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Background

- Acute care hospitals were originally designed as charitable institutions and therefore evolved around the needs of health practitioners.¹
- “At the heart of the challenge is transforming a 19th century craft-oriented delivery system to provide 21st century biomedical science and technology.”²

This report covers a broad collection of literature and evidence around health services delivery.

Some of the literature summarized is highlighted using shaded boxes – these emphasize evidence from systematic reviews.

Each section concludes with a “Bottom line” subsection, labeled as such, that provides a cursory statement summarizing the studies that have been found.

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1. Overview of Canadian Health Services

- In 2009, Canada ranks 23 overall out of 32 countries on the Euro-Canada Health Consumer Index (below Slovakia and above Malta);

- On the more specific “Bang-for-Buck” index, Canada comes dead last.³
- Access to health care in Canada is a significant problem compared against European countries with similar public health systems.⁴
- Canada has a very high hospital occupancy rate at 91%.⁵
- It is estimated that 25-30% of acute care beds in hospitals are occupied by those who require around-the clock supervised care, not medical care;
- Insufficient use of long-term care facilities and universal insurance to cover their costs are indicated as just two problems that translate into hospital overcrowding, reduced access and increased wait times for Canadian health care services.⁶
- Chronic disease is not efficiently managed.

Bottom Line: Canada ranks poorly in international healthcare indices, below other less-developed nations; Canada’s hospital occupancy rate is needlessly high and many inpatients could be managed out of hospital.

2. Which solutions have been put forward?

a. Conceptual Solutions: Patient-centered care

- A vision of hospitals in the future sees “The patient will be the focus of an efficient information flow, streamlining patient care in hospital and enhancing communication between hospitals and community-based health providers.”⁷
- “Hospitals will increasingly develop systems based on patient needs... Community-based healthcare, including GPs, will provide most healthcare. Hospitals will treat fewer patients who are increasingly ill. Acute-care hospitals will become more specialised in their function...”¹
- Health systems in the US have demonstrated reforms toward patient-centered care by:
 - Understanding the importance of leadership;
 - Implementing strategic vision;
 - Involving patients and families;
 - Supporting health care workers;
 - Building in accountability;
 - Improving health care facilities.⁸

Health Services Delivery: Integrated or Vertical?

- Integrated, rather than vertical, health services delivery is generally favoured in the research literature.⁹
- Integration has been defined as “services, providers, and organizations from across the continuum working together so that services are complementary, coordinated, in a seamless unified system, with continuity for the client”¹⁰.
- A UK-based study challenges naïve acceptance of health services integration in the absence of a solid evidence-base to support its uptake. Authors emphasize the goals of integration and conclude that ideally, decision and policy makers use “integration as a means to an end and never an end in itself.”¹¹
- One study finds that integrated care systems often do not improve the financial “bottom line” and that vertical strategies are sometimes more effective e.g. when partners involved are large and dominant in a region.¹²
- “... vertical programmes may be desirable as a temporary measure if the health system (and primary care) is weak; if a rapid response is needed; to gain economies of scale; to address the needs of target groups that are difficult to reach; to deliver certain very complex services when a highly skilled workforce is needed. In practice, most health services combine vertical and integrated elements, with varying degrees of balance between them.”¹³

Integrated Health Services Delivery

Health Systems Integration – state of the evidence: a 2009 systematic review¹⁴

- Authors’ findings conclude: “Healthcare is likely too complex for a one-size-fits-all integration solution. It is important for decision makers and planners to choose a set of complementary models, structures and processes to create an integrated health system that fits the needs of the population across the continuum of care.”

Frameworks of Integrated Care: a 2008 systematic review

- A Canadian Policy Research Networks (CPRN) systematic review of models and frameworks for integrated care concludes that: “No single element of integrated models of care has been shown to be effective in and of itself.”¹⁵

- Evaluation of an integrated, community-based health centre in Calgary finds that while patients and health providers are satisfied, the goal of clinical integration has not been achieved.¹⁶
- The Finnish experience with primary care integration has enjoyed some successes, but endured significant challenges around ensuring patients have reasonable access to care.¹⁷

Continuum of Care

- Both the CMA and OMA have called for a “continuum of care” to handle the Canadian health care crisis – part of this concept is a move from acute to community and primary care.^{6, 18}

Bottom Line: Several conceptual solutions to improve health services delivery have been put forward: patient-centered care models, integrated care systems and health services as a continuum of care. Evidence on which model is “best” remains limited. A combination of different models, tailored to individual circumstances, is probably most appropriate.

b. Practical Solutions: Shifting care from hospitals to the community

- Ambulatory care has increased significantly in the past 25 years as advances in health technology have reduced the need for inpatient treatment.¹⁹

How will shifting health services from hospitals to the community impact quality and efficiency?

Shifting Health Services from Hospital to Community: a 2007 systematic review of 119 Studies²⁰

- Patient health outcomes, cost savings to health systems and workloads for health professionals were not improved by shifting health services from hospitals to the community.
- Access to care and reduction of wait times for patients were improved.
- Authors conclude: “...shifting care from hospitals to the community is a plausible strategy for improving patient access to specialist care but risks reducing quality and increasing cost.”

Home Treatment of Newly Diagnosed Type 1 Diabetes in Children: a 2007 systematic review of 7 studies²¹

- A 2007 review concludes that, while evidence is yet limited and of poor quality, home treatment is not disadvantageous in terms of health outcomes, cost and hospitalization.

- Below, a framework taken from an article on the potential to expand community health services.

Figure 1 "Shifting care from hospital to community: potential for change"²²

Pathway	Initial appointment		Diagnosis		Treatment				Follow-up	
Area	GP/ other	Outpatients	Simple tests	Complex tests	Non-surgical	Outpatients	Day case	Inpatient	Step-down care	Outpatient follow-up
Rationale	<ul style="list-style-type: none"> • Self-referral possible in some areas, for example infertility • A&E remains in acute setting 	<ul style="list-style-type: none"> • Good potential where equipment and specialist knowledge allows, but not huge volume 	<ul style="list-style-type: none"> • Subject to separate review 		<ul style="list-style-type: none"> • Most takes place outside acute setting, for example pharmacy 	<ul style="list-style-type: none"> • Significant potential to devolve outpatient treatment, some already in train 	<ul style="list-style-type: none"> • Large potential to devolve, for example hernia 	<ul style="list-style-type: none"> • Inpatient remains largely in acute, especially where general anaesthetic required 	<ul style="list-style-type: none"> • Large potential to devolve to a community hospital setting 	<ul style="list-style-type: none"> • Large potential to devolve closer to home

Potential to provide additional activity in community setting:

= large
 = some
 = limited

Will shifting services from hospitals to community care improve patient and/or physician satisfaction?

Home-like birth settings vs. hospitals: a 2005 systematic review of 6 trials²³

- The review found "...home-like settings for childbirth are associated with modest benefits, including reduced medical interventions and increased maternal satisfaction."

- The Capital Health system in Alberta has developed Primary Care Networks (PCNs) to manage chronic disease resulting in reduced wait times for patients with chronic disease and improved patient and physician satisfaction.²⁴

Advanced home health care and home rehabilitation: a 1999 systematic review of 95 studies²⁵

- For palliative care and the care of children, both patients and their caregivers were more satisfied with in-home care.

Will shifting services from hospitals to communities and/or the home be safe for patients?

- A Quebec study examining home chemotherapy reports that "...home treatment can be delivered safely, with few serious complications or accidents, although patients must be carefully selected and trained... Evidence is insufficient on effectiveness, cost implications, and the patient's perspective, particularly in comparison with outpatient settings."²⁶

Home vs. inpatient treatment of COPD: a 2004 systematic review of 7 trials²⁷

- "In a systematic review with the primary end points of readmission and death, 'hospital at home' care was found to be as safe as inpatient care. Cost analysis data suggests considerable financial savings with this form of care"

ECG and thrombolysis out-of-hospital: a 2001 systematic review of 11 studies²⁸

- An evaluation of the diagnostic performance of out-of-hospital ECG and thrombolysis concludes that: "Out-of-hospital ECG has excellent diagnostic performance for AMI and very good performance for ACI. Out-of hospital thrombolysis achieves time savings and improves short-term mortality, but the effect on long-term mortality is unknown."

Will shifting services from hospitals to community care be cost effective?

Cost-effectiveness of home care: a 2003 systematic review of 11 Studies²⁹

- While the cost-effectiveness of home care versus long-term care was inconclusive, "When compared to patient stays in acute care hospitals, home care is almost always a more cost-effective alternative."
- **The caveat:** studies often fail to account for the hard-to-calculate costs of home care e.g. family carers, trips to clinics, etc.

- A 2008 study examining inpatients' need for acute care concludes that: "... a substantial portion of care in acute care settings could potentially be provided less expensively in other settings."³⁰

Admission avoidance hospital-at-home: a 2008 systematic review of 10 studies³¹

- Authors tenuously conclude: "With respect to costs, hospital at home services may be less expensive than in hospital care."

Home vs. inpatient treatment of DVT: a 2007 systematic review of 6 trials³²

- This review finds that "...home management [of DVT] is cost effective and preferred by patients."

Health services integration programs for the elderly: a 2003 systematic review³³

- A review of trials from around the world examining integration systems for the elderly concludes that: "Community-based care can impact favourably on rates of institutionalisation and costs. Comprehensive approaches to program restructuring are necessary, as cost-effectiveness depends on characteristics of the system of care. Expansion of successful programmes to achieve widespread use remains a critical challenge."

Early discharge hospital at home: a 2009 systematic review of 26 studies³⁴

- This review compared inpatient hospital care to early discharge hospital-at-home and authors conclude that "... there is little evidence of cost savings to the health care system of discharging patients home early to hospital at home care."

Will shifting services from hospitals to the community reduce the use of hospital services?

- A 2005 US-based study examined whether encouraging use of primary care reduces demand for acute care services and concluded that: "health systems can implement strategies to encourage their members to use more primary care services without driving up physical health costs."³⁵

- The SIPA (Services intégrés pour les personnes âgées en perte d'autonomie) integrated, community-based health services system has been trialed in Quebec and finds that an integrated health service for the elderly in Canada is both feasible and able to "reduce the use and costs of hospital services and nursing homes without increasing overall healthcare costs, reducing quality of care, or increasing the burden on older persons and their relatives."^{36 37}
- Findings from researchers at the Université de Sherbrooke agree: patients in an integrated services delivery network used fewer health services resources.³⁸
- An Australian trial of an integrated care system for the elderly finds that: "A model of care that facilitates access to community health services and provides coordination between existing services reduces hospital demand."³⁹
- A pilot study in the UK evaluated the use of "community matrons" (case managers) for patients with complex and/or long-term health conditions; while the study was limited in time and scope, this model holds hope for reducing demand on acute health services.⁴⁰

Preventive Home Visits to the Elderly: a 2000 systematic review of 15 trials⁴¹

- Of the 7 studies that examined whether preventive home visits reduced admissions to hospital and long term care facilities, only 2 found favourable results;
- "Previous indications that preventive home visits have favourable effects on... the number of hospital admissions were not confirmed by the results of this review."

Will shifting services from hospitals to community care improve access to care for patients?

Primary- and community-based emergency care: a 1998 systematic review of 34 studies⁴²

- "...broadening access to primary care and introducing user charges or other barriers to the hospital accident and emergency (A & E) department can reduce demand for expensive secondary care... employing primary care professionals in the hospital A & E department to treat patients attending with minor illness or injury seems to be a cost-effective method of substituting primary for secondary care resources."

- A 2006 NHS study aimed at identifying strategies to reduce outpatient demands on secondary health care, finds the following strategies have shown effective:
 - discharge of outpatients to primary care vs. hospital care;
 - direct access for GPs to certain in-hospital tests and treatments;
 - structured referral sheets for GPs;
 - educational outreach by specialists.⁴³
- An overview of school-linked health centers concludes that they show promise for improving adolescents' access to health services.⁴⁴

Bottom Line: There are promising, yet modest, indicators that shifting health care from hospitals to the community will be beneficial on some outcomes, but evidence is still needed, particularly around effective implementation.

3. How will shifting care from hospitals to the community change primary care?

Primary care: from 'silos' to team-based care

- Multi-specialty group practices are most closely meeting the challenges to improving health services delivery as outlined by the seminal 2001 report by the Institute of Medicine.⁴⁵
- Multi-disciplinary primary care teams have been proposed as part of an integration strategy designed to improve patient access to care and reduce wait times.⁴⁶
- The federal, provincial and territorial governments of Canada have committed to ensuring that 50% of Canadians have access to primary care teams by 2011; evidence on the effects of teams is limited but mostly positive.⁴⁷

Barriers and Facilitators to Inter-professional Teamwork in Primary and Community Care: *a 2008 systematic review of 10 studies*⁴⁸

- "The complex nature of inter-professional teamworking in primary care meant that despite teamwork being an efficient and productive way of achieving goals and results, several barriers exist that hinder its potential from becoming fully exploited..."
- Some of the main barriers identified to successful inter-professional teams were: large teams with members in various locations; a lack of clearly stated goals; a poor understanding of the role of others on the team; infrequent meetings and an absence of organizational support.

- Some challenges identified to the implementation of multi-specialty group practices in the US have been: a culture of physician autonomy; lack of physician leadership and lack of funds for group formation.⁴⁹
- A 2005 before-after study in Quebec found that family physicians were generally positive about the prospect of working within integrated service delivery networks.⁵⁰

Bottom line: While challenges to their implementation exist, multi-disciplinary primary care teams are a promising solution to managing a shift of health care from hospitals to the community.

4. Canadian innovations in community-based primary care

Saskatchewan's Health Bus

- A 2008 pilot project, the Health Bus is reaching underserved communities e.g. First Nations, immigrants, refugees with basic primary care and access to physicians and additional health services as needed;

Peterborough's Anticoagulation Monitoring Program

- Run by a team of pharmacists at a one-stop location, patients undergo a finger-prick blood test, get results right away and dose adjustments as needed with results sent to the patient's physician – eliminating the need for multiple doctor appointments, trips to the lab and waiting time for results;

Nova Scotia's ANCHOR initiative

- A Novel Approach to Cardiovascular Health by Optimizing Risk Management (ANCHOR) is a research program aimed to improve the cardiovascular health of Atlantic Canadians by using a preventive and integrated approach by identifying patients at risk through primary care practices;

Yukon's Diabetes Collaborative

- The Collaborative has enjoyed great successes using an integrated approach with nurses and physiotherapists; they've ensured that many more patients with diabetes are now receiving the care needed to manage their conditions with measurable and significant results.⁴⁷

Bottom line: Canada is piloting several innovative primary care solutions across the country to provide increased community-based health services addressing preventive, primary care and chronic health issues.

5. What will shifting services to primary and community care mean for health facilities?

- Results of a 1999 US-based survey of healthcare facilities found that:
 - “Outpatient facilities are much in demand... Hospitals are trying to accommodate a greater volume of ambulatory surgery in a more homelike setting.”
 - “Other hot construction trends... are alternative-care, preventive-care and sports medicine centers. Hospitals and healthcare organizations often combine these services in a single building or complex.”
 - The aging population is “... creating more demand for assisted-living facilities and skilled-nursing facilities along with outpatient, post-acute-care, adult day-care and ambulatory-care facilities.”
 - “Mergers and consolidations have forced several major changes for physicians and systems. Physician practices and hospitals are consolidating and often providing care at one site.”⁵¹
- Some hospitals are freeing inpatient space by shifting services to other facilities i.e. building a free-standing or -leaning neonatal/obstetrics hospital while freeing up space in the primary facility.⁵²
- Proximity to acute care facilities and to the community being served must be a consideration for ambulatory health facilities.⁵³

Bottom line: Increased health services in the community will demand fresh and innovative solutions for health facilities.

6. What are examples of innovative one-stop, cross-sectoral primary health services facilities?

Eastwood Primary Health Care Centre (Edmonton, AB)

- Capital Health, a provincially-funded, integrated health region is constructing a “one-stop shop” primary care facility that will offer a wide range of community health services including acute care, family health services, chronic disease prevention and management services, home care, mental health services and more.⁵⁴

HealthCare Village (Houston, TX)

- Community access to 40-120 physicians, minor surgical procedures and more in a mall-like setting with dozens of related health services e.g. chiropractic, pharmacy, child care, fitness

center, preventive health and chronic disease management services, etc.⁵⁵

Health & Wellness Center (Warrington, PA)

- Built with a retail-feel in mind, the facility offers a variety of outpatient and primary care services combined with pharmacy and diagnostic lab so that patients don’t have to make return visits for test results.⁵⁶

Peekskill Area Health Center (Peekskill, NY)

- An innovative approach to remodeling, expanding and combining existing structures into a primary care and preventive health services facility that is patient-centered, connected to the community and designed to meet the needs of the 21st century.⁵⁷

Bottom line: There are many one-stop, community based health facilities combining a variety of primary, diagnostic, preventive, therapeutic, chronic condition management and acute health services. These hold promise for reducing demand on hospitals.

7. How can facilities meet the needs of all this health care restructuring?

Becoming more innovative and business-minded

- A customer-service focus is the order of the day as many state-of-the-art health facilities are being erected in the US.⁵⁶
- Multiple reports and articles on innovative health care facilities design even make reference to the Disney Company as a model for designing patient-friendly spaces.⁵⁸

Remodeling existing, urban spaces

- Health care facilities in the US are described as becoming more business-minded by transforming existing structures and leveraging market forces to benefit their bottom lines.⁵⁹
- Our Lady of Victory Hospital, an acute-care facility, was closed in Lackawanna NY and later remodeled as a nursing home, better meeting the needs of the community and redeeming an existing space.⁶⁰
- California architects worked to integrate 3 structures, built at various time points throughout the 20th century, into the updated one-stop Pasadena Community Health Center that “focuses on education and prevention, as well as urgent care.”⁶¹

Incorporating IT into health services

- One of a series of 2009 recommendations from European health officials to CMA researchers was: “Invest in IT support: IT applications can help modernize care processes by measuring,

monitoring and improving efficiency, and by supporting governments, providers and patients in their respective roles.”⁴

- Alejandro Jadad of the Centre for Global eHealth Innovation outlines four ways that Canadian health systems can be improved using information and communication technologies:
 - Online, personal health portals, (*a la* Facebook);
 - an integrated platform for coordinated access to health services;
 - increased use of telehealth;
 - incentives to encourage providers to use information and communications technologies in the delivery of health services.⁶²
- Four recommendations on making patient care more seamless between hospitals and primary care providers are made in an article on making healthcare a more seamless experience for patients (see also Figure 2 below):
 - “Make it simpler to share... information
 - Use information technology to enhance communication
 - Overlap healthcare boundaries to allow for ‘seamless care’
 - Pool some funds [state and federal]”.⁶³

Evidence-based facilities

- The evidence-based design of health facilities has been described as “...rigorous research linking the physical environment of hospitals to patients and staff outcomes...”⁶⁴

- The Center for Health Design is currently examining ways to maximize the value of health facilities to patient outcomes, staff and system efficiency.⁶⁵

Taking heed of key lessons learned from those who have gone before...

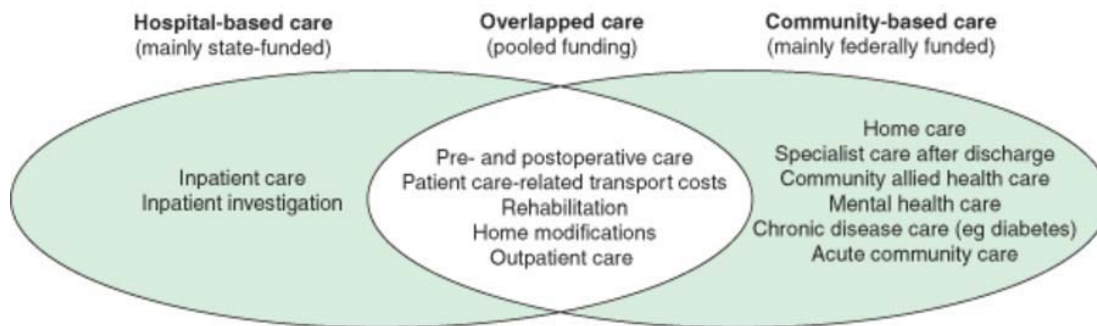
- Market demographics and location must be carefully considered before building⁶⁶;
- Strategic accommodations must be made for future technological innovations in health care.^{67 68}
- An article on 10 lessons learned from innovative health facilities projects veterans included the need for strong leadership and support, an understanding of risk, the importance of teams and people and a forward-thinking vision.⁶⁹

Involving patients and communities

- Patients were consulted by qualitative researchers prior to the redesign of a UCLA walk-in clinic using the Critical Incident Technique. Data from these patient interviews contributed to the strategy going forward in redesigning the clinic and its processes of care.⁷⁰

Bottom line: Forward thinking health facilities projects of the 21st century should be strategic by considering the recovery and maximization of urban space, being business- and IT-minded, lessons learned by others, evidence-based design, and involving patients and the community in their planning and development.

Figure 2 "A suggested patient-centred model of healthcare delivery and funding"⁶³



References

- 1 Hillman K. The changing role of acute care hospitals. *Med J Aust* 1999; 170, 325-328.
- 2 Shortell SM, Casalino LP. Health Care Reform Requires Accountable Care Systems. *JAMA* 2008; 300(1): 95-97.
- 3 Eriksson D, Bjornberg A. Euro-Canada Health Consumer Index 2009. Frontier Centre for Public Policy, Policy Series No. 61, May 2009. Accessed at <http://www.fcpp.org/images/publications/61.%202009%20Euro-Canada%20Health%20Consumer%20Index.pdf> December 4, 2009
- 4 Canadian Medical Association. Appendix 2 What We Heard: a review of five European Health systems. A background report for CMA's Transformational Change Project. April 2009. Accessed at www.cma.ca/index.cfm/ci_id/89553/la_id/1.htm, December 10, 2009.
- 5 OECD. Hospital Occupancy Rates. OECD Health Data 2008.
- 6 Canadian Medical Association. Toward a Blueprint for Health Care Transformation. Discussion paper prepared for the 143rd meeting of the Canadian Medical Association, August 2009. Accessed at www.cma.ca/index.cfm/ci_id/89552/la_id/1.htm, December 10, 2009.
- 7 Zajac JD. The public hospital of the future. *Med J Aust* 2003; 179(5): 250-252.
- 8 Shaller D. Patient Centered Care: What does it take? Commonwealth Fund pub. no 1067, October 2007. Accessed at www.commonwealthfund.org, December 2009.
- 9 Fleury MJ. Integrated service networks: the Quebec case. *Health Serv Manag Res* 2006; 19: 153-165.
- 10 Suter E, Oelke ND, Adair CE, Waddell C, Armitage GD, Huebner LA. Health Systems Integration Definitions, Processes and Impact: a research synthesis. Calgary Health Region's Health Systems and Workforce Research Unit October 2007. Accessed at www.calgaryhealthregion.ca/hswru/index.htm, December 2009.
- 11 Glasby J, Dickinson H. Greater than the sum of our parts? Emerging lessons for UK health and social care. *Int J Integ Care* 2008; 8(20): 1-5.
- 12 Thaldorf C, Liberman A. Integration of Health Care Organizations Using the Power Strategies of Horizontal and Vertical Integration in Public and Private Health Systems. *Health Care Manager* 2007; 26(2): 116-127.
- 13 Atun RA, Bennett S, Duran A. When do vertical (stand-alone) programmes have a place in health systems? World Health Organization 2008 and World Health Organization, on behalf of the European Observatory on Health Systems and Policies, 2008. Accessed at http://www.euro.who.int/document/hsm/5_hsc08_epb_8.pdf January 5, 2010.
- 14 Armitage GD, Suter E, Oelke ND, Adair CE. Health systems integration: state of the evidence. *Int J Integ Care* 2009; 9(17): 1-11.
- 15 MacAdam M. Frameworks of Integrated Care for the Elderly: A Systematic Review. CPRN Research Report April 2008. Accessed at www.cprn.org, December 2009.
- 16 Suter E, Hyman M, Oelke N. Measuring key integration outcomes: A case study of a large urban health center. *Health Care Manage Rev* 2007; 32(3): 226-235.
- 17 Kokko S. Integrated primary health care: Finnish solutions and experiences. *Int J Integ Care* 2009; 9.
- 18 Fafard P, Wortsman A, Watling J. Towards Patient-Centred Health Care: Dialogue on the Future of Health Care in Ontario. CPRN Research Report, January 2008; Accessed at www.cprn.org/documents/49276_EN.pdf December 4, 2009.
- 19 Westlake P. SAFE for future use? Stages in master planning, programming and architectural design. *J Ambulatory Care Manage* 1995; 18(4): 56-68.
- 20 Sibbald B, McDonald R, Roland M. Shifting care from hospitals to the community: a review of the evidence on quality and efficiency. *Journal of Health Services Research & Policy* Vol 12 No 2, 2007: 110-117
- 21 Clar C, Waugh N, Thomas S. Routine hospital admission versus out-patient or home care in children at diagnosis of type 1 diabetes mellitus. *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD004099. DOI:10.1002/14651858.CD004099.pub2.
- 22 Jones R. Expanding community-based health services. *Clin Med* 2006;6(4):368-73.
- 23 Hodnett ED, Downe S, Edwards N, Walsh D. Home-like versus conventional institutional settings for birth. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD000012. DOI: 10.1002/14651858.CD000012.pub2.
- 24 Every B. Better for Ourselves and Better for Our Patients: Chronic Disease Management in Primary Care Networks. *Healthcare Quar* 2007; 10(3): 70-74.
- 25 Andersson A, Beck-Friis B, Britton M, Carlsson P, Fridgren I, Johan Fürst C, Strang P, Willman A, Miller M. Advanced home health care and home rehabilitation. Swedish Council on Technology Assessment in Health Care (SBU) 1999; Report Number 146. Accessed at http://www.sbu.se/upload/Publikationer/Content0/1/homecare_1999/homesumslut.html January 5, 2010.
- 26 Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS). Home-Based Chemotherapy for Cancer: Issues for Patients, Caregivers, and the Health Care System. Report prepared by Lucy Boothroyd and Pascale Lehoux. (AETMIS 04-02). Montréal: AETMIS, 2004.
- 27 Ram FSF, Wedzicha JA, Wright J, Greenstone M. Hospital at home for patients with acute exacerbations of chronic obstructive pulmonary disease: systematic review of evidence. *BMJ* 2004, doi:10.1136/bmj.38159.650347.55.
- 28 Ioannidis JPA, Salem D, Chew PW, Lau J. Accuracy and clinical effect of out-of-hospital electrocardiography in the diagnosis of acute cardiac ischemia: a meta-analysis. *Ann Emerg Med* 2001;37:461-470.
- 29 Fraser KD. Are Home Care Programs Cost-Effective? A Systematic Review of the Literature. *Care Management Journals* 2003; 4(4), 198-201.
- 30 Penney C, Henry E. Improving performance management for delivering appropriate care for patients no longer needing acute hospital care. *J Health Serv Res Policy* 2008; 13(Suppl 1): 30-34.
- 31 Shepperd S, Doll H, Angus RM, Clarke MJ, Iliffe S, Kalra L, Riccaud NA, Wilson AD. Admission avoidance hospital at home. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD007491. DOI:10.1002/14651858.CD007491.
- 32 Othieno R, Abu Affan M, Okpo E. Home versus in-patient treatment for deep vein thrombosis. *Cochrane Database of Systematic Reviews* 2007, Issue 3. Art. No.: CD003076. DOI: 10.1002/14651858.CD003076.pub2.
- 33 Johri M, Beland F, Bergman H. International experiments in integrated care for the elderly: a synthesis of the evidence. *Int J Geriatr Psychiatry* 2003; 18: 222-235. DOI: 10.1002/gps.819

-
- 34 Shepperd S, Doll H, Broad J, Gladman J, Iliffe S, Langhorne P, Richards S, Martin F, Harris R. Early discharge hospital at home. *Cochrane Database of Systematic Reviews* 2009, Issue 1. Art. No.: CD000356. DOI:10.1002/14651858.CD000356.pub3.
- 35 Fortney JC, Steffick DE, Burgess Jr. JF, Maciejewski ML, Petersen LA. Are Primary Care Services a Substitute or Complement for Specialty and Inpatient Services? *Health Serv Res* 2005; 40(5): 1422-1442.
- 36 Beland F, Bergman H, Lebel P, Dallaire L, Fletcher J, Tousignant P, Contandriopoulos AP. Integrated Services for Frail Elders (SIPA): A Trial of a Model for Canada. *Can J Aging* 2006; 25(1): 25-42.
- 37 Beland F, Bergman H, Lebel P, Clarfield AM, Tousignant P, Contandriopoulos AP, Dallaire L. A System of Integrated Care for Older Persons With Disabilities in Canada: Results From a Randomized Controlled Trial. *J Geront* 2006; 61A(4): 367-373.
- 38 Hébert R, Dubois MF, Raiche M, Dubuc N and the PRISMA-Estrie Group. The effectiveness of the PRISMA integrated service delivery network: preliminary report on methods and baseline data. *Intl J Integ Care* Jan-Mar 2008; 8.
- 39 Bird SR, Kurowski W, Dickman GK, Kronborg I. Integrated care facilitation for older patients with complex health care needs reduces hospital demand. *Aust Health Rev* 2007; 31(2): 451-461.
- 40 Russell M, Roe B, Beech R, Russell W. Service developments for managing people with long-term conditions using case management approaches, an example from the UK. *Intl J Integ Care* 2009; 9.
- 41 van Haastregt JC, Diederiks JP, van Rossum E, de Witte LP, Crebolder HF. Effects of preventive home visits to elderly people living in the community: systematic review. *BMJ* 2000;320:754-8.
- 42 Roberts E, Mays N. Can primary care and community-based models of emergency care substitute for the hospital accident and emergency (A & E) department? *Health Policy* 1998; 44: 191-214.
- 43 Roland M, McDonald R, Sibbald B. Outpatient Services and Primary Care: A scoping review of research into strategies for improving outpatient effectiveness and efficiency. A report to the NHS Service Delivery and Organisation R&D Programme from the National Primary Care Research and Development Centre and Centre for Public Policy and Management of the University of Manchester, March 2006. Accessed at www.networks.nhs.uk/uploads/dm/research_paper_manchester_2006.pdf, January 5, 2010.
- 44 Fothergill K, Ballard E. The School-Linked Health Center: A Promising Model of Community-Based Care for Adolescents. *J Adol Health* 1998; 23(1): 29-38.
- 45 Institute of Medicine. *Crossing the Quality Chasm*. Washington DC: National Academies Press, 2001.
- 46 Kemp KA. The use of interdisciplinary medical teams to improve quality and access to care. *J Interprof Care* 2007; 21(5): 557-559. DOI: 10.1080/13561820701472727
- 47 Health Council of Canada. *Teams in Action: Primary Health Care Teams for Canadians*. Toronto: Health Council 2009. Accessed at www.healthcouncilcanada.ca, December 15, 2009.
- 48 Xyrichis A, Lowton K. What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *Int J Nurs Studies* 2008; 45: 140-153.
- 49 Crosson FJ. The Delivery System Matters. *Health Affairs* 2005; 24(6): 1543-1548. DOI 10.1377/hlthaff.24.6.1543
- 50 Milette L, Hébert R, Veil A. Integrated service delivery networks for seniors: Early perceptions of family physicians. *Can Fam Physician* 2005; 51: 1104-1105.
- 51 Crosswell, C. Better, not bigger. *Mod Healthcare* 1999; 29(12): 23-35.
- 52 Coddington DC, Moore KD, Stephens DC. Capacity Planning: Seeing the forest for the trees. *Healthcare Financial Management* October 2003; 51-57.
- 53 Westlake P. SAFE for future use? Stages in master planning, programming and architectural design. *J Ambulatory Care Manage* 1995; 18(4): 56-68.
- 54 Bowerman J. Designing the primary health care centre of the future: A community experience. *Leadership Health Serv* 2006; 19(4): xvi-xxiii.
- 55 Burmahl B. Facilities of the future: New designs put patients first. *Health Fac Manag* February 2004; 30-34.
- 56 Jenkins E. Facility Profile. *Health Facil Manag* Oct 2001; 14-15.
- 57 Nolon, AK, Dickinson D, Boltin B. Creating a New Environment of Ambulatory Care: Community Health Centers and the Planetree Philosophy. *J Amb Care Manag* 1999; 22(1): 18-26.
- 58 Rebolz JS. Outpatient Odyssey: Ambulatory facilities mirror hospital interior trends. *Health Facil Manag* Nov 2007; 27-31.
- 59 Robeznieks A. Healthcare transformers. *Mod Healthcare* 2009; 39(47): 30-33.
- 60 Thrall TH. Finding a New Use for an Old Hospital. *Hosp Health Net* April 2007; 27.
- 61 Fletcher, A. Savvy planners morph three buildings into one-stop health shop. *Health Fac Manag* 1998; 11(5): 22-24.
- 62 Jadad AR. A view from the Internet age: Let's build a health system that meets the needs of the next generation. *CMAJ* 2004; 171(12): 1457-8.
- 63 Mann L. From "silos" to seamless healthcare: bringing hospitals and GPs back together again. *Med J Aust* 2005; 182(1): 34-37.
- 64 Ulrich R, Zimring C. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Report to The Center for Health Design for the Designing the 21st Century Hospital Project, September 2004.
- 65 Centre for Health Design. Accessed at <http://healthdesign.org>, January 8, 2010.
- 66 Hyndman JCG, D'Arcy C, Holman J, de Klerk NH. A comparison of measures of access to child health clinics and the implications for modelling the location of new clinics. *Aust NZ J Pub Health* 1999; 23(2): 189-195.
- 67 Coale J. Rounding up your real estate. *Health Fac Manag* 1998; 11(4): 16-21.
- 68 Lawrence D. Building for the Future. *Healthcare Inf* September 2008; 18-24.
- 69 McKahan D, Pitts FM. Ten Lessons Learned. *Health Facil Manag* June 2005; 25-29.
- 70 Rao J. Content Analysis of Critical Incidents to Redesign a University Walk-in Clinic. *Qual Manag Health Care* 2000; 8(2): 49-63.