

OHTAC Recommendation: Optimizing Chronic Disease Management in the Community (Outpatient) Setting (OCDM)

Ontario Health Technology Advisory Committee

September 2013

Background

In July 2011, the Evidence Development and Standards (EDS) branch of Health Quality Ontario (HQO) began developing an evidentiary framework for avoidable hospitalizations. The focus was on adults with at least 1 of the following high-burden chronic conditions: chronic obstructive pulmonary disease (COPD), coronary artery disease (CAD), atrial fibrillation, heart failure, stroke, diabetes, and chronic wounds. This project emerged from a request by the Ministry of Health and Long-Term Care for an evidentiary platform on strategies to reduce avoidable hospitalizations.

After an initial review of research on chronic disease management and hospitalization rates, consultation with experts, and presentation to the Ontario Health Technology Advisory Committee (OHTAC), the review was refocused on optimizing chronic disease management in the outpatient (community) setting to reflect the reality that much of chronic disease management occurs in the community. Inadequate or ineffective care in the outpatient setting is an important factor in adverse outcomes (including hospitalizations) for these populations. While this did not substantially alter the scope or topics for the review, it did focus the reviews on outpatient care. HQO identified the following topics for analysis: discharge planning, in-home care, continuity of care, advanced access scheduling, screening for depression/anxiety, self-management support interventions, specialized nursing practice, and electronic tools for health information exchange. Evidence-based analyses were prepared for each of these topics. In addition, this synthesis incorporates previous EDS work, including *Aging in the Community* (2008) and a review of recent (within the previous 5 years) EDS health technology assessments, to identify technologies that can improve chronic disease management.

HQO partnered with the Programs for Assessment of Technology in Health (PATH) Research Institute and the Toronto Health Economics and Technology Assessment (THETA) Collaborative to evaluate the cost-effectiveness of the selected interventions in Ontario populations with at least 1 of the identified chronic conditions. The economic models used administrative data to identify disease cohorts, incorporate the effect of each intervention, and estimate costs and savings where costing data were available and estimates of effect were significant. For more information on the economic analysis, please contact either Murray Krahn at murray.krahn@theta.utoronto.ca or Ron Goeree at goereer@mcmaster.ca.

HQO also partnered with the Centre for Health Economics and Policy Analysis (CHEPA) to conduct a series of reviews of the qualitative literature on “patient centredness” and “vulnerability” as these concepts relate to the included chronic conditions and interventions under review. For more information on the qualitative reviews, please contact Mita Giacomini at giacomini@mcmaster.ca.

The Optimizing Chronic Disease Management in the Outpatient (Community) Setting mega-analysis series is made up of the following reports, which can be publicly accessed at <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations/ohtas-reports-and-ohtac-recommendations>.

- Optimizing Chronic Disease Management in the Outpatient (Community) Setting: An Evidentiary Framework
- Discharge Planning in Chronic Conditions: An Evidence-Based Analysis
- In-Home Care for Optimizing Chronic Disease Management in the Community: An Evidence-Based Analysis
- Continuity of Care: An Evidence-Based Analysis
- Advanced (Open) Access Scheduling for Patients With Chronic Diseases: An Evidence-Based Analysis
- Screening and Management of Depression for Adults With Chronic Diseases: An Evidence-Based Analysis
- Self-Management Support Interventions for Persons With Chronic Diseases: An Evidence-Based Analysis
- Specialized Nursing Practice for Chronic Disease Management in the Primary Care Setting: An Evidence-Based Analysis
- Electronic Tools for Health Information Exchange: An Evidence-Based Analysis
- Health Technologies for the Improvement of Chronic Disease Management: A Review of the Medical Advisory Secretariat Evidence-Based Analyses Between 2006 and 2011
- Optimizing Chronic Disease Management Mega-Analysis: Economic Evaluation
- How Diet Modification Challenges Are Magnified in Vulnerable or Marginalized People With Diabetes and Heart Disease: A Systematic Review and Qualitative Meta-Synthesis
- Chronic Disease Patients' Experiences With Accessing Health Care in Rural and Remote Areas: A Systematic Review and Qualitative Meta-Synthesis
- Patient Experiences of Depression and Anxiety With Chronic Disease: A Systematic Review and Qualitative Meta-Synthesis
- Experiences of Patient-Centredness With Specialized Community-Based Care: A Systematic Review and Qualitative Meta-Synthesis

Conclusions

Discharge Planning

Individualized Discharge Planning Compared With Usual Care

- Based on moderate quality evidence, individualized discharge planning was more effective than usual care at reducing readmissions and initial hospital length of stay.
- Based on moderate quality evidence, individualized discharge planning was not more effective than usual care at reducing mortality.
- Based on very low quality evidence, individualized discharge planning was more effective than usual care at improving health-related quality of life and patient satisfaction.

Individualized Discharge Planning Plus Postdischarge Support Compared With Usual Care

- Based on low quality evidence, individualized discharge planning plus postdischarge support was more effective than usual care at reducing readmissions.
- Based on low quality evidence, individualized discharge planning plus postdischarge support was not more effective than usual care at reducing hospital length of stay or mortality.
- Based on very low quality evidence, individualized discharge planning plus postdischarge support was more effective than usual care at improving health-related quality of life and patient satisfaction.

Cost-Effectiveness

An evaluation of cost-effectiveness in a congestive heart failure cohort found that individualized pre-discharge planning plus postdischarge support was dominant compared to usual care.

In-Home Care

- Based on moderate quality evidence, there was a significant beneficial effect of in-home care on unplanned hospitalizations and emergency department visits in heart failure patients. However, also based on moderate quality evidence, there was no difference between in-home care and usual care for rates of heart failure–specific hospitalizations or hospital length of stay in heart failure patients.
- Based on high to moderate quality evidence, there was no difference between in-home care and usual care for all-cause mortality in multimorbid chronic disease patients (high quality) and for all-cause mortality or cardiovascular disease–specific mortality in heart failure patients (moderate quality). However, based on moderate quality evidence, there was a significant beneficial effect of in-home care on the combined events of all-cause mortality and hospitalizations in heart failure patients.
- Based on low quality evidence, there was a significant beneficial effect of in-home care on blood glucose control (hemoglobin A1c) in diabetes patients. There was no difference between in-home care and usual care for blood pressure or lipid levels in diabetes and stroke patients.
- Based on low quality evidence, there was a significant beneficial effect of in-home care on health-related quality of life as assessed by the physical component summary of the Short Form (36) Health Survey, but no difference between groups on the mental health component summary.
- Based on low quality evidence, there was a beneficial effect of nurse-led in-home care on heart failure–specific health-related quality of life in heart failure patients. There was no difference between pharmacist-led in-home care and usual care for heart failure–specific health-related quality of life.
- Based on moderate quality evidence, there was a significant beneficial effect of in-home care on activities of daily living in multimorbid chronic disease patients, but no difference in measures of mobility or instrumental activities of daily living.

Cost-Effectiveness

An evaluation of cost-effectiveness in a heart failure cohort found that in-home care was dominant compared to usual care.

Continuity of Care

- Despite heterogeneity in how continuity is measured, based on low quality evidence, higher continuity of care decreased health service utilization (hospitalizations and emergency department visits).
- There was insufficient evidence to comment on the relationship of continuity of care with disease-specific outcomes.
- Based on low quality evidence, higher continuity of care was associated with improved blood glucose control (lower hemoglobin A1c levels) in patients with diabetes.
- Based on low quality evidence, there appeared to be a positive association between high continuity of care and increased patient satisfaction, particularly among patients with chronic disease.

Cost-Effectiveness

A sensitivity analysis of the costs and benefits of interventions to increase continuity of care for patients with chronic obstructive pulmonary disease or diabetes found that interventions would be cost-effective or dominant across most combinations of cost and incremental improvements.

Advanced (Open) Access Scheduling

- Based on low quality evidence, implementation of advanced access scheduling was not associated with significant changes in hospitalization rates for patients with diabetes. However, based on very low quality evidence, advanced access scheduling was associated with a significant reduction in hospitalization rates for patients with coronary heart disease.
- Based on very low quality evidence, implementation of advanced access scheduling was not associated with significant changes in emergency department visit rates for patients with diabetes or patients with coronary heart disease.
- Based on very low quality evidence, implementation of advanced access scheduling was associated with a significant reduction in the proportion of patients with diabetes or coronary heart disease admitted to hospital whose length of stay was greater than 3 days.
- There was inconsistent evidence of changes in chronic disease clinical measures (hemoglobin A1c, low-density lipoprotein cholesterol, systolic blood pressure) for patients with diabetes or patients with coronary artery disease/coronary heart disease after advanced access implementation; the quality of the evidence was very low.

Cost-Effectiveness

An economic evaluation of advanced access scheduling was not conducted, because no significant clinical benefit was noted for the outcomes of interest.

Screening and Management of Depression

- Based on low quality evidence, screening and medication management of mild depression in patients with diabetes did not significantly improve blood glucose control (hemoglobin A1c).
- Based on low to moderate quality evidence, screening and medication management of depression in patients with heart failure did not significantly affect (improve or worsen) cardiac event rates or mortality (moderate quality) and did not significantly change electrocardiogram findings (low quality).
- Based on low to moderate quality evidence, screening and medication management of depression in patients with coronary artery disease did not significantly reduce the proportion of those with reduced left ventricular ejection fraction (moderate quality) and did not significantly change electrocardiogram findings (low quality).
- Based on moderate quality evidence, screening and medication management of depression in patients with coronary artery disease appeared to have a potentially protective effect on myocardial infarction rates and mortality, but the difference was not statistically significant.

Cost Effectiveness

An economic evaluation of the screening and management of depression was not conducted, because no significant clinical benefit was noted for the outcomes of interest.

Self-Management Support Interventions

- Based on low quality evidence, the Stanford Chronic Disease Self-Management Program led to statistically significant, albeit clinically minimal, short-term (median 6 months) improvements across a number of health status measures, in healthy behaviours, and self-efficacy compared to usual care.
- Based on very low quality evidence, there was no significant difference between the Stanford Chronic Disease Self-Management Program and usual care in short-term (median 6 months) health care utilization and across some health-related quality of life scales.
- Based on moderate quality evidence, the Stanford Chronic Disease Self-Management Program led to statistically significant, albeit clinically minimal, short-term (median 6 months) improvement in EuroQoL-5 Domain score compared to usual care.
- More research is needed to explore the long-term (12 months and greater) effect of self-management support interventions across outcomes and to explore the impact of self-management support interventions on clinical outcomes.
- Exploratory evidence suggests that some subgroups of persons with chronic conditions may respond better to the Stanford Chronic Disease Self-Management Program; there is considerable uncertainty, however, and more research is needed to better identify responders and nonresponders.

Cost-Effectiveness

An economic evaluation of self-management support interventions was not conducted, because the intervention was evaluated in a multimorbid population and not in 1 of the cohorts for which economic models were developed.

Specialized Nursing Practice

Model 1: Specialized Nursing Care Versus Physician Care

- Based on moderate quality evidence, there was no significant difference among patients receiving primary health care from nurse practitioners in comparison to physicians alone for health resource utilization, including hospitalizations, emergency department or urgent care visits, specialist visits, or primary care visits.
- Based on moderate quality evidence, there was no significant difference among patients receiving primary health care from nurse practitioners in comparison to physicians alone for health-related quality of life (Short Form [36] Health Survey) or patient satisfaction.
- Based on very low quality evidence, there was no significant difference among diabetes patients receiving primary health care from nurse practitioners in comparison to physicians alone for health resource utilization, including hospitalizations, emergency department or urgent care visits, specialist visits, or primary care visits.
- Based on very low quality evidence, there was no significant difference among diabetes patients receiving primary health care from nurse practitioners in comparison to physicians alone for blood glucose control (hemoglobin A1c).
- Results from the evidence-based analysis found specialized nurses providing autonomous patient care to a primary health care population oversampled with chronic disease demonstrated comparable outcomes to physician care alone. Outcomes were similarly comparable among the subgroup of patients with diabetes. Specialized nurses in this model most closely resemble nurse practitioners in the Ontario context.

Model 2: Specialized Nursing Care Plus Physician Care Versus Physician Care Alone

- Based on low quality evidence in a diabetes population, specialized nurses plus physicians in comparison to usual care were associated with a significant increase in the number of visits to primary health care.
- Based on low quality evidence in a coronary artery disease population, specialized nurses plus physicians in comparison to usual care were associated with a significant reduction in all-cause hospitalizations, but no difference in length of hospital stay.
- Based on moderate quality evidence, specialized nurses plus physicians in comparison to usual care were associated with a significantly higher proportion of patients achieving threshold blood pressure and/or cholesterol levels (coronary artery disease/cardiovascular disease population) and significantly lower hemoglobin A1c (diabetes population).
- Based on moderate quality evidence in a coronary artery disease or congestive heart failure population, specialized nurses plus physicians in comparison to usual care were associated with a significantly higher proportion of patients with appropriate blood pressure and/or cholesterol management as well as a significant increase in the number of clinical examinations for blood pressure, body mass index and smoking status, but no difference in cholesterol examinations. There was also a significant increase in the number of echocardiography assessments for confirmation of heart failure among unconfirmed cases and a significant increase in the number of myocardial infarction patients who were prescribed beta blockers but no difference in the number of prescriptions for angiotensin-converting enzyme inhibitors.
- Based on low quality evidence, coronary artery disease patients receiving care in Model 2 versus usual care were also significantly more likely to achieve lifestyle control related to physical activity and a low-fat diet, but there was no difference between the intervention and control arms in the proportion of patients who were nonsmokers.

- Based on moderate quality evidence in a diabetes population, specialized nurses plus physicians in comparison to usual care were associated with a significantly higher proportion of patients receiving foot examinations and intensification of drug therapy among patients with uncontrolled hemoglobin A1c or uncontrolled blood pressure, but no difference in intensification of therapy for patients with uncontrolled cholesterol levels.
- Based on moderate quality evidence in a diabetes population, specialized nurses plus physicians in comparison to usual care were associated with significantly greater patient satisfaction.
- Based on low quality evidence, there was no difference between specialized nurses plus physicians and usual care for number of physician consultations or objective and subjective physician workload.
- Based on moderate to low quality evidence, for most quality-of-life measures and populations, the findings were inconsistent or indeterminate when comparing specialized nurses plus physicians and usual care.

Cost-Effectiveness

An evaluation of the cost-effectiveness of the intervention in a diabetes cohort found that specialized nursing alone (Model 1) for chronic disease management was dominant compared to usual care.

An evaluation of the cost-effectiveness of the intervention found that specialized nursing plus physicians (Model 2) for chronic disease management was more effective and less expensive compared to usual care.

Electronic Tools for Health Information Exchange

- Based on moderate quality evidence, when an automated laboratory results report with clinical alerts mapped to guidelines was shared with primary care, there was evidence of a significant reduction in hospitalization rates, emergency department visits, and hospital length of stay.
- Based on high to very low quality evidence, the implementation of electronic tools for health information exchange did not result in improvements in clinical measures, including adverse event rates (high quality evidence), blood pressure levels (low quality evidence), lipid levels (low quality evidence), or hemoglobin A1c levels (very low quality evidence). The evidence was inconclusive about the impact of electronic tools on achievement of threshold levels for clinical measures such as body mass index, lipids, hemoglobin A1c, and smoking status.
- Based on low to very low quality evidence, electronic tools for health information exchange had a variable impact on process-of-care measures. There was no trend for any specific disease, technology, or care coordination aspect examined.
 - There was low to very low quality evidence of a significant improvement in number of foot examinations, fructosamine tests, weight and height measurements, blood pressure examinations, vaccinations and immunizations, eye examinations, and medication management of beta-blockers.
 - There was moderate to very low quality evidence of no difference in changes in statin prescriptions, blood glucose tests, lipid tests, or medication management of a variety of cardiac drugs.
 - There was inconclusive evidence (low to very low quality) of an impact on kidney management, behavioural interventions, and composite outcomes of processes of care.
- Based on high to very low quality evidence, there was no improved efficiency for care providers following the implementation of electronic tools for health information exchange, including no difference in the proportion of primary care physicians receiving discharge summaries using electronic transfer versus paper transfer (high quality evidence) and no evidence of increased efficiencies related to time or communication (moderate to very low quality evidence).
- The findings from this evidence-based analysis call into question the ability of electronic tools to independently improve the quality of outpatient care coordination. Although automation is intended to facilitate consistency in application and measurement, electronic tools may not be able to overcome underlying process inefficiencies.

Cost-Effectiveness

An evaluation of the cost-effectiveness of electronic tools for health information exchange in a diabetes cohort found it to be dominant compared to usual care.

Health Technologies

- The impact of new health technologies used in chronic disease management to optimize patient outcomes and hospitalization rates is often overlooked. Based on high to moderate quality evidence, this analysis demonstrates that health technologies can:
 - reduce the burden of illness and improve patient outcomes
 - reduce resource utilization intensity, and are often cost-effective
 - be a viable contributing factor to chronic disease management in the community

Aging in the Community

- Based on moderate to high quality evidence, interventions that treat or reduce the risk of falls, urinary incontinence, dementia, or social isolation can improve health outcomes in the community-dwelling elderly.
- Based on moderate to high quality evidence, regular exercise can significantly improve health outcomes in the community-dwelling elderly through the primary or secondary prevention of falls, urinary incontinence (using pelvic floor muscle training), dementia, and social isolation.

Decision Determinants

A decision-making framework has been developed by the Ontario Health Technology Advisory Committee (OHTAC) that consists of 7 guiding principles for decision making, and a decision-making tool, called the Decision Determinants tool. When making a decision, OHTAC considers 4 explicit main criteria: overall clinical benefit, value for money, feasibility of adoption into the health system, and consistency with expected societal and ethical values. For more information on the Decision-Making Framework, please refer to the *Decision Determinants Guidance Document* (http://www.health.gov.on.ca/english/providers/program/mas/pub/guide_decision.pdf).

A summary of the Decision Determinants can be viewed in Appendix 1.

OHTAC Recommendations

OHTAC takes this opportunity to re-emphasize that in managing patients with chronic disease (as in all other patient encounters) clinicians must recognize that unique patient factors—such as culture, language, education, income, and rurality—may influence both the clinical impact and patient acceptability of interventions such as dietary modification or depression/anxiety screening, as well as the locus of services (e.g., rural/urban, hospital/outpatient).

Based on the clinical and economic evidence, using OHTAC Decision Determinants,¹ OHTAC made the following recommendations.

Discharge Planning

- OHTAC recommends the implementation of individualized predischage planning^a for chronic disease patients admitted to hospital, the primary responsibility for which resides with the hospital. OHTAC strongly recommends that the discharge plan be communicated and coordinated across relevant health care providers.
- In view of the current lack of evidence, OHTAC recommends an evaluation of the effectiveness and cost-effectiveness of the addition of postdischarge support^b to individualized predischage planning for chronic disease patients.

^aBased on the included studies, individualized predischage planning should be a multicomponent intervention, including some combination of the following:

- discharge assessment and planning (that commences as early during the admission as possible)
- patient education component
- patient-centred discharge instructions
- coordination/communication with family physicians and other appropriate community-based services

^bBased on the included studies, postdischarge support included (but was not limited to) home visits, telephone follow-up, and extended home services provided during the postdischarge period.

In-Home Care

- OHTAC reaffirms the value of home care for patients with chronic diseases who have some functional limitations or who have had a recent hospitalization or exacerbation^c

^cAvailable evidence on cost-effectiveness was specific to patients admitted to hospital with an acute exacerbation of heart failure. Clinical evidence suggests beneficial effects of home care services for patients with diabetes (reductions in hemoglobin A1c) and those with multimorbid disease (improvements in the performance of activities of daily living/functional limitations).

Continuity of Care

- OHTAC recommends that continuity of care with the usual care provider(s) be considered as the preferred model of care for community-based chronic disease management.^d

^dWhile this is based on low quality evidence, there was consistency across all studies (direction and size of effect), and it is unlikely that further research on the effect of continuity of care will improve the quality of evidence against which this recommendation is made.

¹www.health.gov.on.ca/english/providers/program/ohtac/decision_frame.html

Advanced (Open) Access Scheduling

- OHTAC recommends that a rigorous evaluation of the effectiveness and cost-effectiveness of the existing Health Quality Ontario Advanced Access and Efficiency Program be performed.
- Although advanced access may be used to improve access to primary health care, OHTAC recommends that it not be promoted as a tool for improving chronic disease management until further evidence is available on its effectiveness in this regard.
- For practices and teams that have already implemented advanced access, OHTAC recommends a focus on the objective of increasing provider continuity, which may be more important to improving clinical care than access.

Screening and Management of Depression

- OHTAC does not recommend routine screening^{e,f} for depression among adults with chronic disease. Health care providers should be aware of the increased rates of depression in this population and should use a higher index of suspicion when assessing these patients.

^eOHTAC recognizes the significant burden that depression places on affected individuals and the importance of treating this condition. OHTAC also recognizes the increased prevalence of depression among individuals with chronic diseases, such as heart disease, diabetes, chronic obstructive pulmonary disease, and stroke.

^fRoutine screening occurs at a specific frequency (e.g., annually).

Self-Management Support Interventions

- OHTAC recommends that every effort be made to use behavioural modification to maximize self-management/lifestyle changes for patients with chronic disease. However, OHTAC does not recommend preferential use of the Stanford Chronic Disease Self-Management Program in isolation of considering other methods of educating patients about their chronic diseases and how to make healthy lifestyle choices.

Specialized Nursing Practice

- OHTAC recommends the increased use of specialized nursing in the clinical management of patients with chronic diseases in the primary health care setting.
- In the context of specialized ambulatory care, OHTAC recommends that multidisciplinary teams provide clinical care to chronic disease patients, consistent with its previous recommendations for specialized community-based care.

Electronic Tools for Health Information Exchange

- OHTAC recommends the use of electronic tools to track and alert providers and patients with diabetes to laboratory investigation results that are mapped to evidence-based recommendations.^g
- In view of the lack of evidence, OHTAC recommends an evaluation of the effectiveness and cost-effectiveness of electronic tools for health information exchange for care coordination in the management of patients with chronic diseases.

^gThere are potential obstacles related to the implementation and contextualization of this intervention in Ontario, including cost, privacy laws, and limitations related to sharing data in different software environments.

Health Technologies

- OHTAC recommends that effective and cost-effective health technologies be considered as an integral component of overall chronic disease management.

Aging in the Community

- OHTAC recommends that its previous recommendations from the Aging in the Community mega-analysis (see Appendix 2) be reviewed for implementation within the context of the mega-analysis Optimizing Chronic Disease Management in the Community (Outpatient) Setting.

Appendices

Appendix 1: Decision Determinants

Table A1: Discharge Planning

Decision Criteria	Subcriteria	Decision Determinant Considerations
Overall Clinical Benefit	Effectiveness	<p>Research Question What is the effectiveness of discharge planning bundles at reducing health resource utilization and improving patient outcomes compared to usual care alone?</p> <p>Clinical and Patient Outcomes <i>Individualized Discharge Planning Compared With Usual Care</i></p> <ul style="list-style-type: none"> Individualized discharge planning was not more effective at reducing mortality (GRADE: moderate). Individualized discharge planning was more effective at improving health-related quality of life and patient satisfaction (GRADE: very low). <p><i>Individualized Discharge Planning Plus Postdischarge Support Compared With Usual Care</i></p> <ul style="list-style-type: none"> Individualized discharge planning plus postdischarge support was not more effective at reducing mortality (GRADE: low). Individualized discharge planning plus postdischarge support was more effective at improving health-related quality of life and patient satisfaction (GRADE: very low). <p>Health System Outcomes <i>Individualized Discharge Planning Compared With Usual Care</i></p> <ul style="list-style-type: none"> Individualized discharge planning was more effective at reducing readmissions and initial hospital length of stay (GRADE: moderate). <p><i>Individualized Discharge Planning Plus Postdischarge Support Compared With Usual Care</i></p> <ul style="list-style-type: none"> Individualized discharge planning plus postdischarge support was more effective at reducing readmissions (GRADE: low). Individualized discharge planning plus postdischarge support was not more effective at reducing hospital length of stay (GRADE: low).
	Safety	Discharge planning should have little impact on safety, but most of the interventions were in urban academic settings and patients were fairly young; these limitations may prevent extrapolation of results to an older, frail population. Most studies excluded patients with cognitive impairment, which may lead to an inability to retain information and affect self-care.
	Burden of Illness	This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.
	Need	Correspondence with a contact from a Local Health Integration Network and the Quality Improvement team at Health Quality Ontario indicated the following: <ul style="list-style-type: none"> there is a formalized process for discharge planning in about 80% to 90% of hospitals in Ontario discharge planning is not standardized throughout the province, but some elements of discharge planning exist in all hospitals that do discharge planning discharge planning is likely more of an organic product tailored to suit the needs of the community (e.g., some use discharge planners in the hospital, some use Community Care Access Centres, some use "flow coordinators")
Consistency With Societal/Ethical Values	Societal and Ethical Values	Patients and their families may be happy and relieved to receive planning and follow-up once the patient is discharged from the hospital.

Decision Criteria	Subcriteria	Decision Determinant Considerations																																		
Value for Money	Economic Evaluation	<p>The economic model of predischARGE planning plus postdischarge follow-up is in congestive heart failure patients only.</p> <table border="1" data-bbox="561 348 1414 606"> <thead> <tr> <th>Measure</th> <th>Point estimate</th> </tr> </thead> <tbody> <tr> <td>Relative risk of rehospitalization</td> <td>Control: 1.00 Intervention: 0.74 (0.67–0.81)</td> </tr> <tr> <td>Relative risk of emergency department visits</td> <td>Not reported</td> </tr> <tr> <td>Relative risk of mortality</td> <td>0.87 (0.73–1.04)</td> </tr> <tr> <td>Baseline utility in congestive heart failure</td> <td>0.84 (0.80–0.88)</td> </tr> <tr> <td>Utility for hospitalization</td> <td>0.82 (0.77–0.92)</td> </tr> <tr> <td>Intervention cost</td> <td>\$128.70 (\$80–\$757)</td> </tr> <tr> <td>Duration of benefit</td> <td>12 months</td> </tr> <tr> <td>Proportion to benefit</td> <td>62% (52%–72%)</td> </tr> </tbody> </table> <table border="1" data-bbox="561 632 1414 722"> <thead> <tr> <th></th> <th>Control</th> <th>Intervention</th> <th>Incremental</th> </tr> </thead> <tbody> <tr> <td>Total costs (\$)</td> <td>101,080</td> <td>100,352</td> <td>–728</td> </tr> <tr> <td>Total QALYs</td> <td>1.818</td> <td>1.890</td> <td>0.072</td> </tr> <tr> <td>ICER</td> <td></td> <td></td> <td>Dominant</td> </tr> </tbody> </table> <p>Abbreviations: ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year.</p> <p>The sensitivity analysis suggested that for a range of costs and outcomes (based on confidence intervals from the review), the intervention was dominant or cost-effective over control.</p>	Measure	Point estimate	Relative risk of rehospitalization	Control: 1.00 Intervention: 0.74 (0.67–0.81)	Relative risk of emergency department visits	Not reported	Relative risk of mortality	0.87 (0.73–1.04)	Baseline utility in congestive heart failure	0.84 (0.80–0.88)	Utility for hospitalization	0.82 (0.77–0.92)	Intervention cost	\$128.70 (\$80–\$757)	Duration of benefit	12 months	Proportion to benefit	62% (52%–72%)		Control	Intervention	Incremental	Total costs (\$)	101,080	100,352	–728	Total QALYs	1.818	1.890	0.072	ICER			Dominant
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Feasibility of Adoption	Organizational Feasibility	Discharge planning and follow-up occurs in many Ontario hospitals, but it is most likely an organic process that is tailored to the specific hospital and community.																																		

Table A2: In-Home Care

Decision Criteria	Subcriteria	Decision Determinant Considerations
Overall Clinical Benefit	Effectiveness	<p>Research Question What is the effectiveness and cost-effectiveness of care delivered in the home (i.e., in-home care) compared to no home care, or usual care/care received outside of the home (e.g., a health care setting)?</p> <p>Clinical and Patient Outcomes</p> <ul style="list-style-type: none"> • There was no significant difference between in-home care and usual care for all-cause mortality in multimorbid chronic disease patients (GRADE: high). • There was no significant difference between in-home care and usual care for all-cause mortality and cardiovascular disease-specific mortality in heart failure patients (GRADE: moderate). • There was a significant beneficial effect of in-home care on the combined outcome of all-cause mortality and hospitalizations in heart failure patients (GRADE: moderate). • There was a significant beneficial effect of in-home care on activities of daily living, but no significant difference for measures of mobility or instrumental activities of daily living (GRADE: moderate). • There was a significant beneficial effect of in-home care on blood glucose control (hemoglobin A1c) in diabetes patients (GRADE: low). There was no significant difference between in-home care and usual care for blood pressure or lipid levels in diabetes and stroke patients (GRADE: low). • There was no significant difference between in-home care and usual care for lipid levels in stroke patients (GRADE: low). • There was a significant beneficial effect of in-home care on the physical component scale of the SF-36, Short Form (36) Health Survey (health-related quality of life), but no significant difference on the mental health component scale (GRADE: low). • There was a significant beneficial effect of nurse-led in-home care on heart failure-specific health-related quality of life in heart failure patients (GRADE: low). There was no significant difference between pharmacist-led in-home care and usual care for heart failure-specific health-related quality of life in heart failure patients (GRADE: low). <p>Health System Outcomes</p> <ul style="list-style-type: none"> • There was a significant reduction in the number of unplanned hospitalizations and emergency department visits with in-home care in heart failure patients (GRADE: moderate). • There was no significant difference between in-home care and usual care for rates of heart failure-specific hospitalizations or hospital length of stay in heart failure patients (GRADE: moderate).
	Safety	No safety concerns were identified.
	Burden of Illness	This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.
	Need	The assumption of home care is that there may be health care savings when care is removed from institutions and provided in the community or in the home instead. Based on the nature of home care interventions analyzed for this evidence-based analysis (e.g., predominantly educational), the economic model may provide additional insight.
Consistency With Societal/Ethical Values	Societal and Ethical Values	Unknown.

Value for Money	Economic Evaluation	<p>The economic model applies to a congestive heart failure population only.</p> <table border="1" data-bbox="561 254 1414 554"> <thead> <tr> <th>Measure</th> <th>Point estimate</th> </tr> </thead> <tbody> <tr> <td>Relative risk of rehospitalization</td> <td>Control: 1.00 Intervention: 0.40 (0.38–0.42)</td> </tr> <tr> <td>Relative risk of emergency department visits</td> <td>Control: 1.00 Intervention: 0.34 (0.23–0.45)</td> </tr> <tr> <td>Relative risk of mortality</td> <td>Control: 1.00 Intervention: 0.92 (0.81–1.04)</td> </tr> <tr> <td>Baseline utility in congestive heart failure</td> <td>0.84 (0.80–0.88)</td> </tr> <tr> <td>Utility for hospitalization</td> <td>0.82 (0.77–0.92)</td> </tr> <tr> <td>Intervention cost</td> <td>\$91 (\$82–\$100)</td> </tr> <tr> <td>Duration of benefit</td> <td>24 months</td> </tr> <tr> <td>Proportion to benefit</td> <td>62%</td> </tr> </tbody> </table> <table border="1" data-bbox="561 583 1414 674"> <thead> <tr> <th></th> <th>Control</th> <th>Intervention</th> <th>Incremental</th> </tr> </thead> <tbody> <tr> <td>Total costs (\$)</td> <td>101,080</td> <td>90,415</td> <td>-10,665</td> </tr> <tr> <td>Total QALYs</td> <td>1.818</td> <td>1.929</td> <td>0.111</td> </tr> <tr> <td>ICER</td> <td></td> <td></td> <td>Dominant</td> </tr> </tbody> </table> <p>Abbreviations: ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year.</p> <p>The sensitivity analysis suggested that for a range of costs and outcomes (based on confidence intervals from the review), the intervention was dominant over control.</p>	Measure	Point estimate	Relative risk of rehospitalization	Control: 1.00 Intervention: 0.40 (0.38–0.42)	Relative risk of emergency department visits	Control: 1.00 Intervention: 0.34 (0.23–0.45)	Relative risk of mortality	Control: 1.00 Intervention: 0.92 (0.81–1.04)	Baseline utility in congestive heart failure	0.84 (0.80–0.88)	Utility for hospitalization	0.82 (0.77–0.92)	Intervention cost	\$91 (\$82–\$100)	Duration of benefit	24 months	Proportion to benefit	62%		Control	Intervention	Incremental	Total costs (\$)	101,080	90,415	-10,665	Total QALYs	1.818	1.929	0.111	ICER			Dominant
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Total QALYs	1.818	1.929	0.111																																	
ICER			Dominant																																	
Feasibility of Adoption	Organizational Feasibility	In-home care is currently administered by Community Care Access Centres in Ontario.																																		

Table A3: Continuity of Care

Decision Criteria	Subcriteria	Decision Determinant Considerations																				
Overall Clinical Benefit	Effectiveness	<p>Research Question Is higher continuity of care effective at reducing health resource utilization and improving patient outcomes?</p> <p>Clinical and Patient Outcomes</p> <ul style="list-style-type: none"> • There was insufficient evidence to comment on the relationship of continuity of care with disease-specific outcomes • Higher continuity of care was associated with improved control of blood glucose (hemoglobin A1c) (GRADE: low). • There was a positive association between high continuity of care and patient satisfaction, particularly among patients with chronic disease (GRADE: low). <p>Health System Outcomes</p> <ul style="list-style-type: none"> • Higher continuity of care was associated with decreased hospitalization and fewer emergency department visits (GRADE: low). 																				
	Safety	No safety concerns were identified.																				
	Burden of Illness	This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.																				
	Need	Continuity is valued among patients and providers, and it appears to decrease hospitalization and emergency department visits.																				
Consistency With Societal/Ethical Values	Societal and Ethical Values	Patients are more satisfied with higher continuity of care—especially patients with chronic disease. Younger, healthier patients value continuity as well, but they also value convenient access.																				
Value for Money	Economic Evaluation	<p>Models for continuity of care were done using sensitivity analyses and varying effectiveness and costs of potential interventions to improve continuity.</p> <p>Diabetes</p> <table border="1" data-bbox="560 1255 1417 1604"> <thead> <tr> <th data-bbox="560 1255 982 1291">Measure</th> <th data-bbox="987 1255 1417 1291">Point estimate</th> </tr> </thead> <tbody> <tr> <td data-bbox="560 1297 982 1360">Relative risk of hospitalization</td> <td data-bbox="987 1297 1417 1360">Low continuity of care: 1.00 Medium continuity of care: 0.75 (0.61–0.91) High continuity of care: 0.82 (0.68–0.98)</td> </tr> <tr> <td data-bbox="560 1367 982 1409">Relative risk of emergency department visits</td> <td data-bbox="987 1367 1417 1409">Low continuity of care: 1.00 High continuity of care: 0.87 (0.83–0.92)</td> </tr> <tr> <td data-bbox="560 1415 982 1436">Relative risk of mortality</td> <td data-bbox="987 1415 1417 1436">Not reported</td> </tr> <tr> <td data-bbox="560 1442 982 1463">Utility for people with high continuity of care</td> <td data-bbox="987 1442 1417 1463">0.73 (0.68–0.76)</td> </tr> <tr> <td data-bbox="560 1470 982 1491">Utility for people with medium continuity of care</td> <td data-bbox="987 1470 1417 1491">0.71 (0.68–0.74)</td> </tr> <tr> <td data-bbox="560 1497 982 1518">Utility for people with low continuity of care</td> <td data-bbox="987 1497 1417 1518">0.68 (0.65–0.71)</td> </tr> <tr> <td data-bbox="560 1524 982 1545">Intervention cost</td> <td data-bbox="987 1524 1417 1545">Not applicable</td> </tr> <tr> <td data-bbox="560 1551 982 1572">Duration of benefit</td> <td data-bbox="987 1551 1417 1572">Ongoing</td> </tr> <tr> <td data-bbox="560 1579 982 1600">Proportion to benefit</td> <td data-bbox="987 1579 1417 1600">Medium continuity of care: 8% Low continuity of care: 90%</td> </tr> </tbody> </table>	Measure	Point estimate	Relative risk of hospitalization	Low continuity of care: 1.00 Medium continuity of care: 0.75 (0.61–0.91) High continuity of care: 0.82 (0.68–0.98)	Relative risk of emergency department visits	Low continuity of care: 1.00 High continuity of care: 0.87 (0.83–0.92)	Relative risk of mortality	Not reported	Utility for people with high continuity of care	0.73 (0.68–0.76)	Utility for people with medium continuity of care	0.71 (0.68–0.74)	Utility for people with low continuity of care	0.68 (0.65–0.71)	Intervention cost	Not applicable	Duration of benefit	Ongoing	Proportion to benefit	Medium continuity of care: 8% Low continuity of care: 90%
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Decision Criteria	Subcriteria	Decision Determinant Considerations																				
		<p>Chronic Obstructive Pulmonary Disease</p> <table border="1" data-bbox="558 310 1417 680"> <thead> <tr> <th data-bbox="558 310 980 352">Measure</th> <th data-bbox="980 310 1417 352">Point estimate</th> </tr> </thead> <tbody> <tr> <td data-bbox="558 352 980 422">Relative risk of hospitalization</td> <td data-bbox="980 352 1417 422">Low continuity of care: 1.00 Medium continuity of care: 0.67 (0.62–0.71) High continuity of care: 0.50 (0.47–0.69)</td> </tr> <tr> <td data-bbox="558 422 980 491">Relative risk of emergency department visits</td> <td data-bbox="980 422 1417 491">Low continuity of care: 1.00 Medium continuity of care: 0.77 (0.63–0.94) High continuity of care: 0.56 (0.46–0.69)</td> </tr> <tr> <td data-bbox="558 491 980 520">Relative risk of mortality</td> <td data-bbox="980 491 1417 520">Not reported</td> </tr> <tr> <td data-bbox="558 520 980 550">Utility for people with high continuity of care</td> <td data-bbox="980 520 1417 550">0.73 (0.68–0.76)</td> </tr> <tr> <td data-bbox="558 550 980 579">Utility for people with medium continuity of care</td> <td data-bbox="980 550 1417 579">0.71 (0.68–0.74)</td> </tr> <tr> <td data-bbox="558 579 980 609">Utility for people with low continuity of care</td> <td data-bbox="980 579 1417 609">0.63 (0.65–0.71)</td> </tr> <tr> <td data-bbox="558 609 980 638">Intervention cost</td> <td data-bbox="980 609 1417 638">Not applicable</td> </tr> <tr> <td data-bbox="558 638 980 667">Duration of benefit</td> <td data-bbox="980 638 1417 667">Ongoing</td> </tr> <tr> <td data-bbox="558 667 980 680">Proportion to benefit</td> <td data-bbox="980 667 1417 680">Medium continuity of care: 7% Low continuity of care: 91%</td> </tr> </tbody> </table> <p data-bbox="558 705 1417 779">The sensitivity analysis suggested that for a range of costs and outcomes (based on confidence intervals from the review), interventions that increased the proportion of patients with high continuity of care were dominant or cost-effective over control.</p>	Measure	Point estimate	Relative risk of hospitalization	Low continuity of care: 1.00 Medium continuity of care: 0.67 (0.62–0.71) High continuity of care: 0.50 (0.47–0.69)	Relative risk of emergency department visits	Low continuity of care: 1.00 Medium continuity of care: 0.77 (0.63–0.94) High continuity of care: 0.56 (0.46–0.69)	Relative risk of mortality	Not reported	Utility for people with high continuity of care	0.73 (0.68–0.76)	Utility for people with medium continuity of care	0.71 (0.68–0.74)	Utility for people with low continuity of care	0.63 (0.65–0.71)	Intervention cost	Not applicable	Duration of benefit	Ongoing	Proportion to benefit	Medium continuity of care: 7% Low continuity of care: 91%
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Feasibility of Adoption	Organizational Feasibility	Specific interventions to improve continuity of care have not yet been identified; it is not possible to comment on organizational feasibility.																				

Table A4: Advanced (Open) Access Scheduling

Decision Criteria	Subcriteria	Decision Determinant Considerations
<p>Overall Clinical Benefit</p>	<p>Effectiveness</p>	<p>Research Question What is the effectiveness and cost-effectiveness of advanced access scheduling compared to traditional scheduling for the management of chronic diseases in Ontario adults?</p> <p>Clinical and Patient Outcomes</p> <ul style="list-style-type: none"> • There was inconsistent evidence of changes in chronic disease clinical measures (hemoglobin A1c, low-density lipoprotein cholesterol, systolic blood pressure) for patients with diabetes (GRADE: very low). • There was inconsistent evidence of changes in chronic disease clinical measures (hemoglobin A1c, low-density lipoprotein cholesterol, systolic blood pressure) for patients with coronary heart disease (GRADE: very low). <p>Health System Outcomes</p> <ul style="list-style-type: none"> • There were no significant changes in hospitalization rates for patients with diabetes (GRADE: low). • There was a significant reduction in hospitalization rates for patients with coronary heart disease (GRADE: very low). • There were no significant changes in emergency department visit rates for patients with diabetes (GRADE: very low). • There were no significant changes in emergency department visit rates for patients with coronary heart disease (GRADE: very low). • There was a significant reduction in the proportion of patients with diabetes admitted to hospital whose length of stay was > 3 days (GRADE: very low). • There was a significant reduction in the proportion of patients with coronary artery disease admitted to hospital whose length of stay was > 3 days (GRADE: very low).
	<p>Safety</p>	<p>A change in appointment scheduling should have little impact on clinical care, but the implementation of advanced access may negatively affect access to health care (and so potentially affect patient safety) if it is indiscriminately implemented. Patients who are older or who have cognitive impairments may have more difficulty making appointments or remembering to make appointments with this type of scheduling system. It may also increase inequity in access if people with less education or with lower incomes have a more difficult time accessing care.</p> <p>Implementation of advanced access that reduces provider continuity (via same-day appointments with a physician rather than striving to ensure that patients see their own physician) may negatively impact care.</p> <p>Of the 3 studies that looked at processes of care for adults with chronic conditions, 2 found that regular follow-up for these conditions was worse after advanced access implementation, although the clinical outcomes did not consistently worsen or improve (hemoglobin A1c, low-density lipoprotein cholesterol, systolic blood pressure). One study found an improvement in processes of care for adults with chronic conditions, but this was correlated to increase provider continuity rather than reductions in wait times for appointments.</p>
	<p>Burden of Illness</p>	<p>This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.</p>
	<p>Need</p>	<p>According to the 2010 International Health Policy survey (Commonwealth Fund), Canadians ranked last or next to last on questions dealing with timely access to regular doctors; findings in Ontario were consistent with the national results.</p>

Decision Criteria	Subcriteria	Decision Determinant Considerations
Consistency With Societal/Ethical Values	Societal and Ethical Values	<p>Positive</p> <ul style="list-style-type: none"> • Patients may be happy to have access to care on the day of their choice, rather than waiting for an appointment. • Being able to guarantee access to one's own primary care physician within 24 hours may increase public confidence/improve public perception of the health care system. • For practices where access to care in general is compromised, advanced access may be a useful tool to improve efficiencies. <p>Negative</p> <ul style="list-style-type: none"> • Advanced access may limit the patient's ability to book follow-up appointments in advance. • Advanced access appears to be geared more towards acute health care needs and may adversely affect care for people with chronic health needs.
Value for Money	Economic Evaluation	No economic evaluation was conducted, as the findings did not meet the criteria: there was no significant effect that could be applied to the Ontario context (reduction in admissions in coronary artery disease population was not used; authors reported a reduction in admissions but an increase in costs, which created an inconsistency in the findings).
Feasibility of Adoption	Organizational Feasibility	Advanced access is currently being implemented in Ontario (Advanced Access and Efficiency) with an intention for continued roll-out.

Table A5: Screening and Management of Depression

Decision Criteria	Subcriteria	Decision Determinant Considerations
Overall Clinical Benefit	Effectiveness	<p>Research Question In a chronic disease population, is a screen-and-treat strategy for depression associated with an improvement in both psychiatric and chronic disease outcomes?</p> <p>Clinical and Patient Outcomes</p> <ul style="list-style-type: none"> • Screening and medication management of mild depression in patients with diabetes did not significantly improve blood glucose control (hemoglobin A1c) for patients with diabetes (GRADE: low). • Screening and medication management of depression in patients with heart failure did not significantly affect (improve or worsen) cardiac event rates (GRADE: moderate) or mortality (GRADE: moderate), and did not significantly change electrocardiography findings (GRADE: low). • Screening and medication management of depression in patients with coronary heart disease did not significantly reduce the proportion of patients with reduced left ventricular ejection fraction (< 30%) (GRADE: moderate) and did not significantly change electrocardiography findings (GRADE: low). • Screening and medication management of depression in patients with coronary artery disease appeared to have a potentially protective effect on myocardial infarction rates and mortality; however, the difference was not statistically significant (GRADE: moderate).
	Safety	<p>No safety concerns were identified. Possible concerns may be as follows:</p> <ul style="list-style-type: none"> • Depression is generally thought to be underdiagnosed, but an increase in screening in a chronic disease population could lead to overdiagnosis, especially among patients with temporary depression related to an exacerbation or new diagnosis of a chronic disease. • Patients treated with medication may experience drug interactions with chronic disease medications.
	Burden of Illness	<p>The World Health Organization recognizes depression as the leading cause of disability and the fourth leading contributor to the global burden of disease. Despite this, depression continues to be underrecognized and undertreated. The 1994/95 National Population Health Survey, a Canadian longitudinal study that included household residents in all provinces, reported a 1-year prevalence for major depressive disorder of about 6% among Canadians aged 18 and older. Point prevalence estimates of major depression range between 4.8% and 8.6% in primary care settings in the United States.</p> <p>The 2005 Canadian Community Health Survey, cycle 3.1, measured the prevalence rates of comorbid mood disorders among individuals with various chronic physical conditions in Ontario. The highest prevalence (15.5%) was seen in those living with the effects of stroke, followed by those with cardiovascular disease (9.8%) and diabetes (9.3%).</p>
	Need	<p>Depression is frequently encountered in primary care settings and is more prevalent among chronic disease patients. If effective treatments are available, identifying depression in patients can improve their clinical status and quality of life.</p>
Consistency With Societal/Ethical Values	Societal and Ethical Values	<p>Positive</p> <ul style="list-style-type: none"> • Increased awareness of patients' mental health may improve patients' overall health and their relationship with health care providers. <p>Negative</p> <ul style="list-style-type: none"> • There is stigma attached to mental health diagnoses. • A screen-and-treat approach may lead to overtreatment of transient depression.
Value for Money	Economic Evaluation	<p>No economic evaluation was conducted, as the findings did not meet the criteria: there were no statistically significant effects found in the evidence review.</p>
Feasibility of Adoption	Organizational Feasibility	<p>A number of disease-specific guidelines recommend depression screening.</p>

Table A6: Self-Management Support Interventions

Decision Criteria	Subcriteria	Decision Determinant Considerations
Overall Clinical Benefit	Effectiveness	<p>Research Question What is the effectiveness of self-management support interventions for persons with chronic disease compared to usual care?</p> <p>Clinical and Patient Outcomes</p> <ul style="list-style-type: none"> The Stanford Chronic Disease Self-Management Program led to statistically significant, albeit clinically minimal, short-term (median 6 months) improvements across a number of health status measures, in healthy behaviours, and self-efficacy compared to usual care (GRADE: low). There was no significant difference between the Stanford Chronic Disease Self-Management Program and usual care across some health-related quality of life scales (GRADE: very low). The Stanford Chronic Disease Self-Management Program led to statistically significant, albeit clinically minimal, short-term (median 6 months) improvement in EuroQoL 5 Domain score compared to usual care (GRADE: moderate). <p>Health System Outcomes</p> <ul style="list-style-type: none"> There was no significant difference between the Stanford Chronic Disease Self-Management Program and usual care in short-term (median 6 months) health care utilization (GRADE: very low). <p>Other Findings</p> <ul style="list-style-type: none"> More research is needed to explore the long-term (12 months and greater) effect of self-management across outcomes and to explore the impact of self-management on clinical outcomes. Exploratory evidence suggests that some subgroups of persons with chronic conditions may respond better to the Chronic Disease Self-Management Program; however, there is considerable uncertainty, and more research is needed to better identify responders and nonresponders.
	Safety	No safety concerns were identified.
	Burden of Illness and Need	<p>Managing a chronic disease is a complex process that typically requires individuals to manage a number of health-related factors themselves; some diseases, such as diabetes, require near total self-care. As a result, patient programs have been developed to provide support to individuals with chronic diseases and help them self-manage their condition as effectively as possible. This support can be collectively viewed as “self-management support.” With prevalence rates of chronic diseases expected to rise as Ontario’s population ages, there is increasing need and demand for self-management support.</p> <p>This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.</p>
Consistency With Societal/Ethical Values	Societal and Ethical Values	<p>Positive</p> <ul style="list-style-type: none"> Self-management programs may improve patients’ confidence and ability to care for themselves. <p>Negative</p> <ul style="list-style-type: none"> Patients who become overconfident may not seek care when it is appropriately needed.
Value for Money	Economic Evaluation	No economic evaluation was conducted, as the evidence-based analysis was conducted in patients with more than 1 chronic disease; as such, findings could not be applied to a specific disease cohort. As well, significant outcomes were clinical in nature and could not be costed using health utilization data.

Feasibility of Adoption	Organizational Feasibility	<p>As of January 2010, there were 52 licences for the Chronic Disease Self-Management Program in Ontario. Involvement at the local level through Local Health Integrated Networks has been variable, although most Local Health Integration Networks have identified self-management as a priority. In the Greater Toronto Area, the Ontario Patient Self-Management Network helps to coordinate patient self-management activities and provides momentum for this approach to be more widely accepted in Ontario health care. The Ontario Patient Self-Management Network is made up of various Toronto-based organizations, associations, and hospitals. However, licensing and training are required for external organizations to implement the Chronic Disease Self-Management Program. Licensing fees range from \$500 (US) to \$1,500 (US), depending on the number of participants and leaders). Training fees range from \$900 (US) to \$1,600 (US) for on-site training, up to \$16,000 (US) for off-site training.</p>
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Table A7: Specialized Nursing Practice

Decision Criteria	Subcriteria	Decision Determinant Considerations
Overall Clinical Benefit	Effectiveness	<p>Research Question What is the effectiveness of specialized nursing practice in comparison to usual care in improving patient outcomes and health system efficiencies for chronic disease management in the primary healthcare setting?</p> <p>Clinical and Patient Outcomes, and Process Measures <i>Model 1: Specialized Nurse vs. Physician</i></p> <ul style="list-style-type: none"> There was no significant difference among patients receiving primary healthcare from nurse practitioners in comparison to physicians alone for health-related quality of life or patient satisfaction in health-related quality of life or patient satisfaction (GRADE: moderate). There was no significant difference among diabetes patients receiving primary healthcare from nurse practitioners in comparison to physicians alone for blood glucose control (hemoglobin A1c) (GRADE: very low). <p><i>Model 2: Specialized Nurse + Physician (Usual care) vs. Physician (Usual Care)</i></p> <ul style="list-style-type: none"> There was a significant increase in the proportion of coronary artery disease/cardiovascular disease patients achieving threshold blood pressure and/or cholesterol levels and a significant reduction in hemoglobin A1c among diabetes patients among patients receiving specialized nursing care plus physician care in comparison to usual care (GRADE: moderate). There was a trend towards improved process measures related to clinical examinations and medication management among patients receiving specialized nursing care plus physician care in comparison to usual care (GRADE: low to moderate) There was a significant increase in patient satisfaction (GRADE: moderate) but inconclusive results regarding health-related quality of life (GRADE: low to moderate) with specialized nursing care plus physician care in comparison to usual care. <p>Health System Outcomes <i>Model 1: Specialized Nurse vs. Physician</i></p> <ul style="list-style-type: none"> There was no significant difference among patients receiving primary healthcare from nurse practitioners in comparison to physicians alone for hospitalizations, emergency department/urgent care visits, specialist visits, or primary healthcare visits (GRADE: moderate). There was no significant difference among diabetes patients receiving primary healthcare from nurse practitioners in comparison to physicians alone for hospitalizations, emergency department/urgent care visits, specialist visits, or primary healthcare visits (GRADE: very low). <p><i>Model 2: Specialized Nurse + Physician (Usual care) vs. Physician (Usual Care)</i></p> <ul style="list-style-type: none"> There was a significant reduction in hospitalizations but no difference in hospital length of stay among patients with coronary artery disease receiving specialized nursing care plus physician care in comparison to usual care (GRADE: low). There was a significant increase in the number of visits to primary health care among diabetes patients receiving specialized nursing care plus physician care in comparison to usual care (GRADE: low). There was no difference between specialized nurses plus physicians and usual care for number of physician consultations or objective/subjective physician workload (GRADE: low).
	Safety	None of the studies found specialized nursing practice to be less safe than physician care alone or usual care.
	Burden of Illness	This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.

	Need	Demands for primary health care services have increased in Ontario, with pressures to improve patient outcomes and contain costs. Specialized nurses can either substitute or supplement aspects of physician care to potentially improve patient access to care, outcomes and healthcare efficiency.																																																																												
Consistency With Societal/ Ethical Values	Societal and Ethical Values	Patients are more satisfied with care provided by a specialized nurse plus a physician compared to physician care alone.																																																																												
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<p>Feasibility of Adoption</p>	<p>Organizational Feasibility</p>	<p>Registered nurses with disease-specific training and primary care nurse practitioners are already working in Ontario primary health care. These nurses are working either as part of family health teams or in nurse practitioner-led primary healthcare clinics. The Ministry of Health and Long-Term Care is currently funding 26 nurse practitioner–led clinics in underserved populations. Nurse practitioners in these clinics provide primary health care to select patients, and physicians function in more of a consulting rather than a primary provider role. In addition to the provision of direct health care services, nurse practitioner–led clinics focus on chronic disease management and disease prevention activities. There remain issues related to the appropriate utilization of specialized nurses in primary healthcare and ensuring nurses are working to their full scope of practice.</p>																																						

Table A8: Electronic Tools for Health Information Exchange

Decision Criteria	Subcriteria	Decision Determinant Considerations																																						
Overall Clinical Benefit	Effectiveness	<p>Research Questions What is the impact of electronic tools for health information exchange on patient outcomes and health services utilization when used to improve the care coordination of adults with chronic disease? What specifications of electronic tools contribute to their effectiveness?</p> <p>Patient Outcomes</p> <ul style="list-style-type: none"> There was no difference in patient outcomes with electronic tools. (GRADE: very low [8 outcomes]; low [7 outcomes]; high [1 outcome]) <p>Health System Outcomes</p> <ul style="list-style-type: none"> When an automated laboratory results report with clinical alerts mapped to guidelines was shared with primary care, there was a significant reduction in hospitalization rates, hospital length of stay, and emergency department visits (GRADE: moderate). <p>Other Findings</p> <ul style="list-style-type: none"> The evidence did not demonstrate a positive impact of electronic tools on process-of-care measures. (GRADE: very low ([26 outcomes]); low ([12 outcomes]); moderate ([1 outcome])) The evidence did not demonstrate a positive impact of electronic tools on efficiency (GRADE: very low ([6 outcomes]); moderate ([2 outcomes]); high ([1 outcome])) 																																						
	Safety	No safety concerns were identified.																																						
	Burden of Illness	This review was limited to adults with chronic conditions. Based on data reported in the POWER Study, 62% of women and 55% of men aged 25 and older have at least 1 chronic condition and 31% of women and 25% of men in this age group have 2 or more chronic conditions. The prevalence of chronic conditions and multimorbidity (multiple chronic conditions) increases with age.																																						
	Need	As patients experience transitions in care, there is a need to share information between care providers in an accurate and timely manner. With the push towards electronic medical records and other electronic tools, and away from paper-based health records, there remains uncertainty around the realized impact on health services utilization and patient outcomes of these innovative forms of communication.																																						
Consistency With Societal/Ethical Values	Societal and Ethical Values	Ontario's primary health teams are generally supportive of computer-assisted communication. There is consensus that electronic tools can facilitate sharing of information with greater ease, speed, and accuracy. However, some health care providers maintain a preference for face-to-face communication.																																						
Value for Money	Economic Evaluation	<p>Evidence-based analysis estimates are in a diabetes cohort only.</p> <table border="1" data-bbox="558 1390 1427 1734"> <thead> <tr> <th>Measure</th> <th>Point estimate</th> </tr> </thead> <tbody> <tr> <td>Relative difference in hospitalization</td> <td>Control: 1.00 Intervention: 0.85 (0.75–0.95)</td> </tr> <tr> <td>Relative difference in emergency department visits</td> <td>Control: 1.00 Intervention: 0.75 (0.61–0.89)</td> </tr> <tr> <td>Relative risk of mortality</td> <td>Not reported</td> </tr> <tr> <td>Baseline utility in diabetes</td> <td>0.77 (0.74–0.80)</td> </tr> <tr> <td>Utility for hospitalization</td> <td>0.55 (0.51–0.57)</td> </tr> <tr> <td>Intervention cost</td> <td></td> </tr> <tr> <td> One-time cost</td> <td>\$1.04 (\$0.39–\$2.71)</td> </tr> <tr> <td> Ongoing cost</td> <td>\$119 (\$74.37–\$232.56)</td> </tr> <tr> <td>Duration of benefit</td> <td>32 months</td> </tr> <tr> <td>Proportion to benefit</td> <td>100%</td> </tr> </tbody> </table> <table border="1" data-bbox="558 1755 1427 1848"> <thead> <tr> <th></th> <th>Control</th> <th>Intervention</th> <th>Incremental</th> </tr> </thead> <tbody> <tr> <td>Total costs (\$)</td> <td>30,226</td> <td>29,889</td> <td>–337</td> </tr> <tr> <td>Total QALYs</td> <td>2.789</td> <td>2.795</td> <td>0.006</td> </tr> <tr> <td>ICER</td> <td></td> <td></td> <td>Dominant</td> </tr> </tbody> </table> <p>Abbreviations: ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year.</p>	Measure	Point estimate	Relative difference in hospitalization	Control: 1.00 Intervention: 0.85 (0.75–0.95)	Relative difference in emergency department visits	Control: 1.00 Intervention: 0.75 (0.61–0.89)	Relative risk of mortality	Not reported	Baseline utility in diabetes	0.77 (0.74–0.80)	Utility for hospitalization	0.55 (0.51–0.57)	Intervention cost		One-time cost	\$1.04 (\$0.39–\$2.71)	Ongoing cost	\$119 (\$74.37–\$232.56)	Duration of benefit	32 months	Proportion to benefit	100%		Control	Intervention	Incremental	Total costs (\$)	30,226	29,889	–337	Total QALYs	2.789	2.795	0.006	ICER			Dominant
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		The sensitivity analysis suggests that for a range of costs and outcomes (based on confidence intervals from the review), the intervention was cost-effective over control.
Feasibility of Adoption	Organizational Feasibility	There is great heterogeneity in the technologies, settings, and contexts in which electronic tools have been implemented. This, in turn, makes it difficult to speculate on the organizational structure and culture needed to facilitate the observed impact of electronic tools for care coordination. Ontario currently has a program to assist with the funding of the initial adoption and upgrading of various electronic medical record systems. Standards for electronic medical records imposed by eHealth and created in collaboration with Canada Health Infoway and the Government of Ontario Information & Technology Standards must be met to be eligible for funding.

Appendix 2: Aging in the Community Recommendations

General Recommendations

Exercise Interventions

- The province should engage in high-profile health promotion activities to encourage regular exercise for the community-dwelling elderly.
- The province should build on existing strategies and adopt new innovative strategies that promote ease of access to exercise/exercise programs for the community-dwelling elderly.

Caregiver-Directed Programs

- Given the key role that caregivers play in sustaining elderly living in the community, education, support, and relief programs for caregivers should be a priority.

Falls and Fall-Related Injuries

- In addition to exercise, the following interventions should be made available to or promoted for use by the community-dwelling elderly:
 - environmental modifications in high-risk populations
 - vitamin D + calcium supplementation in women
 - use of gait-stabilizing devices outdoors in the mobile elderly

Urinary Incontinence

- The province should consider increasing access to nurse continence advisors, possibly through multimodal community-based clinics that offer multicomponent (including pelvic floor muscle training) behavioural interventions.

Dementia

In addition to exercise for the primary and secondary prevention of dementia, the following interventions should be made available for community-dwelling elderly and their caregivers:

- behavioural management interventions: interventions designed to help the caregiver manage the behavioural and psychological symptoms of dementia (i.e., agitation, depression, anxiety, sleep disorders)
- multicomponent interventions: interventions encompassing ≥ 2 supportive interventions that address the complex needs of caregivers (i.e., education + counselling + behavioural management)

Social Isolation

- Community-based exercise programs combined with informal opportunities to share information should be made available for the community-dwelling elderly.