A SUPPORT FOR HEALTH LINKS

bestPATH

Person-centred • Appropriate • Timely Healthcare

Evidence Informed Improvement Package

Transitions of Care

Ontario
Health Quality Ontario

Section 1

Introduction & Overview

ACKNOWLEDGEMENTS

This workbook is the result of the efforts of the Health Quality Ontario (HQO) For additional information about other resources, contact: Health Quality Ontario www.hqontario.ca

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1.1 bestPATH Overview

bestPATH is a broad, multi-year initiative aimed at improving health outcomes, the experience of care, and system effectiveness for Ontarians with complex chronic illness by delivering *Person-centred*, *Appropriate*, *Timely Healthcare.* bestPATH will ensure more accessible and coordinated care delivery, with planning and information sharing across health sectors, as well as the consistent application of effective practices.

Individuals with one or more conditions such as: diabetes, congestive heart failure, coronary artery disease, stroke, and chronic obstructive pulmonary disease have complex care needs, involving primary care, home care, hospitals, and specialists. Establishing smooth **transitions** between these areas of care is critical to managing chronic conditions so that they do not worsen, potentially leading to hospitalizations that might have been avoided. Safe and reliable care that is better coordinated—the right drugs, monitoring, and timely access to services and procedures—can significantly improve quality of life and lessen the burden on families and the health care system.

Health Quality Ontario has partnered with health organizations as well as leading-edge researchers from across the province to ensure the relevancy of the program's goals and the currency of practices and tools. We will continue to collaborate with these partners to support widespread adoption of clinical and organizational standards, in order to achieve the goal of long-term transformative change in Ontario's health system.

bestPATH Triple Aims

bestPATH will achieve system transformation through, a triple aim approach that will re-focus the system to deliver:

1. **best Care** – Improve the care experience by making care more accessible and provide a smooth journey through the system by ensuring clear communication and strong engagement, both among providers and between providers and recipients.
2. **best Health** – Improve outcomes for persons with chronic conditions through the use of evidence-informed practices.
3. **best Value** – Ensure that care occurs in the most appropriate setting, reducing the rate of unnecessary hospitalizations and contributing to more appropriate resource utilization.

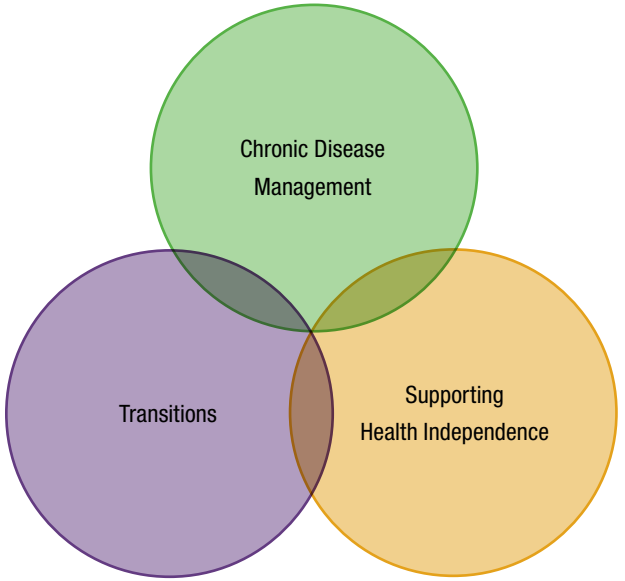
1.2 Areas of Focus

bestPATH will focus on three areas of improvement that are distinct, but interrelated throughout the health care system: transitions of care, chronic disease management, and enabling people to live independently and safely at home.

This change package focuses on transitions of care, though there are overlapping themes and suggestions that will appear throughout the series. The objective of this document is to introduce a handful of **change concepts** that are designed to improve the transitioning of individuals between care providers and environments.

Many of the guiding principles, change concepts and tools that are presented in this package can be applied to transitions at any point along the entire continuum of care. This change package focuses on the transition from hospital to a subsequent care destination because, as one study noted, "Although the care that prevents rehospitalisation occurs largely outside of the hospital, it starts in the hospital." [1]

Another key transition point—discharge from the Emergency Department—will be presented in a separate change package.



Some of the recommendations presented in this change package focus on functional **integration of care** and related activities across the continuum of care, to ensure that individuals get the right care, at the right time, by the right provider.

1.3 Sources of Evidence used in this Change Package

This package was developed using a number of sources and a range of evidence. This includes: topic-specific evidence-based analyses and reviews conducted by Health Quality Ontario or others, evidence-informed change packages/programs published by other organizations (such as the Institute for Healthcare Improvement, Canadian Patient Safety Institute), peer-reviewed articles, and grey literature. Therefore the extent of evidentiary support for the change concepts varies.

Importantly, the experiences of persons who live with chronic disease and the burden of illness, as well as a broad array of providers (e.g., different sectors, professional roles) were collected. The recurring challenges and experiences of these individuals influenced the content and recommendations offered in the change packages.

Based on external consultations and emerging evidence, a handful of themes are featured in all three of the bestPATH change packages. These are: a focus on incorporating evidence-informed practice guidelines; strengthening **health literacy** and one's ability to self-manage health and health care; and reducing **fragmentation of care.** These themes speak to the barriers to collaboration and focus on putting an individual's needs front and centre.

Facts & Figures

In the case of post-hospital transitions, many patients are not getting the information they require when discharged from the emergency department (ED) or hospital. A 2010/11 international survey highlighted that only 69% of **sicker adults** reported that their regular doctor/general practitioner seemed informed about the care they received in hospital or after surgery, and only 73% reported that their regular doctor seemed informed about the care they received from a referred specialist.[2]

More than half of the adults surveyed in Canada reported that upon discharge from hospital, they did not receive written **care plans,** arrangements for a follow-up visit, or instructions about what symptoms to watch for or whom to contact with potential questions.[3] In an Ontario study of persons discharged from ED, only 51% knew danger signs to watch out for after going home and 62% knew whom to call if they needed help.[4]

Section 2

How to use this Change Package

2.1 How to Use This Change Package

Changes That Will Lead to Improvement

Change doesn't always lead to improvement. However, all improvement requires change. Developing, testing and implementing change is integral for any improvement work—but what types of changes will lead to improvement? A change concept is a general notion or approach that has been found to be useful in developing specific ideas for change that result in improvement. This guide describes change concepts that have been shown to lead to improvement in a variety of health care environments. Some change concepts can be quite general and are meant to inform the reader of potential themes for improvement, while others can be more specific and apply to a particular problem or area of focus.

Organization of Content

This change package provides information that can be used sequentially to complete a specific task (or series of tasks), or can be used selectively and independently, depending on the user's needs.

This package includes:

- **An overview of transitions of care** that highlights where transitions occur in an individual's health care journey and why seamless transitions between providers and care environments are important to a person's overall health.
- **Four (4) key evidence-informed change concepts** that are recommended to assess and address an individual's needs when transitioning out of hospital, with specific ideas and practices that can be followed in order to effectively transfer care. These one page overviews of key activities and resources that are recommended for each change concept have been designed so that each can be printed as an individual handout or posted where they can be a reference for everyone in your organization. These can be found in Section 4.
- **A deeper dive into the change concepts,** including evidence on why these concepts are important and how they factor into creating more seamless transitions. This section also identifies areas where there are breakdowns and challenges in creating smooth transitions and includes relevant tools and resources.

Section 3

General Overview of Transitions of Care

3.1 General Overview of Transitions of Care

Why Focus on Transitions?

A **care transition** describes the transfer of a patient between different settings and health care providers during the course of an acute or chronic illness.[5] Transitions can occur at many different times and places in a person's health care journey, and might include: referrals from a person's family physician to specialist care, admission into a hospital, discharge out of the emergency department or hospital, and admission to a long-term care facility from the person's home.

By necessity, transitional care involves a number of professionals within and between disciplines and settings, all sharing the responsibility of care for one individual. However, this presents numerous challenges to providing continuous care delivery, particularly for the elderly with complex conditions. Unfortunately, care transitions are often discontinuous and poorly coordinated, resulting in poor quality of care, compromised patient safety and unfavourable experiences of care. Many people are readmitted to hospital due to:

- Unclear or delayed discharge plans and instructions
- Conflicting plans and instructions from different providers
- Medication errors, including dangerous drug interactions and duplications

The consequences of ineffective transitions are far-reaching, and can cause frustration among providers, add unnecessary costs to the health care system, and cause confusion and stress for individuals, their family members, and **caregivers**.

Facts & Figures

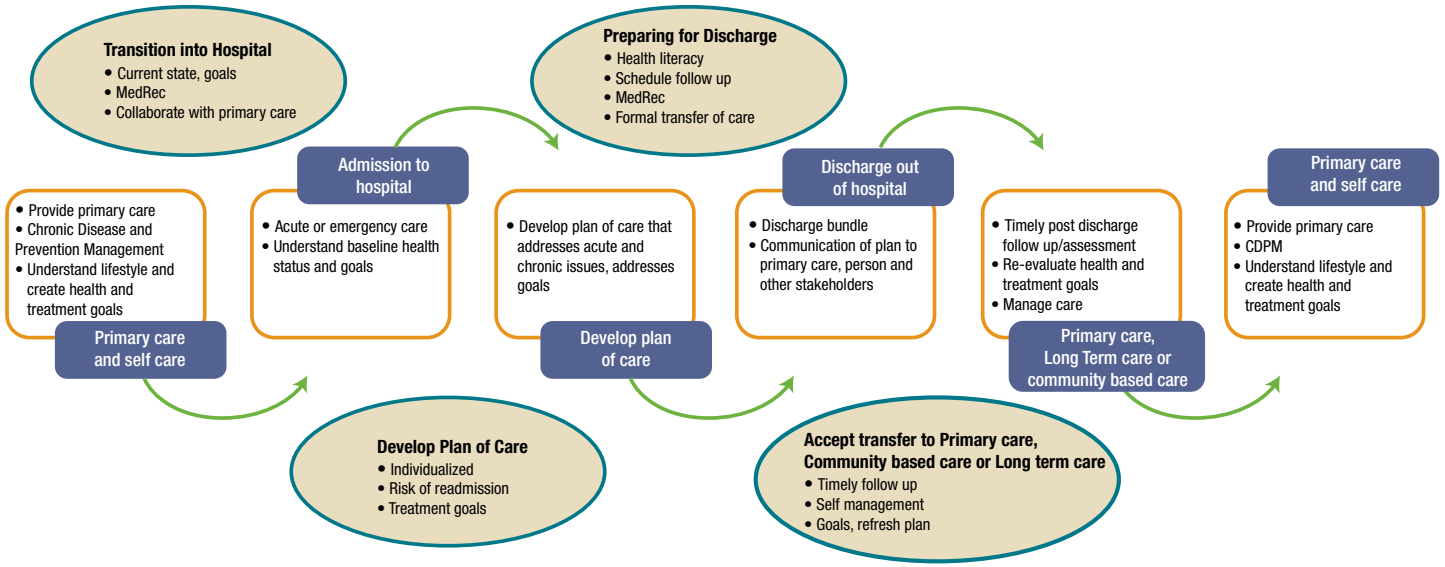
The Change Foundation in Ontario conducted a survey to gain the experience of providers who deliver home care and support services in communities across Ontario. They found that 27% of the community-based service providers surveyed stated that they were not satisfied with the information provided prior to the first visit with the client who was recently transferred out of hospital. Furthermore, more than one third of these providers regularly relied on the client and their informal caregivers to pass relevant information to other providers. One in 10 felt that their clients' last home posed direct safety risks to them (something the provider was not aware of prior to the visit).[6]

3.2 General Overview of Transitions of Care

By focusing on transitions, we can simultaneously address multiple issues around inefficiency and fragmentation and move toward more integrated care by:

- Bringing together providers and organizations from across the continuum of care.
- Ensuring that services are coordinated and complement one another.[7]
- Sharing information between providers accurately, promptly and with a consistently high standard.[8]
- Collaborating to ensure that **continuity of care** is not a 'nice to have' but rather an obligation toward the individual who must manage chronic disease and illness.

Figure 1: Transition Points along the Continuum of Care



Section 4

Change Concepts

4.1 Change Concepts

How to Improve Transitions: Evidence-Informed Change Concepts

Evidence shows that creating standardization in the system helps to eliminate waste and improves efficiency. Activities to ensure seamless transitions should occur at various stages throughout the process, beginning with the creation of individualized care and discharge plans upon admission, assessing an individual's readiness to be discharged from hospital, implementing the care and discharge plans while in hospital, and finally, the discharge itself.

An example of these activities is establishing the use of a validated standard assessment tool at hospital admission to identify patients who are at risk for readmission, and tailoring their care and discharge plan accordingly. Other evidence-supported initiatives include creating partnerships with community health providers (e.g., community pharmacists) who may be able to visit patients in the home to review medication lists, provide education, and ensure that they are not taking medications that can result in harmful drug interactions.[9,10]

Four (4) key change concepts have been identified to address major gaps in the coordination of care during transitions. The table below outlines these concepts as well as the continuum of evidence that the concepts were based on:

CHANGE CONCEPT	CONTINUUM OF EVIDENCE
1. Conduct individualized care and discharge planning	Systematic review conducted by HQO, grey literature, expert opinion, emerging innovations
2. Assess post-transition risk of readmission and arrange appropriate discharge follow-up	Grey literature, expert opinion, emerging innovations
3. Reconcile medications at key transition points	Published systematic review, grey literature, expert opinion, emerging innovations
4. Strengthen health literacy – help the person develop the knowledge and skills to independently manage their care	Systematic review, grey literature, expert opinion, emerging innovations

4.2 Conduct Individualized Care and Discharge Planning

Within 24 hours of "decision to admit" to hospital:

- Assess the current state of the person being admitted to hospital, including:
  - Clinical status and prescribed interventions
  - Social status and support network
  - Cognitive and psychological status
  - Clinical functional status
  - Environmental factors
  - Existing advanced directives
  - Ability to cope/quality of life
  - Health care goals and preferences
  - Cultural values and beliefs
  - Preferred language of communication
- Assess and document the individual's level of health literacy, or the person's ability to understand written or verbal information relating to their health and health care needs. Include the person's level of health literacy in the care and discharge plan(s).
- Ensure that the individual's primary care provider is notified immediately following the decision to admit to hospital.
- Assess and document the individual's post-hospital care preferences and needs, including:
  - Preferences (e.g., living arrangement, correspondence), social and cultural supports
  - Clinical status and prescribed interventions
  - Cognitive and psychological supports
  - Medications and reconciliation follow-up plan
  - Diet (routine or special)
  - Access to social and financial resources
  - Ability to perform self-care or monitor health status
  - Challenges of physical environment
- Assess and document the individual's risk of readmission to hospital. Include this information in the care and discharge plan(s) (Health Quality Ontario recommends that teams utilize the LACE Index Scoring Tool as a consistent method for assessing readmission risk)
- Create **Best Possible Medication History (BPMH)** and reconcile medications — incorporate into care and discharge plan(s).

4.2 Conduct Individualized Care and Discharge Planning

TIP!

For individuals who present to ED or are re-hospitalized following a recent discharge, ask the following questions and consider how to address these issues via the individualized care and discharge plan:

- How or why do you think you became too sick to stay in your home?
- Did you see a doctor before coming to the hospital? If yes, who did you see and when? If not, why?
- Has anything stopped you from taking your medications? How do you set up and take your medicines every day?

Reminders

- When creating the care and discharge plan, consider the person's stated goals and preferences, level of health literacy and understanding, and preferred communication styles.
- Involve the family caregivers, primary care team, specialists and community providers as full partners in assessing current state, home-going needs, and risk of readmission.
- Identify ways for the patient and/or their informal caregivers to participate in the **medication reconciliation** process as a basic part of their care. Create tools and resources to support their participation.

During hospital stay:

- Anticipate the expected date of discharge, and share it with the person, their caregiver(s) and the next care provider(s) (e.g., primary care team, long-term care home, Community Care Access Centre, etc.).
- Implement the individualized care and discharge plan(s); revise as required based on therapeutic progress, consultations, and new information.
- Confirm or re-evaluate the person's risk of readmission using a standardized tool (e.g., LACE Index Scoring Tool). Revise care and discharge plans as required.
- Based on discharge plan and risk assessment score, schedule follow-up care and assessments (with primary care team, home care, other) and initiate clinical and social services. Confirm and document appointments in discharge plan.
- Reconcile medications at discharge and include in final discharge plan.

4.2 Conduct Individualized Care and Discharge Planning

At time of discharge:

- Schedule face-to-face and real time discharge conversations ("warm handoffs") with the person and their family or informal caregivers.
- Provide the written individualized discharge plan to the person and their caregiver(s) at the time of discharge from hospital. Provide written individualized care and discharge plans to their primary care team, specialists and other providers within 24 hours of discharge. Provide an updated post-discharge medication regimen and review with the person and their family/caregiver(s) at time of discharge.
- Provide list of scheduled follow-up appointments and review with the person and their family/caregiver(s) at time of discharge.
- Confirm person's (and/or their family and caregivers') comprehension of the information discussed. Document level of understanding in the person's chart.

TIP!

- Consider the individualized discharge plan as a "transfer of care" to primary care, home care and specialists (as required). Agree on transfer of care and time frame.
- Contact the person's emergency contact(s) about discharge instructions either before or immediately following discharge and provide relevant information for the person's safety.
- If the person's discharge is dependent upon the presence of services or supplies from other agencies, ensure these are in place prior to discharge and are prepared to provide or enable immediate care.

4.3 Assess post-transition risk of readmission and arrange appropriate follow up support

- Use an evidence-based tool (i.e., **LACE Index Scoring Tool**) to identify individuals who are at risk for readmission post-discharge.
- Before leaving the hospital, Individuals at high risk of readmission should have a booked appointment to see their primary care team within 48 hours.
- Before leaving the hospital, Individuals at moderate risk of readmission should have scheduled for them a follow-up phone call within 48 hours of discharge. They should also have a booked appointment with their primary care team within 5 days post-discharge.
- Verify that the person understands:
  - How to recognize worsening symptoms
  - When and how to seek help, and from whom
  - When, how and why to take medications, and conduct other elements of the self-care plan
  - Scheduled appointments (when, where, why, and with whom)

TIP!

- Consider individual choice and preferences and particularly and individual's choice to live at risk - when discussing and coordinating post discharge support.

4.4 Reconcile medications at key transition points

- Create a Best Possible Medication History (BPMH) at the time of admission. Include gathering of medication information from the person, their caregivers, and where possible pharmacists and their primary care team to ensure a complete and accurate medication history.
- Reconcile medications at admission. Use BPMH to create and/or compare to admission orders. Identify and resolve discrepancies with the team.
- Reconcile medications prior to discharge. Use BPMH and the most up-to-date hospital medication list to compare and/or create a Best Possible Medication Discharge Plan (BPMDP). Identify and resolve discrepancies with the team and include BPMDP as a part of the discharge summary.
- Provide the post-discharge medication list and instructions to the person and their caregivers and explain using non-medical language. Consider checklists or non-written cues to help the person take their medications as prescribed.
- Assess the need for post-discharge medication reconciliation. Provide recommendation and information to the person, their family/caregiver(s) and include in discharge plan.

Tool

Safer Healthcare Now! medication reconciliation toolkits. Go to http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Pages/default.aspx.

Assess barriers which may limit accessing medications post-discharge. Financial barriers may prevent the person from purchasing medications or make it necessary for them to stretch their supply. Mobility issues may create difficulties for the person to access a pharmacy.

4.5 Strengthen health literacy - help the person develop the knowledge and skills required to independently manage their care and home environment.

- Assess and document the person's learning needs, preferences and level of health literacy (ability to understand medical concepts).
- Verify that the person understands their medical condition(s) and possesses the knowledge and skills necessary to monitor and manage their prevention and treatment regimes.
- Identify key family members/caregivers. Consider them, along with the person, as "learners" and consider their level of health literacy.
- Use health literacy assessments to inform information sharing strategies, materials and resources.
- Have in-person conversations and schedule "warm handoffs" for each transfer. Use a variety of techniques to enhance the individual's learning, including visual or non-written materials.
- Create a shame-free environment that encourages questions and adopt a more person-centred communication style.
- Communicate in easy to understand language and use person-friendly materials.
- Assess the person's and family caregivers' understanding of discharge instructions, medication schedule.

TIP!

Using **teach back**[49] and other techniques to enhance learning are vital for setting the stage for independent living and self-management. Consider health literacy techniques to enhance learning for every interaction in any healthcare setting.

4.6 A Deeper Dive into the Change Concepts

This section provides a more in-depth look at each of the change concepts, why they are important, and what breakdowns can occur in these aspects of an individual's care. This section also provides some tools and resources that are specific, evidence-informed, and validated from various well-known and credible sources.

Conduct Individualized Care and Discharge Plans

Why is conducting individualized care and discharge planning important?

An individualized care plan is written by a health professional and is intended to help individuals manage their health and health care on a daily basis. It should take the individual's medical history into account, including information from their primary care physician, hospital records, specialist consultations, medications, and other health-related services.[11]

An individualized care plan is designed to help individuals and their providers address all aspects of the care they're receiving, including:[12]

- The goals an individual wants to work towards, such as getting out of the house more, returning to work, or returning to important social activities
- The support services an individual may want, who is in charge of providing these services, what the support services have agreed to do and when they will do it
- Emergency contact numbers
- Medication plan
- An eating plan
- An exercise plan

An individualized care plan is intended to guide care, regardless of where the person's care is taking place. In reality, many care plans are generated, documented and implemented by distinct teams of professionals who are working in different sectors. This results in numerous and (at times) competing care plans being implemented by teams that do not communicate regularly.

Ideally, while the person is being cared for at home or in a community-based setting, the primary care team (or long-term care physician) will work with the person to create a care plan that meets their needs and encourages the person to meet his or her goals. Should the person require hospitalization, the existing care plan should form the basis of the care required during the acute care phase and inform the discharge plan.

4.6 A Deeper Dive into the Change Concepts

What to keep in mind when conducting individualized care and discharge planning?

- While each plan should be individualized (and thus, no two plans should look the same), it is important to standardize the assessment process for creating care and discharge plans to ensure that all the key aspects of the plan are captured.
- Assessing a person's risk of unplanned readmission can help determine the type and timing of the post-discharge intervention. The LACE Index Scoring Tool may be used to distinguish between patients at high and low risk of unplanned readmissions or death within 30 days after discharge.[13]
- The LACE Index Scoring tool is suggested for bestPATH as it was derived from clinical data collected on hospital inpatients and validated extensively using both a split-sample method and administrative hospital records in Ontario, Canada.[14]

Facts & Figures

Recent data shows that only 59% of Ontario's hospital patients knew which danger signs to watch for after going home from hospital. 80% knew whom to call if they needed assistance, but only 52% knew when to resume their usual activities.[15] If an individualized care and discharge plan is conducted for every individual, every person leaving the hospital should be able to know what danger signs to watch out for, who to call if they need help, and when they can resume regular activities. A recent systematic review conducted by the Evidence Development and Standards Branch of HQO indicates that individualized care and discharge planning and post-discharge support significantly reduced readmissions compared to usual care.[16]

4.6 A Deeper Dive into the Change Concepts

Typical Challenges and Breakdowns

Some of the breakdowns and challenges in a person's care that can be addressed through individualized care and discharge planning include:

- Failure to partner with the person and their caregivers in assessing post-discharge preferences and needs, identifying available resources, and planning for discharge, which leads to an inadequate understanding of the person's capacity to manage in the home environment
- Unrealistic expectations of person and/or their caregivers to manage their disease at home
- Failure to recognize deteriorating clinical status prior to discharge from hospital
- Difficulty assessing the person's functional capacity and cognitive health status, leading to assumptions about required levels of care. Post-discharge care and environment may no longer be appropriate for person's needs
- Not addressing the whole person when considering post-discharge needs (e.g., focusing on one condition, missing underlying depression or support requirements, etc.)
- Individuals not having advance directives in place to help guide decision making
- Medication errors and other adverse events (in hospital) which necessitate increased post-discharge needs
- Multiple medications that exceed the person's ability to safely manage their medications
- Providers incorrectly believe that a person understands their disease, care plan, and post-discharge instructions because:
  (i) the person says that they do
  (ii) the person is educated or affluent
  (iii) the person has been living with the chronic condition for a long time

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

LACE Index Scoring Tool

This tool can be used in addition to reviewing an individual's needs to identify those at a high risk for readmission, which can be potentially useful in identifying appropriate patients for post-discharge interventions. See Appendix for the tool and instructions for use.

- The Credit Valley Hospital and Trillium Health Centre have been using the LACE Index Score since 2011 at the Trillium Health Centre Site. The hospital has found the tool to accurately predict readmissions and that the team's awareness of readmission risk helps to inform discharge planning processes. The hospital has automated the LACE score calculation which now calculates daily, and readmission risk is being used as an entry criterion into customized and enhanced transition plans that better meet an individual's post discharge needs.

For more information, please contact:
Dr. Amir Ginzburg, Physician Director, Quality and Patient Safety, The Credit Valley Hospital and Trillium Health Centre, 100 Queensway West, Mississauga, ON L5B 1B8 aginzburg@thc.on.ca

S.M.A.R.T. Discharge Protocol℠

Hospitals within the Anne Arundel Health Systems designed a SMART discharge process for patients. With the involvement of patients and families, providers will develop a simple, universal, five item checklist as a SMART Discharge Protocol℠. (SMART is an acronym for: Signs, Medications, Appointments, Results, and Talk with me.).

For more information, please visit http://alwaysevents.pickerinstitute.org/?p=1129

Safe Discharge Practices for Hospital Patients Checklist

The Avoidable Hospitalization Advisory Panel (subgroup of the Ministry of Health and Long-Term Care) developed a checklist-style index of steps that can be followed when providing care to patients with unplanned hospital admissions.

- Standardized Inpatient Discharge Checklist available at: http://www.health.gov.on.ca/transformation/providers/information/pdf/guide_bpd.pdf
- Appendix 3 of "Enhancing the Continuum of Care: Report of the Avoidable Hospitalization Advisory Panel" http://www.health.gov.on.ca/en/common/ministry/publications/reports/baker_2011/baker_2011.aspx

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

UpToDate® Review on Hospital Discharge

This tool provides information on various aspects of hospital discharge.

- A review of information can be found on the UpToDate® website:
  http://www.uptodate.com/contents/hospital-discharge

Get with the Guidelines for Heart Failure – Individualized Care Planning

The University of Ottawa's Heart Institute's "Get with the Guidelines for Heart Failure" program links evidence-based best practice guidelines for heart failure (based on American Heart Association guidelines) to individualized care planning and requirements post-discharge from hospital. Key components of the program include a GAP tool (discharge tool), a heart failure pathway, standard physician orders and a guide/toolkit for patients and families.

In sum, best practice guidelines for heart failure and individualized care suggestions are captured on a discharge tool that is given to the patient upon discharge. Each element of the care plan is discussed with the patient using a checklist and gaps are identified. The patient is instructed to bring the GAP tool to their primary care team post discharge.

For more information, please contact: Bonnie Bowes, Regional Cardiac Program Educator, University of Ottawa Heart Institute, 613-761-5450 email: bbowes@ottawaheart.ca
http://www.ccpnetwork.ca/GWG/

Health Quality Ontario's Clinical Handbooks, which provide guidelines and best practices on Chronic Obstructive Pulmonary Disease and Chronic Disease Management are available at:
http://www.health.gov.on.ca/en/pro/programs/ecfa/funding/hs_funding_password.aspx

Automated follow up – Interactive Voice Response Technology

University of Ottawa's Heart Institute has developed a number of resources to assist cardiac patients transition home, improve uptake and compliance with best practice guidelines and strengthen the individual's ability to manage at home.

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

Interactive Voice Response Technology ensures that individuals are contacted at predetermined dates following discharge and uses speech recognition technology to allow the individual to respond to questions using their own voice, to receive health information, and request services for care. Responses are captured and responses are flagged for follow up.

For more information, please contact: Bonnie Bowes, Regional Cardiac Program Educator, University of Ottawa Heart Institute, 613-761-5450 email: bbowes@ottawaheart.ca

Telehome Monitoring Technology – Regional Home Monitoring for Cardiac Patients

The University of Ottawa's Heart Institute developed a program to assist acute cardiac patients transition home and maximize compliance with their individualized care plan. Cardiac patients in the Champlain LHIN (who meet preset criteria) are provided with acute care monitoring that transmits key vital signs and health markers, customized according to individual person's requirements and care plan.

http://beat.ottawaheart.ca/2011/02/18/innovative-home-monitoring-initiative-reaches-1000-patient-milestone/

For more information, please contact: Bonnie Bowes, Regional Cardiac Program Educator, University of Ottawa Heart Institute, 613-761-5450 email: bbowes@ottawaheart.ca

Electronic 24-Hour Discharge Summary

The UK's National Health Service provides this interactive implementation guide to electronic discharge.

- Implementation Guide: http://www.connectingforhealth.nhs.uk/systemsandservices/clinrecords/24hour
- Sample electronic discharge summary: http://www.connectingforhealth.nhs.uk/systemsandservices/clinrecords/toolkit/materials/mockup/index.html

How to Guide: Improving Transitions from Hospital to Post-Acute Care Settings to Reduce Avoidable Hospitalizations

- A "how to" guide prepared by the Institute for Healthcare Improvement: http://www.ihi.org/knowledge/Pages/Tools/HowtoGuideImprovingTransitionstoReduceAvoidableRehospitalizations.aspx (resources are free - login required)

4.6 A Deeper Dive into the Change Concepts

Assess post-transition risk and activate appropriate follow up

Why is assessing post-transition risk of readmission important and how does it inform follow up activities?

Transitions occur as patients move in, out of, and across different parts of the health care system and as their health changes. Individuals may be particularly vulnerable to experiencing fragmented care, poor quality of care, and adverse events during these transitions.

Unplanned readmissions are disruptive, expensive and often avoidable. Poor communication and a lack of **care coordination** between different providers hinders continuity of care, may lead to more errors, poor health outcomes and dissatisfied patients and providers.[17]

As reported in HQO's *Quality Monitor* (2012), only 74% of sicker adults reported having follow-up visits pre-arranged with their regular doctor or other health care professionals prior to discharge from hospital. Seventy two percent (72%) of sicker adults reported receiving a written plan from the hospital for their care after discharge and 88% knew who to contact if they have a question about their condition or treatment. Eighty-four percent (84%) received clear instructions about symptoms to watch for and when to seek further care.

Of all these elements of care, only 51% of respondents stated that they received all of them at once (pre-arranged a visit, a written plan for care, knew who to contact, and received clear instructions about their condition). Considering the importance of effective care coordination and its impact on health outcomes, there is certainly room for improvement.[18]

4.6 A Deeper Dive into the Change Concepts

Continuity of care relates to both the quality of care delivered over time as well as the experience of care as it relates to satisfaction and coordination of care between providers.

There are three types of continuity:

- **Informational continuity** is continuity whereby previous patient information is available (usually through an electronic medical record) and is used to provide patient-appropriate care. Ideally, the patient information is available to multiple health care professionals in different settings.
- **Management continuity** involves provision of care in an orderly, coherent, complementary, and timely fashion. This type of continuity often applies when care is being provided by multiple providers. This also includes accessibility (availability of appointments, medical tests), flexibility to adapt to care needs, consistency of care and transitions of care.
- **Relational continuity** (interpersonal) refers to the ongoing relationship between provider(s) and the recipient of care. It refers to the duration of the relationship and the quality of relationship. It incorporates attentiveness, ability to inspire confidence, and the medical knowledge of the health professional.[19]

All three types of continuity can be addressed by formally and collaboratively assessing post-discharge risk for readmission and clinical deterioration; proactively arranging appropriate follow up care with primary care and community-care teams; and sharing all post-discharge plans with the individual as well as involved health care providers.

A recent Ontario-based study found that 13% of patients were readmitted to hospital within 30 days of discharge. Quantifying the risk of readmission using the LACE index, the study was able to identify many high-risk patients who required more resource intensive hospital stays and accounted for more than half of the readmissions. By assessing post-transition risks of readmission and addressing risks via pre-discharge interventions, post-discharge interventions and interventions that span the transition may prevent some of these readmissions.[20]

The risk of readmission can be predicted with reasonable accuracy. The LACE Scoring Tool, an easy to use tool that quantifies the risk of readmission using both clinical and non-clinical characteristics, would help health care providers identify people who might benefit from more intensive or specific post-discharge care.[21]

4.6 A Deeper Dive into the Change Concepts

LACE Index Scoring Tool

The LACE index was developed, scientifically evaluated, and validated in Ontario using population-based administrative data.[16] It is currently being used and tested as part of the **Virtual Ward Program,** which is being conducted through a network of Toronto hospitals. While limitations in using this tool have been documented, consistently using the tool to quantify risk-of-readmission within 30 days of discharge will enable teams to develop standard processes regarding assessing, actively planning and communicating the needs of high-risk individuals during the post-discharge period.

The LACE Index Scoring Tool includes four variables to assess post-discharge risk of readmission within 30 days. These are:

- Length of hospital stay
- Acuity of the admission
- Co-morbidity (using Charlson co-morbidity index score)
- Emergency Department visits in last six months

The person's LACE score is calculated by adding the points related to each of the above attributes. LACE scores range from 0–19, with higher scores signalling greater risk of readmission or death within 30 days of discharge. Evidence suggests that individuals with a score of 10 or higher are considered high- risk.

Teams participating in bestPATH should use the LACE index score to assess post-discharge needs across the continuum of care. Specifically, the LACE index score can be effective in identifying, organizing and creating shared accountability for post-discharge assessments with the primary care team, specialists, home care or other health care providers.

Explicitly linking the LACE score to post-discharge needs (at a minimum) ensures that:

- Before leaving the hospital, individuals at high risk for readmission (LACE ≥ 10) will have booked a follow up phone call and an appointment with their primary care team within 48 hours of discharge.

Please see the Appendix LACE tool and instructions for scoring.

4.6 A Deeper Dive into the Change Concepts

Typical breakdowns and challenges

- Post-discharge follow-up appointment does not occur because:
  i. It is not arranged
  ii. The need for and timing of the appointment was not agreed upon by the person discharged
  iii. There is insufficient resources or capacity to provide a follow-up appointment
  iv. The follow-up appointment was made the sole responsibility of person discharged
  v. The person was unable to attend the appointment due to illness, lack of transportation or forgetfulness
- Person is not compliant with self-care recommendations, appointments and activities
- Multiple caregivers involved in care, resulting in confusion regarding decision making and who is in charge (especially when inconsistent information is given to person or his/her caregivers)
- Demand for post-discharge services is greater than supply (based on resources, access to services, administrative delays)

4.6 A Deeper Dive into the Change Concepts

Medication Reconciliation at Key Transition Points

Why Reconcile Medications At Different Times and In Different Environments?

Medication reconciliation is an intervention that has been proven to prevent medication error at transition points along a person's health care journey. It is a formal process that involves collaboration between care recipients, their families, and their health care providers, to ensure that accurate and individualized medication information is consistently communicated across transitions of care. The process involves a detailed review of all medications and over-the-counter products an individual is taking, with the aim of ensuring that medications being changed, added or discontinued are carefully evaluated. Medication reconciliation is one component of medication safety and management, and involves the identification and resolution of issues relating to pharmacotherapy.

The goal of medication reconciliation is to assist in informing and enabling prescribers to make appropriate treatment decisions, reduce adverse events and optimize health outcomes. [23]

Facts & Figures

Despite knowledge and support of medication reconciliation, implementation in Ontario remains a challenge. A recent study conducted by Accreditation Canada showed that of those organizations studied, 74% had fully implemented medication reconciliation at admission while only 37.2% had full implementation at discharge.[24] Evidence suggests that people with chronic diseases who are admitted to hospital are at increased risk for the unintentional discontinuation of chronic evidence-based therapies, particularly following an intensive care unit (ICU) admission. Post-discharge, it is estimated that 23% of individuals experience an adverse event, and of these, 72% are medication related. The majority are considered either preventable or ameliorable.[25]

Tool

Safer Healthcare Now! Medication reconciliation toolkits. Go to http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Pages/default.aspx

4.6 A Deeper Dive into the Change Concepts

Medication reconciliation should be done at key transition points, when the person is vulnerable to medication discrepancies. Transition points and suggested practices are outlined below.

Admission to hospital:

- Create a Best Possible Medication History (BPMH) at time of admission. Include medication information from the person, their caregivers and where possible pharmacists and the primary care team to ensure a complete and accurate medication history
- Reconcile medications at admission. Use BPMH to create and/or compare to admission orders. Identify and resolve discrepancies with the team

Discharge from hospital:

- Reconcile medications prior to discharge. Use BPMH and most up-to-date hospital medication lists to compare and/or create a Best Possible Medication Discharge Plan (BPMDP). Identify and resolve discrepancies with the team and include BPMDP as a part of the discharge summary
- Provide the post-discharge medication plan and instructions to the person and their caregivers. Explain using non-medical language. Consider checklists or non-written cues to help the person take their medications as prescribed
- Assess the need for post-discharge medication reconciliation (i.e., refer to the MOHLTC's MedsCheck program). Provide recommendations and information to the person, their family/caregiver(s) and include in discharge plan
- Provide an up-to-date and accurate medication plan to the next provider-of-care following discharge

Admission to home care setting/Transfer of care to primary care:

- Complete BPMH and reconcile medications in the person's home environment
- Share discrepancies with the primary care team, specialists and home care team (as appropriate). Share responsibility for resolving discrepancies
- Reconcile medications at regular intervals, especially for care recipients who have numerous providers in their care team

TIP!

- Assess barriers which may limit access to medications post-discharge. Financial barriers may prevent the person from purchasing medications or make it necessary for them to stretch their supply. Mobility issues may make it difficult for the person to access a pharmacy.

4.6 A Deeper Dive into the Change Concepts

Typical breakdowns and challenges

- Variation in practice regarding when medication reconciliation must be done, by whom, what is to be included, how to share/use it, and who is ultimately accountable
- Variation in practice regarding documentation of medication reconciliation (which makes it difficult to consult and share information about medications)
- Medication reconciliation is time consuming and requires dedicated resources
- Often a lack of clear accountability and leadership regarding development, documentation, and strategic use of medication reconciliation.[19]
- Undocumented discrepancies (intended changes and reasons for changes to medications are not documented) lead to confusion, extra work to clarify intent and final medication list and may lead to adverse events.[20]

Guiding Principle

Best Possible Medication History is the cornerstone of the medication reconciliation process. It must be done accurately, correctly, and in a timely manner to truly inform subsequent reconciliation of medications against admission and prescribed orders.

Did you know

Accreditation Canada's 2011 Report on Required Organizational Practices (ROPs) revealed that the ROPs with respect to medication reconciliation had the lowest compliance rates of all ROPs:

- Conducts medication reconciliation at admission – 47%
- Conducts medication reconciliation at transfer or discharge – 36%
- Develops and institutes a plan for medication reconciliation throughout the organization – 62% [28]

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

Getting Started Kit

- Safer Healthcare Now! Medication Reconciliation Getting Started Kit (Acute Care) http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Acute%20Care/MedRec%20(Acute%20Care)%20Getting%20Started%20Kit.pdf
- Safer Healthcare Now! Medication Reconciliation Getting Started Kit (Home Care) http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Home/Medication%20Reconcillation%20in%20Home%20Care%20Getting%20Started%20Kit.pdf

To access Safer Healthcare Now! Medication Reconciliation toolkits, please visit http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Pages/default.aspx

MedsCheck Program

The ministry has established a MedsCheck program for people who require medication reconciliation in the community. For more information, visit http://www.health.gov.on.ca/en/public/programs/drugs/medscheck

Optimizing Medication Safety at Care Transitions

Optimizing Medication Safety at Care Transitions – Creating a National Challenge. Joint Venture Between Institute for Safe Medication Practices, Canada Health Infoway, Safer Healthcare Now! and Canadian Patient Safety Institute. February 2011. Toronto, ON. http://www.saferhealthcarenow.ca/EN/shnNewsletter/Pages/Optimizing-Medication-Safety-at-Care-Transitions.aspx

Medication Risk Assessment Questionnaire

Department of Academic Medicine. Medication Risk Assessment Questionnaire (QIIP). See Appendix.

MATCH Toolkit for Medication Reconciliation

Agency for Healthcare Research and Quality. Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for medication Reconciliation. http://www.accreditation.ca/uploadedFiles/ROP-Handbook-en(1).pdf

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

Test for Compliance

Medication Reconciliation is a requirement of practice according to Accreditation Canada. For updated Accreditation Canada "Test for Compliance" visit their website: http://www.accreditation.ca/uploadedFiles/ROP-Handbook-en(1).pdf

Medication Management Support

Health care providers play a key role in preparing a person to effectively and safely manage their medications at home. Simple guidelines can be used in conversations between any health care provider and the person and/or their family members. While these guiding principles can be shared at any point in a person's health care journey, they should be considered key elements of the initial and ongoing home care visits, as well as the regular interactions with the primary care team.

Capital Health Patient Advocacy aims to teach health care advocacy and navigation skills to the general public. Numerous resources, including "Medication Management Golden Rules can be found at: http://www.capitalregionpatientadvocacy.com/resources.shtml

Patient Centred Medical Home. Integrating Comprehensive Medication Management to Optimize Patient Outcomes. Resource Guide. Second Edition. June 2012. AHRQ Innovations Exchange http://www.innovations.ahrq.gov/content.aspx?id=3419

4.6 A Deeper Dive into the Change Concepts

Strengthen health literacy - help the person develop the knowledge and skills to independently manage their care and home environment

Why focus on increasing knowledge, skills and learning?

Ontario's health care system has traditionally had a disease-driven focus, which has favoured more expensive hospital care. A paradigm shift includes a focus on the shortest possible admission and a swift transition to the next provider is paramount.

However, the opportunities for patients to take care of themselves following their discharge are often overlooked. The reality of limited human and financial resources means that is it often easier to relocate the problem — in this case, the person who needs ongoing care — to a different place or provider. Those requiring care have repeatedly experienced the lack of cooperation between general practitioners, hospitals and community-based care.

Post-transition, the person is often left in a treatment "no-man's land" and is at risk of readmission and disruptions to their quality of life, not to mention the additional costs to the health care system. People with chronic conditions spend approximately 5% of their time with health care professionals while the remainder of their time is spent managing their own care. [29]

In Ontario, patients are becoming more confident and are beginning to challenge health system providers to look beyond the disease and to treat the entire person – to be more empathetic and purposeful, and to involve individuals and their informal caregivers in their care. Care recipients and unpaid caregivers are an underutilized resource. The more they understand their illness and strategies to manage their health and care, the more motivated they will be to participate in care decisions and each provider and sector will be the less burdened. They want to be involved, but require basic skills, opportunity and support.

4.6 A Deeper Dive into the Change Concepts

Health Literacy is "the degree to which individuals can obtain, process, and understand the basic health information and services they need to make appropriate health decisions."[30] Essentially, it is a collection of skills necessary for people to react appropriately to health care information and to function effectively in the health system. Key skills include: the ability to interpret documents, read and write (print literacy), use quantitative information (numeracy), and speak and listen effectively (oral literacy).[31] According to the systematic review conducted by the Agency for Healthcare Research and Quality (AHRQ), "differences in health literacy level were consistently associated with increased hospitalizations, greater emergency care use, lower use of mammography, lower receipt of influenza vaccine, poorer ability to demonstrate taking medications appropriately, poorer ability to interpret labels and health messages, and, among seniors, poorer overall health status and higher mortality."[32]

Self-management has been defined as "the development of skills and confidence within patients and their families so that they can take responsibility for their own care."[33]

The Flinders Model[34] is one of a handful of evidence-informed self-management programs. According to the model, the person and family caregivers work collaboratively with health care providers to:

- Know their condition and various treatment options
- Negotiate a plan of care
- Engage in activities that protect and promote health
- Monitor and manage symptoms and signs of the condition(s)
- Manage the impact of the condition on physical functioning, emotions and interpersonal relationships
- Person-centred education and literacy about health and related care are essential foundational elements of self-management.

4.6 A Deeper Dive into the Change Concepts

Typical breakdowns and challenges

- Health care providers share important health care information on a daily basis. Often, learning is assumed and health literacy is not (or infrequently) assessed
- Providers assume that a patient is the key learner, while other caregivers may be the key learners on behalf of patient
- Regardless of the information format or practice setting, confirmation of an individual's understanding of health care information takes time – and time is a luxury for many providers. There is variation in practice regarding the use of tools and techniques to assess a person's level of health literacy.
- Providers assume that a person understands disease, treatment, post-discharge instructions because: (i) the person says that they do; (ii) the person is educated or affluent; (iii) the person has been living with the chronic condition for a long time
- Providers use complex medical language when providing information to the individual in need of care.
- Many providers receive little or no training about health literacy or techniques to assess and improve health literacy.
- Many individuals who receive health care information do not ask questions or admit that they are unclear about their disease, plans, medications, etc.
- The practice environment is not person-friendly. The person feels judged or dismissed when he or she asks a question.
- Unclear expectations regarding who should use teach back, when, etc.

4.6 TOOLBOX

All tools and resources were accessed / verified in April 2013.

Rapid Estimate of Adult Literacy in Medicine (REALM)

Commonly used to measure health literacy is the Rapid Estimate of Adult Literacy in Medicine (REALM). This validated tool to measure health literacy takes about 2 minutes to administer. Contact Terry C Davis at tdavis1@lsuhsc.edu for a copy.

Newest Vital Sign

Newest Vital Sign is an emerging tool to assess a person's ability to interpret print material using a simple ice cream label and six questions. http://www.pfizerhealthliteracy.com/public-policy-researchers/NewestVitalSign.aspx

Tips for Communicating with Patients

Tips for Communicating with Patients. Clear Health Communication Initiative. Pfizer. April 2011. http://www.pfizerhealthliteracy.com/asset/pdf/help-your-patients.pdf

North Carolina Program on Health Literacy

North Carolina Program on Health Literacy http://nchealthliteracy.org/index.html

This website includes a variety of resources including videos, teaching aids, assessment tools, a health literacy getting started toolkit and more.

Teach Back

Teach Back Technique. http://www.ethics.va.gov/docs/infocus/InFocus_20060401_Teach_Back.pdf (See Appendix)

Clinical Teach Back Cards, TMF Health Quality Institute

Nurses in hospitals, nursing homes, home health agencies and physician offices will find this tool useful for teaching congestive heart failure (CHF) patients about their medications. Included are a cover reminder card, nine medication cards, three core measure (AMI, CHF and pneumonia) cards and a card listing ACE-inhibitors and beta blockers. Each medication card includes: 1) How the class of drug works, 2) What problems to report to the doctor/nurse, and 3) The brand or generic drug names by class. More information on this subject and similar resources can be found by visiting the Resource Center on the Texas Quality Improvement Organization website, managed by TMF Health Quality Institute, the Medicare Quality Improvement Organization for Texas.

http://www.texashospitalquality.org/collaboratives/shared_documents/other_resources/TeachBackCardSet2011.pdf

Section 5

Glossary

5.1 Glossary

Best Possible Medication History (BPMH)

A medication history obtained by a pharmacist or their designate which includes a thorough history of all regular medication use (prescribed and non-prescribed), using some or all of the following sources of information: patient or caregiver interview; inspection of vitals and other medication containers; review of a personal medication list; and/or follow up with a community pharmacy or review of a current medication list printed by the community pharmacy. [35]

Care coordination

Care coordination is comprised of the following elements:

- Numerous participants are typically involved in care coordination;
- Coordination is necessary when participants are dependent upon each other to carry out disparate activities in a person's care;
- In order to carry out these activities in a coordinated way, each participant needs adequate knowledge about their own and others' roles, and available resources;
- In order to manage all required patient care activities, participants rely on exchange of information; and integration of care activities has the goal of facilitating appropriate delivery of healthcare services. [36]

Caregiver

Along with patients, physicians, nurses, pharmacists, social workers and other professionals, caregivers (family or otherwise), are often involved in the delivery of healthcare services, and can often have a role in care coordination. [39]

Care plan

A care plan is an agreement between a person and their health professional (and/or social services) to help you manage health day-to-day. It can be a written document or something recorded in patient notes. [40]

Care transition

A care transition describes the transfer of a patient between different settings and health care providers during the course of an acute and chronic illness. [38] (also see Transition)

Change concept

A general notion or approach that has been found to be useful in developing specific ideas for change that result in improvement. [41]

Continuity of care

Continuity of care is difficult to define and understanding how to achieve it is complex. An evidence based analysis, conducted by the Evidence Development and Standards Branch at HQO, asserts that continuity of care relates to both the quality of care delivered over time as well as the experience of care as it relates to satisfaction and coordination of care between providers. [37]

Fragmentation of care

As described by Dr Edward Wagner et al, “a fragmented healthcare system may be technologically sophisticated and organizationally inept. It is characterized by an emphasis on diagnosis and treatment, expensive duplication of effort, and lost efficiency resulting from inadequately, incorrectly or belatedly sharing information between many providers.” [42]

Health literacy

The degree to which individuals can obtain, process, and understand the basic health information and services they need to make appropriate health decisions. It represents a collection of skills necessary for people to act appropriately to healthcare information and to function effectively in the healthcare environment. Key skills include the ability to interpret documents, read and write prose (print literacy), use quantitative information (numeracy), and speak and listen effectively (oral literacy). [43]

Integration of care

While there is no single definition of integrated care, integration of care refers to the coordination of services that are planned, managed and delivered by a range of healthcare professionals and informal carers between different organizational units. [44]

Medication reconciliation
MedRec

The process of obtaining a complete and accurate list of each person's current home medications (including name, dosage, frequency and route), and using that list when writing admission, transfer and/or discharge medication orders. The process includes comparing the list against the patient's admission, transfer, and/or discharge orders, identifying and bringing any discrepancies to the attention of the prescriber and, if appropriate, making changes to the orders. Any resulting changes in orders must be documented. [45]

Sicker adults

The Commonwealth Fund International Health Policy Survey is conducted every year with a focus on general adults, sicker adults or primary care physicians. The 2011 survey included adults who reported at least one of the following: fair or poor health; received medical care in the past year for a serious or chronic illness, injury, or disability; hospitalization in the past two years (other than uncomplicated delivery of baby); major surgery in the past two years. The 2008 survey studied sicker adults as well, while the 2009 survey focused on primary care physicians and the 2010 survey focused on all adults.[46]

Teach-back

Teach-back is a way for practitioners to confirm that what they explain to the patient was clear and understood. Patient understanding is confirmed when the patient explains it back to the practitioner or does a return demonstration.[49]

Transition

A broad range of time-limited services designed to ensure healthcare continuity, avoid preventable poor outcomes among at-risk populations, and promote the safe and timely transfer of patients from one level of care, or from one type of setting to another. [47] (also see Care Transition)

Virtual Ward Program

A group of Toronto based hospitals and researchers are trialling and researching this post-discharge intervention that uses a team-based approach to care for individuals with complex needs in their homes. Hospital-like systems like interdisciplinary teams, a shared medical chart and a single point of contact support the Virtual Ward Program. [48]

Section 6

References and Appendix

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LACE Index Scoring Tool

L

Step 1: Length of Stay Length of stay (including day of admission and discharge): _____ days

Length of stay (days)	Score (circle as appropriate)
1	1
2	2
3	3
4-6	4
7-13	5
14 or more	7

L

A

Step 2: Acuity of Admission Was the patient admitted to hospital via the emergency department?

If yes, enter "3" in Box A, otherwise enter "0" in Box A

A

C

Step 3: Co-morbidities (see next page for explanations)

Condition (definitions and notes on reverse)	Score (circle as appropriate)	
Previous myocardial infarction	+1	If the TOTAL score is between 0 and 3 enter the score into Box C.
Cerebrovascular disease	+1	
Peripheral vascular disease	+1	
Diabetes mellitus	+1	
Congestive heart failure	+2	
Chronic obstructive pulmonary disease	+2	
Mild liver disease	+2	
Moderate or severe liver disease	+4	
Any tumor (including lymphoma or leukemia)	+2	If the score is 4 or higher, enter 5 into Box C
Metastatic solid tumor	+6	
Dementia	+3	
Connective tissue disease	+3	
AIDS	+4	
TOTAL		

C

E

Step 4: Emergency department visits How many times has the patient visited an emergency department in the six months prior to admission (not including the emergency department visit immediately preceding the current admission? Enter this number or 4 (whichever is smaller) in Box E.

Add numbers in Box L, Box A, Box C, and Box E to generate LACE score and enter into box below.

If the patient has a LACE score is greater than or equal to 10 the patient is deemed high risk for readmission within 30 days of discharge.

E

Source: Virtual ward Program. St Michael's Hospital. Used with permission from Dr. Irfan Dhalla. July 2012.

The Charlson Comorbidity Index

Condition	Definition	Notes
Previous myocardial infarction:	Any previous definite or probable myocardial infarction	Includes Remote MI. Does not include coronary artery disease without MI (e.g., unstable angina with no elevation in cardiac enzymes).
Cerebrovascular disease	Any previous stroke or transient ischemic attack (TIA)	
	Other forms of intracranial hemorrhage (e.g., epidural, subdural and subarachnoid hemorrhage) are not included.	
Peripheral vascular disease	Intermittent claudication, previous surgery or stenting, gangrene or acute ischemia, untreated abdominal or thoracic aortic aneurysm	Does not include DVT or venous ulcers. (If a patient has a vascular ulcer, ask the medical team to see if it is arterial or venous.)
Diabetes mellitus	Clinical diagnosis of diabetes mellitus	Does not include impaired fasting glucose or impaired glucose tolerance. Gestational diabetes is included.
Congestive heart failure	Any patient with symptomatic CHF whose symptoms have responded to appropriate medications	Includes treated or compensated CHF.
Chronic obstructive pulmonary disease	Clinical diagnosis of COPD with use of bronchodilators and/or steroids.	Includes chronic bronchitis and/or emphysema. Does not include asthma.
Mild liver disease	Cirrhosis but no portal hypertension (i.e., no varices, no ascites) OR chronic hepatitis	Includes chronic hepatitis C and chronic hepatitis B (even without cirrhosis), other causes of hepatitis that are chronic (e.g., alcohol, autoimmune, etc.) and compensated cirrhosis. Simple fatty liver disease is not included.
Moderate or severe liver disease	Cirrhosis with portal hypertension (e.g., ascites or variceal bleeding)	

Condition	Definition	Notes
Any tumor (including lymphoma or leukemia)	Solid tumors must have been treated within the last 5 years; includes chronic lymphocytic leukemia (CLL) polycythemia vera (PV).	
	Does not include cancers that have been treated curatively more than 5 years ago – e.g., breast cancer diagnosed and treated 6 years ago with no recurrence. Does not include benign tumours (e.g., lipoma). Does not include skin cancers. (If a patient has metastatic skin cancer, this would be included below).	
Metastatic solid tumor	Any metastatic tumour	For patients with metastasis, do not include the score for malignancy.
Dementia	Clinical diagnosis of dementia	Note that this is an imprecise definition, and often you will have to ask the medical resident to give his or her opinion on whether the patient has dementia.
Connective tissue disease	Systemic lupus erythematosus (SLE), polymyositis, mixed connective tissue disease, moderate to severe rheumatoid arthritis, and polymyalgia rheumatica	In general, this includes any systemic connective tissue disease (e.g, dermatomyositis, vasulitis, systemic sclerosis, drug induced lupus, etc.). Relatively benign diseases (e.g., discoid lupus limited to the skin or osteoarthritis) and fibromyalgia should generally not be included.
AIDS	AIDS-defining opportunistic infection or CD4 < 200	If the patient has a history of treated opportunistic infection (e.g., PCP) in the past, or a history of a CD4 count < 200, the patient is classified as having AIDS for the purpose of this study.

Source: Charlson, Mary E.; Pompei, Peter; Ales, Kathy L.; MacKenzie, C.Ronald (1987). "A new method of classifying prognostic comorbidity in longitudinal studies: Development and validation". *Journal of Chronic Diseases* 40 (5): 373–83

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