

The Healthy Heart Program Model:

A Prototype for Chronic Disease Prevention & Management

Holly Kennedy-Symonds, MHSc

Manager, Health Services

Fraser Health Authority

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Overview

- Background to Healthy Heart Program
- Funding
- Chronic Disease Prevention & Management
- Design & Process
- Program Outcomes
- Published Evidence
- Spotlight on Heart Failure Management

Healthy Heart Program History

- **Strategic Planning 1995:** collaboration of Community Partners & Medical Advisory
- **Partners:** Burnaby Hospital, Health Department, City of Burnaby Parks, Recreation & Cultural Services, Burnaby School Board, Physicians
- **“Seamless Continuity of Care”:** Program designed to operate from several locations based on medical acuity of patients & surveillance requirements

Funding & Development

- **Provincial:** 1995
- **Health Region:** 1996
- **Regional Budget :** \$558,342
- **SFHR 2001 Accreditation:** Healthy Heart Program made significant contribution to achieving SFHR accreditation for cardiac services
- **Program Expansion:** HHP Program developed and operationalized in the Tri-Cities area in 2001 at Eagle Ridge Hospital.

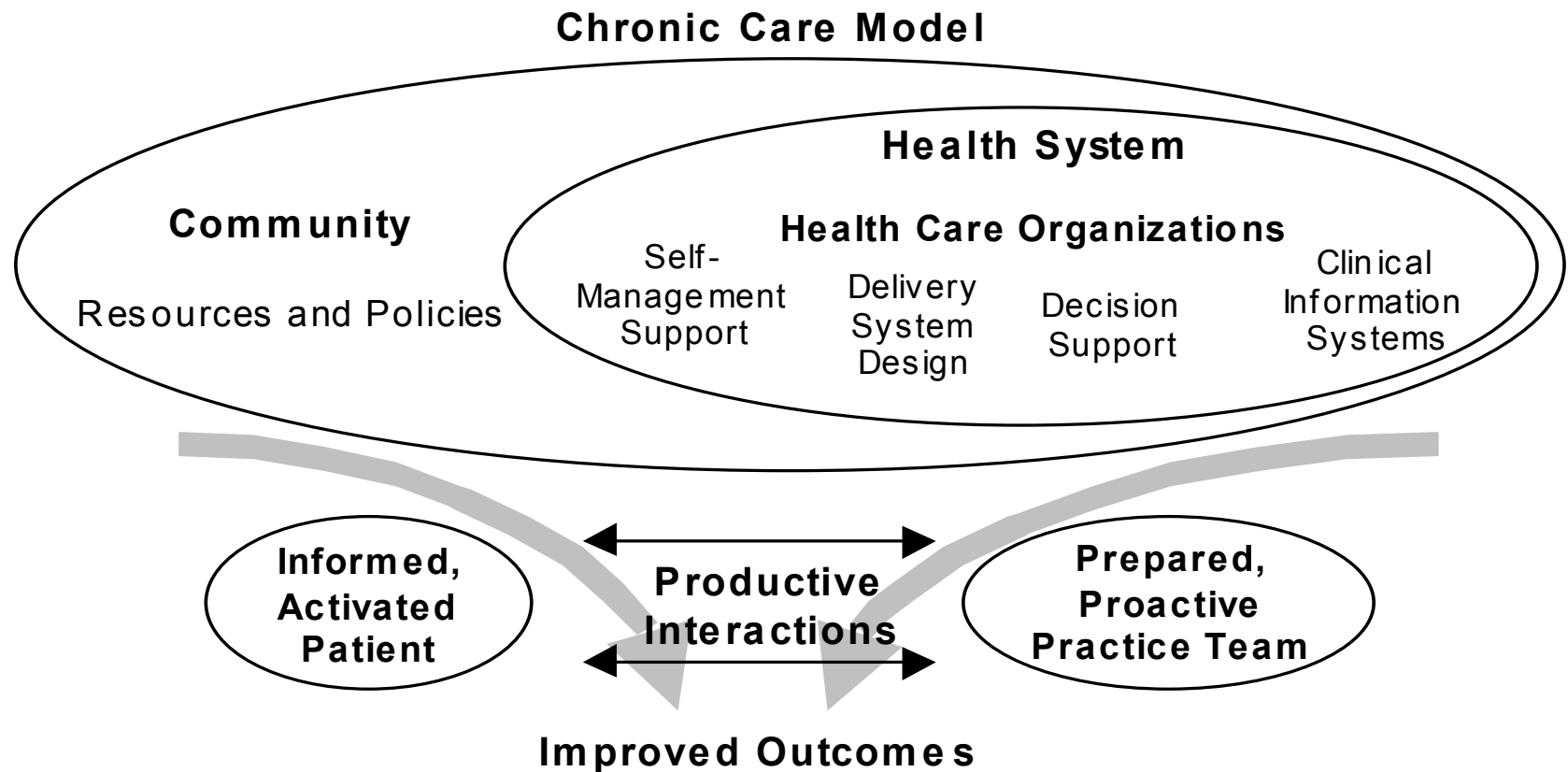
Chronic Care Model

- **Chronic Care Model:** identifies elements of a system that encourages high-quality chronic disease management :
- **the community, the health system, self-management support, delivery system design, decision support and clinical information systems**

(Wagner E, Austin B, Von Korff M. Improving outcomes in chronic illness. *Managed Care Quarterly* 1996; 4(2); 12 -15.)

Improving Outcomes in Chronic Illness

(Wagner E, Austin B, Von Korff M)



Chronic care model builds capacity...

British Medical Journal 2000; 320 (26 February)

- 📄 Research on innovative methods to support people with chronic illness
- 📄 Explicit delegation of tasks for primary care physicians
- 📄 Intensive and systematic patient follow-up
- 📄 Use of multidisciplinary teams to deliver care
- 📄 Effective organization of care and services to achieve health outcomes and lower costs

Self-Management

- **actions** & lifestyle changes undertaken by lay people with participation of professionals
- **decisions** made due to an ongoing health problem to cope and improve health
- **knowledge / skill building** and a support network to facilitate self-care
- **‘Activated patients’** : are informed and willing to take actions to effectively manage their illnesses

Chronic Care Model

- 📄 **Patients:** assessed and responded to with support of guidelines, specialty expertise and information systems
- 📄 **'Productive Interactions'** between patient and health care practitioners
- 📄 **Prototype:** Healthy Heart Program provides the infrastructure for people to receive this model of care

Chronic Disease Prevention & Management

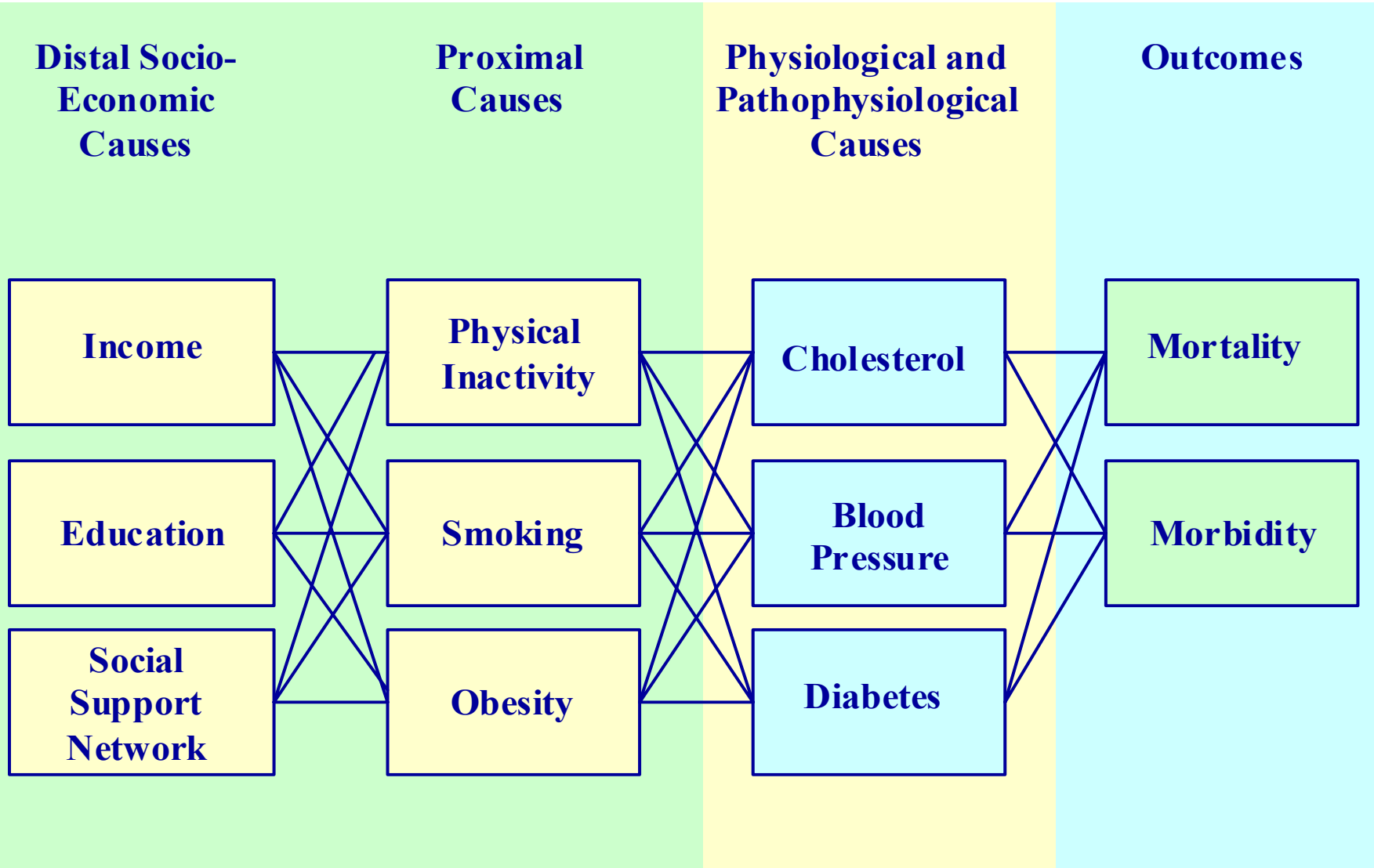
Part One:

○ Cardiovascular risk reduction

- WHO report released by the United Nations health agency suggests a bigger role for multiple risk factor reduction and that the combination of ASA, statins and blood pressure lowering agents can reduce the chance of heart attack or stroke by > 50%. The report recommends Nationwide strategies on reducing salt in processed foods, higher tobacco taxes to discourage smoking, better eating and exercise habits.

- - Canadian Press, 18/10/02 for publication in World Health Report (in press).

Chronic Disease Prevention Model



Examples of Strategies and Approaches

Distal Socio-Economic Causes

- Community Gardens
- Community Kitchens
- Breakfast Programs
- Income Assistance for Recreation
- Policy/Environmental Approaches
- Regulation of Tobacco sales
- Walking Trails
- Walking School Bus

Proximal Causes

- Smoking prevention & cessation in pregnancy programs
- Healthy Eating Cooking Classes
- Walking Programs
- School Prevention Programs

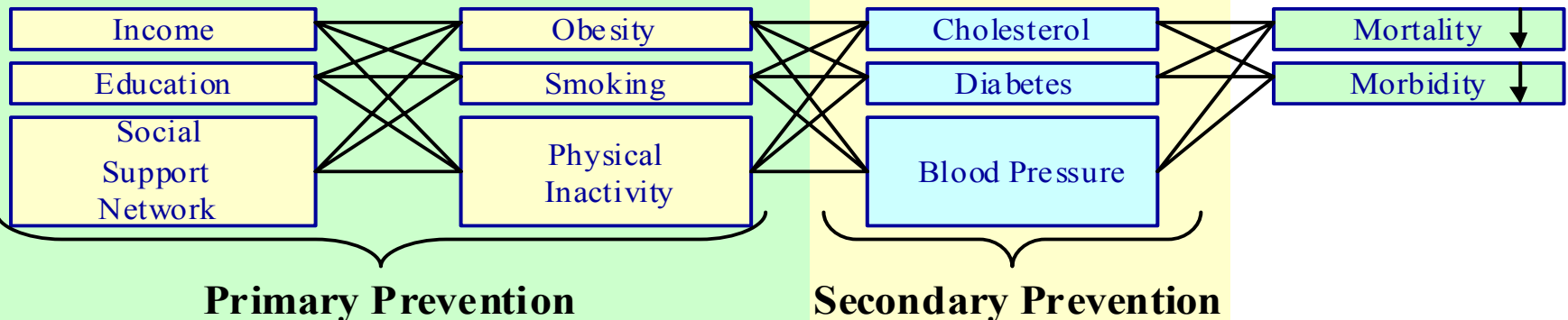
Physiological and Pathophysiological Causes

- High Risk Clinics
- Cardiac/Stroke Rehabilitation
- Diabetes Research
- Screening Identification

Outcomes

- Increased self-efficacy
- Increased knowledge on self-care.
- Increased self rated quality of life.

Examples:



Cardiac Risk Reduction

○ A medically supervised program consists of a case management, interdisciplinary team approach to cardiac risk reduction that involves screening, risk stratification, counselling and education to improve symptom management and reduce:

*high cholesterol

*stress/anger/fear

*sedentary life-style

*medication misuse

*high blood pressure

*obesity

*nicotine dependency

*diabetes

○ This team approach (team includes the consumer) is more effective than any single approach!

○ Program provides an “instant” interdisciplinary team for family physicians to use as an extension of their practice.

Cardiac Rehabilitation & Chronic Disease Management

✉ there is sufficient scientific evidence on the multifactorial benefits of cardiac rehabilitation on cardiovascular morbidity and mortality to consider it standard usual care for all patients with documented cardiovascular disease. Grade A, Level 22 evidence.

✉ Consistent with Health Canada recommendations, there is scientific evidence of the cost effectiveness of cardiac rehabilitation programs to support their inclusion as part of standard care for the majority of patients with heart disease. Grade B, Level 1 evidence.

✉ Can J Cardiol. Vol. 17, Suppl.B, June 2001.

Levels of Evidence Ranking

Levels of Evidence Ranking & References:

Category/Grade	Definition of Each Recommendation.
A	Good evidence to support recommendation for use. Evidence sufficient for universal use.
B	Evidence acceptable for widespread use.
C	Evidence insufficient to recommend for or against use.
D	Evidence acceptable to recommend against use.
E	Evidence sufficient to recommend prohibition.

Levels	Quality of Evidence on which Recommendations are made
I	Evidence from at least one randomized controlled trial.
II	Evidence from a least one well designed non-random trial, cohort or case controlled, multiple time series or more than one center.
III	Evidence from opinions of respected authorities on the basis of extensive clinical experience, descriptive studies or reports of expert committees.

References:

MacPherson DW. Evidence-Based Medicine. CMAJ 1995; 152 (2).

Sackett DL. CHEST 1986; 89: 2S-3S.

Sackett DL. Rules of evidence and clinical recommendations. CanJCard. 1993;9:487-489.

Cook DJ, Guyatt, GH, et. al. CHEST, 1992, 102;305S-311S.

Sackett DL CHEST, 1989, 95; 2S-4S.

Prevention and Cardiovascular Disease: The Role of the Cardiovascular Specialist. CCS Consensus Conference 1998.

Features of Healthy Heart Program Design

- Medically supervised
- Case Management
- Evidence-Based Risk Factor Reduction
- **Primary & Secondary Prevention**: weight management, smoking cessation, stress management, exercise therapy, heart failure clinic
- **Multidisciplinary Team**: Dietitian, Cardiac Nurse, Exercise Therapist, Pharmacist, Family MD, Specialist MD

Healthy Heart Program Design & Process

- **Intake Assessment:** MD, RN, RDN & Pharmacist
- **Program Plan:** individualized education contract on risk reduction
- **Group visits :** education, exercise training, stress management, smoking cessation, weight management
- **Visits:** Average 12,000 recurring visits per year at all program sites
- **Staffing:** Managed by 8.0 FTE

Healthy Heart Program Design & Process

- **Intake clinic:** Patients triaged to return to clinic, receive telephone follow-up, enter high risk program (hospital based), community program or home program
- **Outcomes:** contracted with patient at intake clinic and followed by RN case manager
- **Self-management groups:** Graduates have option to join in several community locations

Healthy Heart Program Outcomes

- **Survey 2002** : 91% rated the program as $\geq 8/10$ in satisfaction (n =100)
- **Pre-test / post-test** improved significantly on 100 randomly selected patients:
 - knowledge $p < 0.001$
 - quality of life $p < 0.001$
 - self-efficacy $p < 0.001$
- **Goal to assess impact of:**
 - attainment of risk factor goals on patients
 - decreased utilization of acute health care services

Self-Reported Self-Care Behaviours:

- “Group support keeps me on track with exercise & lifestyle changes, now I exercise regularly and get a call if I miss a class”
- “Social support helps me exercise more”
- “More confidence & understanding of health concepts and what to ask my doctor”
- “I now ask my doctor when my next lipid test and stress test are due”
- “More aware of monitoring my own health, food intake, exercise level”
- “I’m also a member of other Parks & Recreation Programs”

“How I think Self-Care Helps People”

- “Helps with depression, loneliness & isolation”
- “Can’t keep up with regular gym and would drop out – need this support from peers with similar health problems”
- “Even drop-outs have come back after trying exercise on their own”
- “Creation of a family atmosphere”
- “Continuity between the program leaders makes big difference – clients are familiar with their leaders”
- “Introduction into the program and invitations to breakfast after class prevents clique formation”

The Evidence to Support Chronic Disease Management: **Case Management Enhances Positive Outcomes**

SCRIP Trial n = 300

Haskell Circulation 1994

- **Randomized trial:** Patients with angiographically defined CAD were randomized to usual care or multiple risk factor reduction consisting of an individualized program:
 - low fat, low cholesterol diet
 - exercise
 - weight loss
 - smoking cessation
 - medications for lipid management

The Evidence:

Case Management Enhances Outcomes

SCRIP Trial n = 300

Haskell *Circulation* 1994

- **Hypothesis:** intensive risk factor reduction (4 years) to reduce the rate of progression of atherosclerosis in coronary arteries.
 - **Results in Intervention Group:**
 - Rate of narrowing: - 47%
 - Exercise capacity: + 20%
 - Body Weight: - 4%
 - Hospitalizations:
 - Risk Reduction Group: - 25
 - Usual Care Group: - 44
 - Lipids:
 - LDL and apo B: - 22%
 - HDL : + 12%
 - Tg: - 20%

The Evidence:

Case Management Enhances Outcomes

Coronary Risk Factor Modification after Acute MI: The MULTIFIT Trial n = 585 DeBusk, *Ann Int Med.*, 120, 1994.

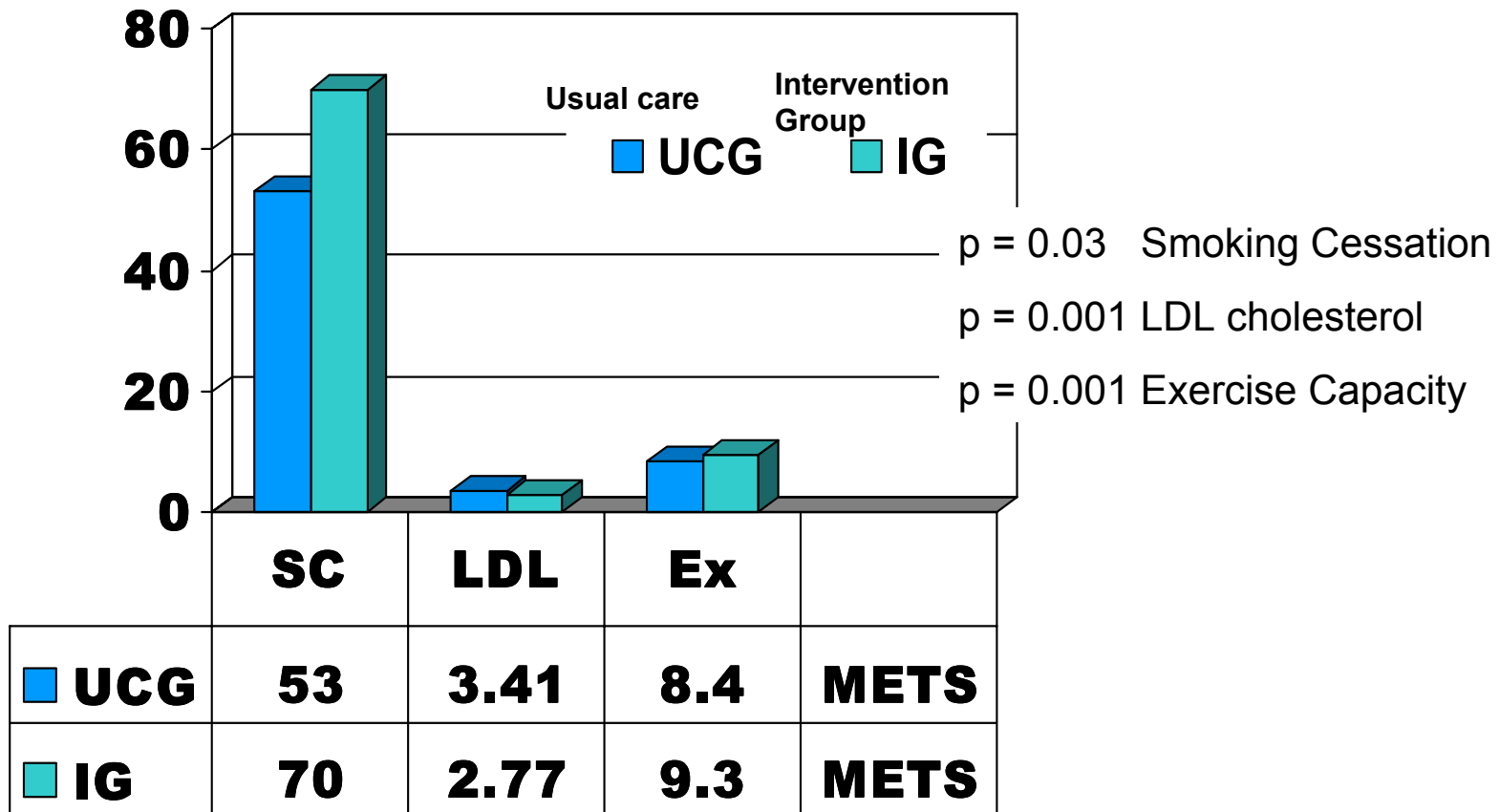
- **Randomized trial:** evaluate efficacy of a physician directed, nurse managed, home-based case management system for coronary risk factor modification
- Specially trained nurses in hospital initiated interventions for smoking cessation, exercise training and diet/drug therapy for hyperlipidemia
- Telephone and mail follow-up contact

The Evidence:

Case Management Enhances Outcomes

MULTIFIT Trial Results

DeBusk, *Ann Int Med.*, 120, 1994. (n= 585)

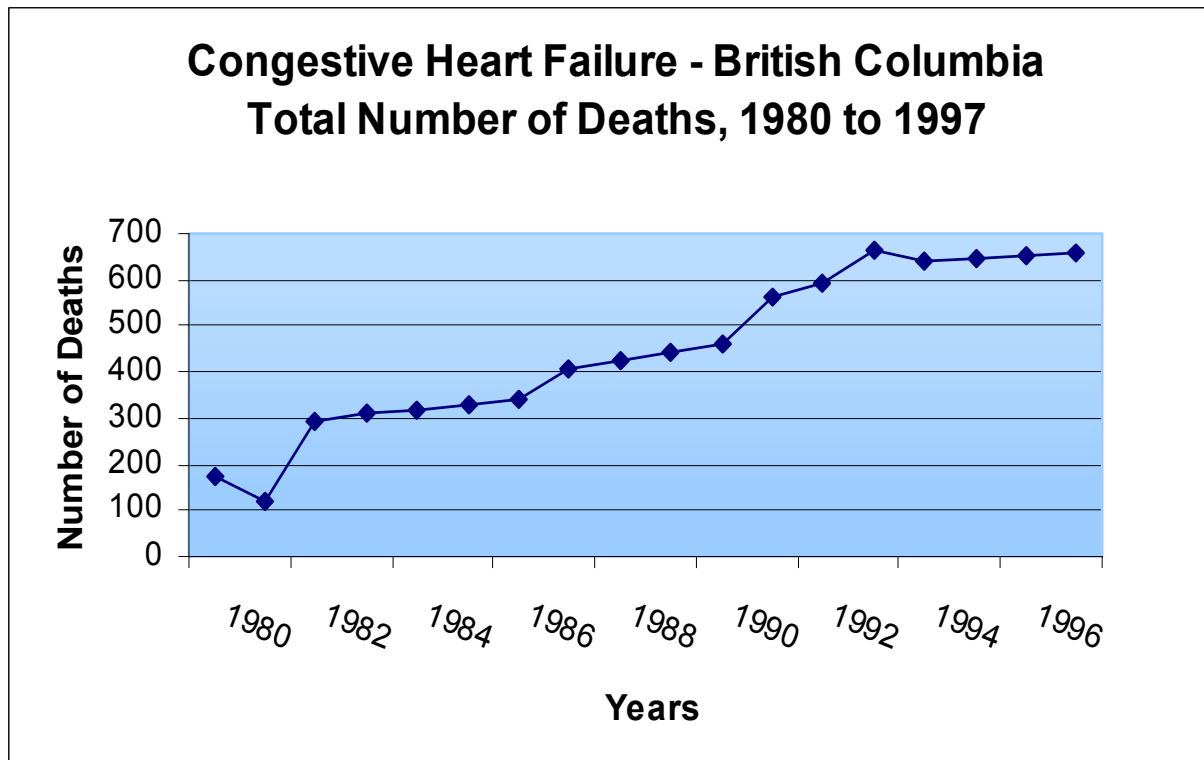


Chronic Disease Management

Part 2:

- ◉ Spotlight on heart failure management.

The prevalence of Heart Failure



Source: Health Canada, Cardiovascular Disease Online, <http://cythera.ic.gc.ca>

Why Increased Heart Failure?

- Number of persons with chronic illness is growing at an unprecedented rate due to:
 - aging population
 - lifestyle habits: increased incidence of obesity, smoking, lack of exercise
 - greater longevity of persons with many chronic conditions
- Burnaby has the 3rd eldest population after Victoria & White Rock.

The Evidence: Comprehensive Management of CHF

West et al, *Am J of Card* 1997; 79; 58 - 63.

- **System of Mgmt of Heart Failure improved:**
 - **clinical outcomes**
 - **reduced medical resource utilization**
- **Evaluation of:** MD supervised RN managed home based system for CHF management
- **Implementation of consensus guidelines:** for pharmacologic and dietary therapy
- **Clinical status:** monitored by frequent telephone contact

The Evidence: Comprehensive Management of CHF

West et al *Am J of Card* 1997; 79; 58 - 63.

- **Objectives:**
 - Promotion of **optimal doses** of ACE or other Rx; daily Na intake < 2 gm as defined by consensus guidelines
 - Promotion of **Surveillance for:**
 - symptoms, signs and lab evidence of worsening CHF
 - appropriate / efficient triage of unstable patients

The Evidence:

Comprehensive Management of CHF Results

West et al *Am J of Card* 1997; 79; 58 - 63.

Prospective cohort (n=51) compared with 6 months prior to enrolment

- Daily dietary Na⁺ intake decreased by 38% (p =0.0001)
- Average daily medication doses increased (p = 0.001)
- Functional status & exercise capacity improved (p = 0.01)
- Frequency of ER visits declined 67% (p < 0.001)
- Hospitalization rates fell by 87% (p < 0.001)

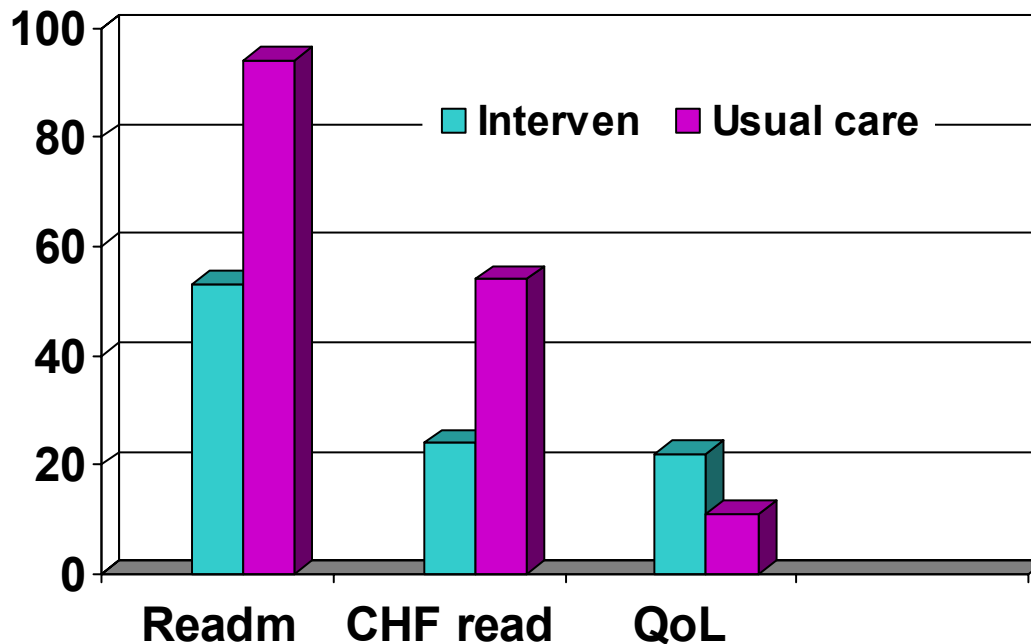
The Evidence :

Rich, NEJM, Vol. 333, 1995

- Randomized trial (n= 282)
 - **nurse directed**
 - **multidisciplinary intervention**
 - **education for CHF management for client and family**
- Age > 70 years who had been hospitalized with diagnosis of CHF

The Evidence : Research Supports Local Findings

Rich. *NEJM*, Vol. 333, 1995



Readm: $p = 0.02$

CHF readm: $p = 0.04$

QoL $p = 0.001$

Cost of care = \$460 < usual care

Outcomes: Heart Function Clinic Burnaby Hospital

- **Heart Function Clinic Review** on 54 patients in two Burnaby clinics
- **Data collection:** one year prior to clinic, during clinic and one year post clinic
 - Average age: 71 years
 - Average patient visit: 6 visits
 - Average heart ejection fraction improvement: + 8%

Outcomes: Heart Function Clinic

(West et. al. 1997, *Am J of Card.*, 79, p. 58 – 63)

- Average decrease in ER visits: - 80%
- Average decrease in hospital admissions: - 80%
- LOS related to CVD admissions: - 29 days - 85%
- **BH outcomes** are similar to research findings:
 - Frequency of ER visits - **67%** ($p < 0.001$)
 - Hospitalization rates - **87%** ($p < 0.001$)

Estimate of Cost Savings: HFC @ Burnaby n= 54

- cost savings estimated to be = \$28,565.00 on 54 people
- based on:
 - **straight per diem rate (\$985)**
 - **with no additional costs related to diagnostic work-up**
- actual cost estimate requires per diem rate saved plus calculated costs for diagnostic tests etc.

Potential Cost Savings in Fraser North (FHA):

- **CHF Admissions: Fraser North (Y2000) of FHA:**

- BH - 321 cases - 3,074 days, 54 readmissions on 267 patients
- RCH- 368 cases - 2,850 days, 47 readmissions on 321 patients
- RMH-103 cases - 1,171 days, 16 readmissions on 87 patients
- ERH - 82 cases - 816 days, 11 readmissions on 71 patients

Potential Cost Savings

- Need to determine:
 - **Heart Failure admissions**
 - **LOS**
 - **Re-admissions from other acute care hospitals in FHA**
- Rationale to plan expansion of Healthy Heart Program including HFC across FHA

Conclusions

- **Scientific evidence supports the Healthy Heart Program approach to risk factor reduction, chronic disease prevention and management.**
- **Scientific evidence** supports the nurse case management model as effective care process. “where the role of the nurse was enhanced, this led to **improved patient outcomes**” and **support of self-care practices.**

References:

- Diabetes Care 2001, Oct 24 (10): 1821-33
- Rich et. al. *NEJM*, 1995, (333):1190-1195
- Rich MW, *Am J Geriatr Cardiol*. 1999 Mar 8 (2); 72-79
- Rich MW, *Heart Fail Rev* 2002, Jan 1:89-97

Next Steps ?

- Focus groups
- Business Plan Review
- Integration with diabetes education centers for multiple risk factor reduction
- Integration with primary care
- Development of cardiac registry, clinical information systems
- Determination of service locations within FHA