gaps between optimal and actual practice endemic
 - In part related to pre-regionalization differences in practices/policies and to lack of evidence base for practice
(Sources: Clinical Nutrition Review; Scope of Practice and Interprofessional research)
- **Roles = Sum of tasks/activities performed**
 - Overlap in tasks across professions contributes to frustration, confusion, tension
- **Optimal Utilization (“working to full scope”)**
 - Only 50% of RNs, 73% RPNs, 20% LPNs report working to full scope
 - Majority of PCMs and specialized nurses feel RNs, LPNs **NOT** working to full scope
 - Stereotyping contributes to sub-optimal utilization
(Source: Scope of Practice research – 2005)

RN role as one exemplar:

- **Key clinical role functions of RNs**
 - **Comprehensive assessment, planning, intervention & evaluation**
 - Monitoring/surveillance
 - Patient and family teaching and support
 - Coordination of care

Role Effectiveness (cont'd)

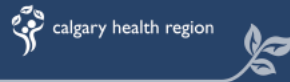


Focus of client assessments:

- **primarily bio-medical/physical – RNs/LPNs**
 - RNs say psychosocial assessments not valued by colleagues or employers
 - Lack of time noted as contributing to almost singular focus on physical aspects of care
- **Psycho-social – RPNs**
 - Little focus on bio-medical aspects of care

“Source: Nursing Scope of Practice research. 2005)

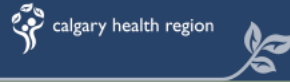
Job Redesign Research



RNs spend

- ~ 35.5% of time in direct care activities
 - E.g. ADL/personal care (12.4%), biomedical assessment (6.5%); medication administration / treatments (10.2%), engagement (1.4%), mobilization (0.6%)
 - Patient and family assessment /teaching /support (4.4%)
 - Much of this within scope of practice of LPNs and others
- ~ 19.4% of time in charting, reviewing information
- ~ 15.7% in care coordination
- ~ 12% in indirect care
 - E.g. administration (3.3%), hand washing (1%), reorganizing unit (4.6%)
- 12.4% “in flight” (i.e. travel)
 - Interruptions often occur while ‘in flight’ and are primarily by nursing colleagues
 - May be associated with higher risk of medical errors

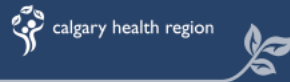
Findings from Job Redesign Research (continued)



Identified areas for optimizing roles

- **Staff involvement in change**
- **Population focused, needs based staffing**
- **Priorities identified:**
 - **Role Accountability**
 - *role clarification & role enactment*
 - **Unit and System processes**
 - *Service delivery model absolutely critical*
 - **Space & Technology**
 - *Equipment, geography, etc.*

The Process of Care Delivery



What are some of the issues?

Efficient Utilization of Staff



Themes emerging from Research

- **Duplication**
 - data collection (e.g. assessment data); data entry (e.g. multiple forms & data entry)
 - Fragmentation across continuum of care
- **Information flow**
 - Lag time in data entry, data retrieval
 - Content of messages, information overload (too much unimportant, irrelevant data)
 - Lack of integration b/w institutional and community services
- **Time Pressures**
- **Team cohesion (some integrated, cohesive; others not)**
 - Need for clear mandates and priorities
- **Gatekeepers, information hubs (contribute to fragmentation, delays in care)**
- **Resource limitations (e.g. SLPs, pharmacists, SW)**
- **Lack of comprehensive client assessments (focus on bio-medical)**
 - Need to focus on patient versus provider needs

(Sources: Scope of Practice, Process Mapping, Interprofessional research, Clinical Nutrition Review)

The Importance of Context

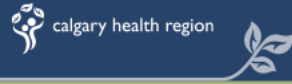


Barriers to Optimal Workforce Utilization

- **Poor interprofessional relationships**
- **Lack of data about allied health professional roles**
 - Research to date primarily within nursing
- **Perceived lack of professional autonomy**
- **De-valuing of own & other professional roles, power struggles**
- **Lack of trust among team members**
- **Lack of involvement of all team members in decisions about work redesign**
- **Work environment**
 - Time, workloads, patient acuity, lack of organizational supports, lack of access to continuing education, space/physical layout, administrative structures, leadership

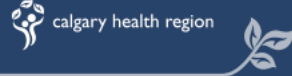
(Source: Scope of Practice 2005; Interprofessional research 2006)

Are we achieving intended outcomes?



Evidence related to Patient, Provider and System Outcomes

Predictors of Re-hospitalization (within 90 days)

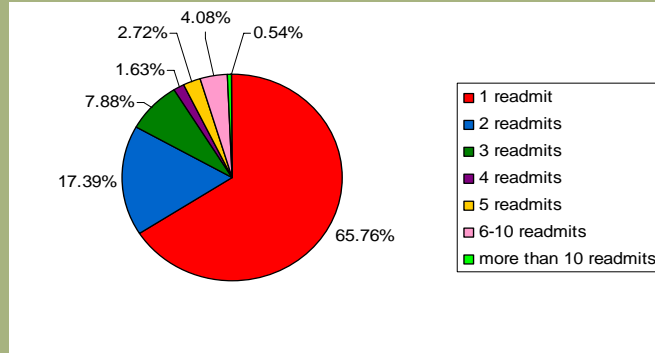


- ***Lack of adequate support (social, financial, familial)***
- ***Premature discharge from hospital***
- ***Non-adherence with medication (lack of knowledge about)***
- ***Non-adherence with follow up procedures or instruction***
- ***Substance abuse***
- ***Homelessness***
- ***Events external to patient's control***
- ***Limited control over dietary restrictions or activity level***
- ***Delay in seeking treatment at first sign of recurring symptoms***
 - *(Anthony, Chetty, Kartha et al. Advances in Patient Safety, Vol. 2., 2005)*
- ***Most of these predictors associated with comprehensive assessment by RNs and others***
 - ***Suggests we could prevent some readmissions by focusing on improving assessment at the time of admission***

Readmission / ED Visits (one medical unit)

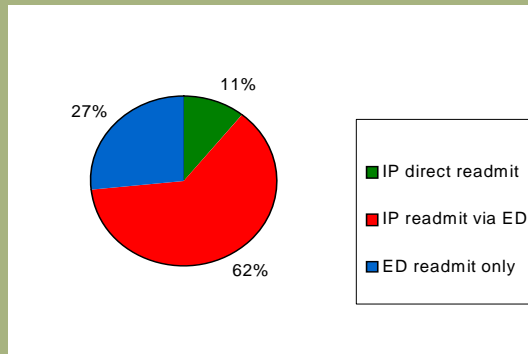
31% of patients are returning within 90 days

- 368 patients represented 659 "readmissions"
- *** 44% of those within the top 10 cluster of diagnoses are returning within 90 days (median 28 days)



Type of Readmission

A majority of in-patients are re-admitted through ED



Assessing Co-morbidities

- **Type 2 (Post admission co-morbidities)**
 - *Complications of procedures, disorders of circulatory system, disorders of urinary system, respiratory disorders, fluid/electrolyte imbalance, MI, pneumonitis, Acute renal failure, pneumonia*
 - *Many fall within “failure to rescue” basket of complications*
- **Potentially associated with monitoring and surveillance?**
 - *Relationship between nursing surveillance and patient safety*
 - *Need to consider in view of staffing models, staff fatigue, etc.*

What do Patients Say?

Key Themes:

1. **Social Support** *(from family, friends, providers)*
 - *Contributes to ability to cope, less utilization of services*
2. **System Navigation**
 - *Depends on previous experience with system, relationships with & genuineness of providers. Communication & caring are key enablers*
 - *Lack of continuity between acute care and primary care*
3. **Access to Services**
 - *Facilitated by inclusion of client/family in discharge planning, communication among providers*
 - *Patients generally do not know what they don't know; providers need to anticipate needs & issues*
 - *Social isolation common among elderly, complex chronic patients*
 - *providers must increase assessment of risk factors*

(Source: Patient Journey Study - 2007)

Summary of data from 7 Units (3 Adult Hospitals)

On average, over 2005/06 fiscal year

- 81% of time worked as regular hours
- 13.4% worked as Overtime
- 5.6% hours paid as sick time
 - OT + Sick Time = 3.05 FTE for every 24 hours worked
 - Contributes to burnout, fatigue of current staff
 - Affects productivity
 - May lead to patient safety errors

- **Job satisfaction, work environment and absenteeism**
 - *Low job satisfaction, lack of respect in workplace associated with higher rates of absenteeism*
 - *Organizational climate/ work environment linked to satisfaction and absenteeism*
 - *High absenteeism linked to workload, overtime, cost*
 - *Indirectly related to staff morale and work related stress*
 - *Absenteeism highly correlated with turnover, early warning sign of retention problems*
 - *Nurses dissatisfied with jobs have higher rate of absenteeism*
 - *25.9 days absent for those dissatisfied; 12.9 days higher satisfaction*
 - *Increases with age (22.4 days absent < 40+ yrs; 31.7 days 55+ years)*
 - *Feeling respected by supervisors, colleagues associated with lower rates of absenteeism*
 - *Highest rates of absenteeism in LTC (36.8 days), then community (33.4 days) and hospitals (27.7 days)*

Source: *National Survey of the Work & Health of Nurses (CIHI, 2005)*

Capacity Issues

- ***Impact of 65+ population***
 - ***9% of Calgary population, 42% of bed days***
 - *(Source: Seniors Health Strategic Plan)*
 - ***2,500 people age 65+ have 3 or more hospital stays over a 365 day period***
 - ***11.9% of all seniors with IP admission over 365 days***
 - ***27.9% of IP stays***
 - ***27.2% of bed days***
 - ***People 65+ with 3 or more stays = 125,246 bed days***
 - ***2,137 admitted as urgent, emergent patients***
 - *Account for 125,236 bed days*

- ***Clarify roles, establish clear vision for health system and workforce optimization***
 - ***Sustainable workforce strategy to meet current & future needs***
- ***(Re) educate staff for interprofessional practice***
- ***Establish new service delivery models and monitor impact***

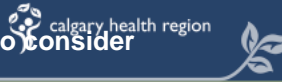
Collaborative Practice

Collaborative practice is a patient and family centered process for communication and decision-making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client / patient care provided. It is designed to promote the active participation of several care providers. It enhances patient, family and community-centered goals and values, provides mechanisms for continuous communication among health care providers, optimizes client / family and staff (within and across disciplines) participation in clinical decision-making and fosters respect for the contributions of all members of the team.

Adapted from: (Way, Jones & Busing, Ontario College of Family Physicians, 2000).

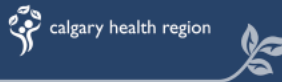
- **Effectiveness & Efficiency: Existing Models**
 - **Total patient care / Primary Nursing** (often all RN staff)
 - Not cost effective, particularly during nursing shortages
 - Waste of skills and time performing work that others could do
 - When RNs/LPNs assigned work “in parallel” – leads to role confusion and tension
 - May result in inappropriate care assignments
 - **Functional care** (tasks assigned to specific worker)
 - Task focused, ritualistic, dependent on rules, policies, protocols, procedures
 - Decreases professional autonomy, narrows role of all providers
 - May lead to boredom and decrease in job satisfaction
 - Leads to fragmentation of care, increase in errors/omissions
 - Decreases attention to psychosocial, spiritual needs
 - Many examples in service delivery currently
 - E.g. Discharge Nurse, Resource Nurse, Nurse-in-charge, etc.

Structural elements: Issues to consider



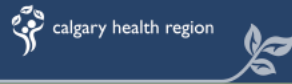
- **Effectiveness & Efficiency: Existing Models**
 - **Team Nursing** (usually led by a team leader)
 - Group of workers with diverse levels of education, skills/abilities deliver care to a group of patients
 - Team leader rarely provides “hands-on” care
 - Assumes accountability and responsibility for outcomes of care
 - Supervises/observes and evaluates team members
 - Emerged in 1950s (nursing shortage; LPNs unregulated)
 - Ineffective when short-staffed because requires more personnel
 - » RN leads the team, but provides no direct care
 - **Case Management** (coordination of care delivery)
 - Case manager may not have a role in direct care delivery
 - Can lead to duplication of service across care continuum
 - Case managers in various settings, but not integrated
 - Patient/family may have more than one Case Manager
 - May also narrow the “assessment, planning, evaluation” functions associated with other professional roles

Collaborative Practice



- **Hybrid of other care delivery models**
 - Shared responsibility & accountability for delivery of care to a group of patients
 - Assignment of tasks/activities negotiated by team members, based on needs of patients and capabilities/experience of team members on shift by shift basis
 - All team members involved in care delivery
 - RN does not “supervise” other providers
 - Optimized role for all interprofessional team members
 - May allow greater flexibility, continuity of care
 - May lead to re-definition of existing positions
 - E.g. Clinical nurse educators, CNS, NPs, discharge planners, etc.
- **Will require**
 - (Re) education of workforce, culture/attitude shift
 - Time for reflection, learning together
 - Leadership support at all levels
 - Effective communication structures and clear role delineation
 - Experimentation with new staff to patient ratios
 - Rigorous evaluation to assess impact on outcomes and on HHR planning and management

Contact Information



Dr Jeanne Besner, RN, PhD

Director, HSWRU

10101 Southport Road SW

Calgary, AB

T2W 3N2

Phone: (403) 943-0181

Email: jeanne.besner@calgaryhealthregion.ca

Web: www.calgaryhealthregion.ca/hswru