

*Background*

The eHealth Centre of Excellence (eCE) enables clinical and patient/provider experience benefit through the delivery of quality digital health solutions. Our change management and adoption teams help meet clinician expectations for value optimization within existing workflows. This document is an offer of eCE support to your OHT, starting with showing how our solutions help your OHT meet requirements of your Full Application. Our initial contribution below shows how eCE products and services have yielded recent results for Ontario clinicians and patients. We have mapped our thoughts to OHT Full Application requirements and to indicators shared with your team by Health Analytics Branch of MOH (Appendix A & B).

*OHT Full Application Goal B.2.1 – Virtual Care (2-5% of Year 1 Patients who received care from your team that had a virtual encounter in Year 1).*

The eCE has participated in an innovation procurement within the Provincial Vendor of Record for Virtual Care to deliver patient- and physician-initiated virtual care. Funded licenses exist to support salaried clinicians in the immediate term to be expanded when Ontario physician billing codes are resolved in Ontario. We are open to supporting change management needs surrounding adoption of this or other solutions your OHT select. We have achieved significant success in virtual care during the past 18 months.

**Learnings from Virtual Care in Waterloo-Wellington (March 2018-present)**

- **65 Primary Care Providers (PCP) (59 family physicians and 6 nurse practitioners) are live and 76% have conducted at least one virtual visit with their patients.**
- **Over 7,800 patients are registered to use the platform, and over 14,000 visits have been completed.**
- Within Year 1, 18.5% of patients invited to register for virtual care have had at least one virtual care encounter. 64% of registered patients have had at least one virtual visit (41% of invited patients have registered).
- Patients typically request virtual visits with their PCP for: medication and prescriptions, following up on test results, addressing new health issue, and **managing chronic conditions**.



Primary Care Provider



Patients



**Virtual Visits:** Clinician- and Patient-initiated Virtual Visits using text and/or video to actively manage identified elements of care.



**Potential Indicator Improvement:** Hospitalizations for ambulatory care sensitive conditions

**eCE's Evidence to Support:** Four percent (4%) of patients using Virtual Visits report it avoided pursuit of an ED visit. Twelve percent (12%) of patient-initiated visits were for management of chronic conditions

**Potential Indicator Improvement:** ED visit rate for conditions best managed elsewhere

**Potential Indicator Improvement:** Patients in hallway beds (i.e. ER stretchers, unconventional spaces)

Diagram - Process for use of virtual visits assumes Year 1 priority population focus of chronic disease management. Other connections between populations and indicators can be made using logic in Appendix A.

## OHT Full Application and eCE's Role

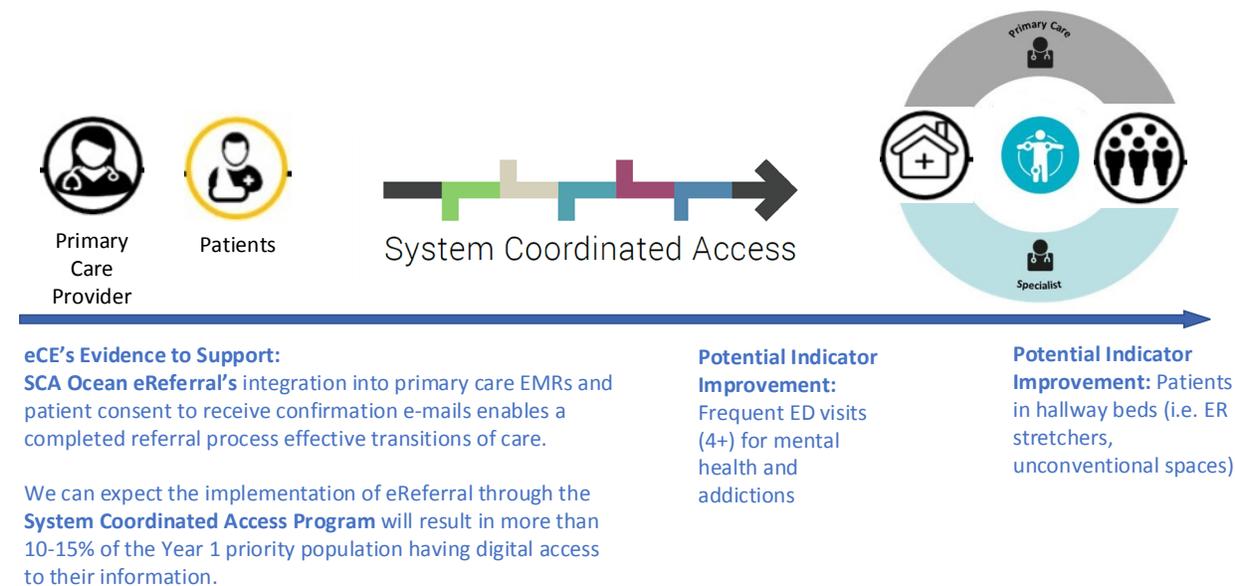
*OHT Full Application Goal B.2.2 – Digital Access (10-15% of Year 1 Patients who received care from your team digitally accessed their health information in Year 1).*

### Background

The eHealth Centre of Excellence (eCE) leads the **System Coordinated Access (SCA) Program**, outlined in the Ontario Health Teams: Digital Health Playbook (August 2019). The SCA Program deploys the Ocean eReferral technology developed from an innovation procurement (with a consortium consisting of ThinkResearch, CognizantMD and the Centre for Effective Practice) to delivering more than 60,000 eReferrals integrated from within primary care EMRs (Telus PSS, QHR Accuro, OSCAR). A key component of the Ocean eReferral technology developed by the consortium is how it builds on long-term patient / clinician relationship that assists in a shared interpretation of information. Patients who have consented with their primary care provider receive information about their referral and can confirm appointments through e-mail in a way that securely updates their record in both the referring clinician's and receiving clinician's record.

#### Learnings from System Coordinated Access in Waterloo-Wellington

- Over **38,000** were processed electronically over the last 12 months in Waterloo Wellington within the diabetes, diagnostic imaging and orthopedics referral pathways.
- Additional services added include Home and Community Care, Mental Health and Addictions
- For the referrals sent, **33% of patients included their email address and were enabled to digitally access their referral status and efficiently book and confirm appointments.**
- **Patient experience surveys results (N=2,060) show 80%-90% satisfaction.**



*OHT Full Application Goal B.2.3 – Information Sharing (Information shared securely and digitally across the providers in your team for the purposes of integrated care delivery).*

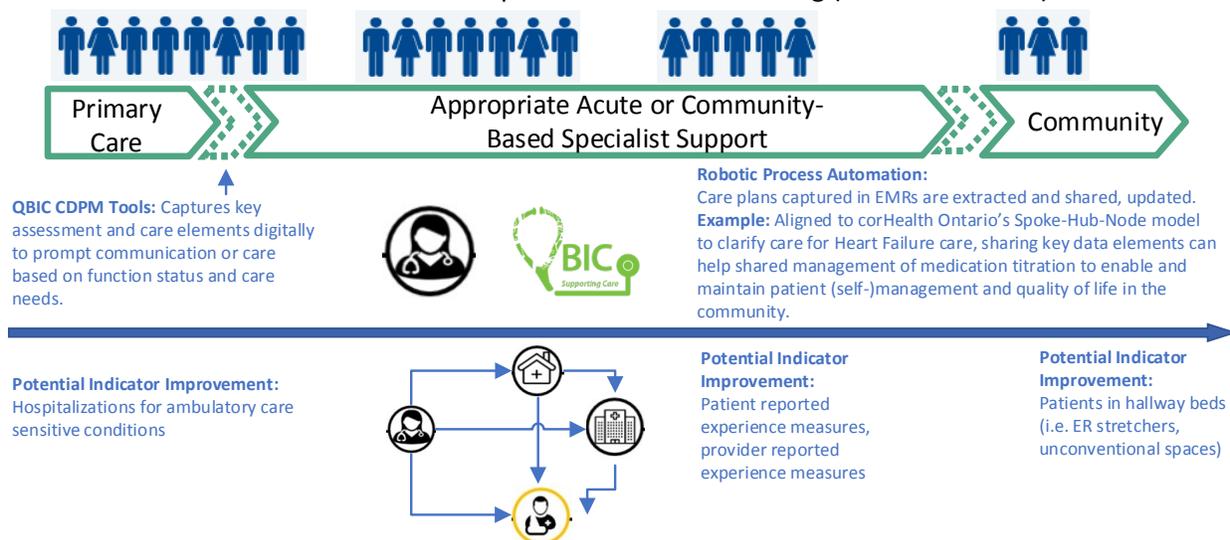
**Background**

The eHealth Centre of Excellence (eCE) has been working for several years to strengthen the supports provided to primary care providers as it relates to data quality improvement. There is variable evidence in the ability of clinicians to use custom tools to code data when entering, leading to eCE developments of Robotic Processes to focus requests of clinician time in areas that offer high patient clinical value.

**Learnings from Waterloo-Wellington**

- **Chronic Disease Prevention and Management (CDPM) decision support tools**, developed by eCE, for Primary Care EMRs, capture clinically valuable information based on condition-specific best practice guidelines, to be shared among team members (e.g. mental health assessment, ejection fraction and NYHA classifications for heart failure patients, palliative performance scale information for palliative patients). Beyond enabling translation of best practice evidence at the point of care, CDPM tools facilitate standard information gathering while minimizing undue variations in practice.
- A **Robotic Process Automation (RPA)** workforce, trained by eCE, enables secure digital sharing of coordinated care plan elements between two different point of care systems, enabling care team members to initiate patient supports within their normal work routine. During off hours an automated process identifies patients who have specific CDPM tools inserted in their charts and have had an update to their care planning needs, extracts key data elements, and updates those elements into the same patient's record in another care provider system to allow for a shared understanding and adjusted action plans.
- 5 years + organizational experience working within the cSWO program to enable access to Regional Clinical Viewer, ClinicalConnect™.

CDPM EMR tools and RPA will facilitate improved information sharing (illustrated below).



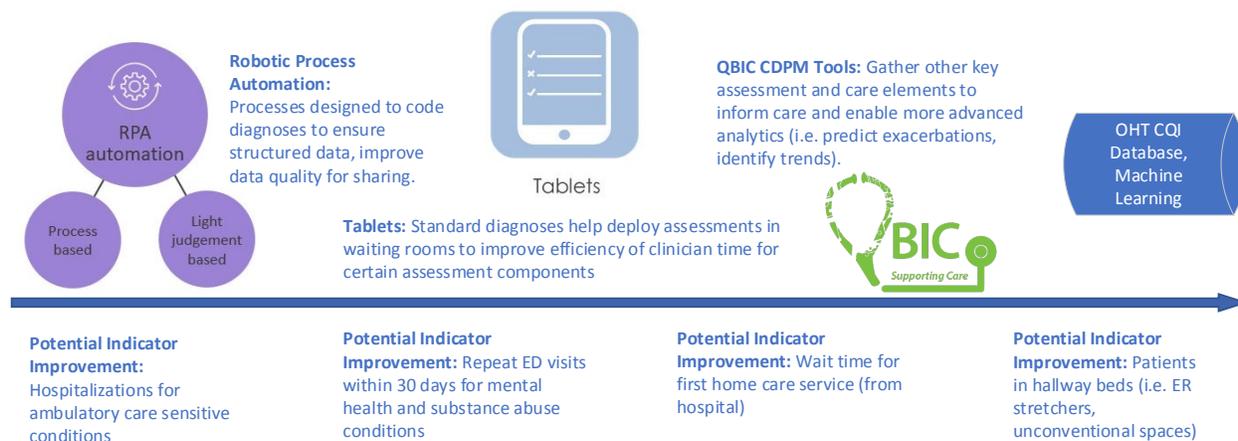
*OHT Full Application Goal B.2.4 – Digital QI (How will the team build on digital health tool use from within organizations to improve capabilities at the OHT level?).*

**Background**

The eHealth Centre of Excellence (eCE) has strengthened our offerings to improve data capture and data quality by using robotic software to standardize entered diagnoses, extending patient meetings to the waiting room to gather information using tablets integrated to the EMR and capture key clinical data not typically captured in standard EMR user interfaces.

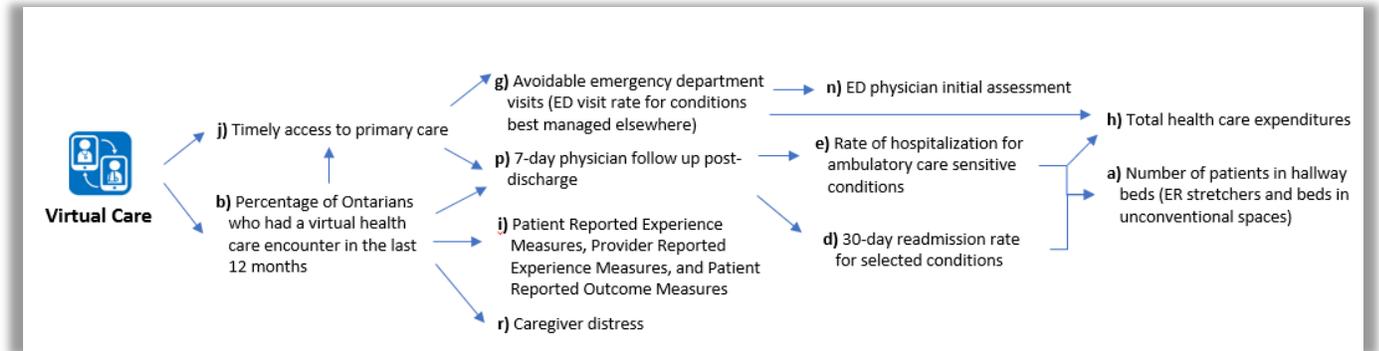
**Learnings from Waterloo-Wellington**

- **Chronic Disease Prevention and Management (CDPM)** EMR decision support tools drive quality and performance through the translation of best practice evidence at the point of care, facilitating care processes based on best practice recommendations, while minimizing undue variations in practice. The tools structure key elements of assessments, diagnoses and care plans that are drivers of quality improvement in an Ontario Health Team.
- **Robotic Process Automation** solutions provide an opportunity to unlock untapped value within health care teams, from the automation of processes to improve data quality in support of a deeper understanding of population health needs guiding strategic resource allocation, to the sharing of clinical information among team member and patient monitoring and engagement. These examples illustrate only the tip of a larger sum of value that has yet to be realized.
- **EMR integrated tablets** used in waiting rooms to administer patient assessment forms have led to an increase in the use of standardized and validated mental health assessments. In addition, patients have suggested they would rather disclose some health concerns through the tablet than face to face.



OHT Full Application and eCE's Role

Appendix A – Conceptual diagram depicting OHT indicator relationships potentially influenced by virtual care when deployed as part of an OHT clinical workflow.



## OHT Full Application and eCE's Role

## Appendix B – Full mapping of eCE products to shared OHT Indicators

Prospective Ontario Health Teams are asked to consider a list of important health system measures and identify their **top three to five performance improvement opportunities** to transform care (**OHT Full Application Form, Page 16**). To support prospective OHTs in leveraging existing digital health tools to facilitate progress, the table below lists the health system priority measures, highlighting areas where optimal use of digital health tools has supported improvements.

**Table 1.** High-Level Health System Priority Measures and Opportunities for the Use of Digital Health Tools to Support Improvements

Health System Priority Measures <sup>1</sup>	eCE Digital Health Tools Contributing to Improvements in Health System Priority Measures					
	 Virtual Visits	 eConsult	 eReferral	 EMR Decision Support Tools	 Tablets	 Robotics Process Automation
<b>b)</b> Percentage of Ontarians who had a virtual health care encounter in the last 12 months						
<b>c)</b> Percentage of Ontarians who digitally accessed their health information in the last 12 months						
<b>j)</b> Timely access to primary care						
<b>g)</b> Avoidable emergency department visits (ED visit rate for conditions best managed elsewhere)						
<b>p)</b> 7-day physician follow up post-discharge						
<b>i)</b> Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures						
<b>r)</b> Caregiver distress						
<b>n)</b> ED physician initial assessment						
<b>l)</b> Frequent ED visits (4+ per year) for mental health and addictions / Repeat ED visits within 30 days for mental health and substance abuse conditions						

## OHT Full Application and eCE's Role

Health System Priority Measures <sup>1</sup>	eCE Digital Health Tools Contributing to Improvements in Health System Priority Measures					
	 Virtual Visits	 eConsult	 eReferral	 EMR Decision Support Tools	 Tablets	 Robotics Process Automation
e) Rate of hospitalization for ambulatory care sensitive conditions						
d) 30-day readmission rate for selected conditions						
m) Emergency department wait time for inpatient bed						
f) Alternate level of care (ALC rate)						
k) Wait time for first home care service (from community, from hospital)						
o) Median time to long-term care placement (overall, from community, from hospital)						
q) Hospital stay extended because the right home care services not ready						
a) Number of patients in hallway beds (ER stretchers and beds in unconventional spaces)						
h) Total health care expenditures						

<sup>1</sup>Health system measures specified are based on Ontario Health Teams Full Application (page 16) and those provided in the first data package by MOH to OHT applicants to support the OHT full application. The order of health system priority measures as presented in the above table is based on the potential of digital health tools to impact such measures short to long-term, understanding that the health system is a complex system and optimal improvements in health system priority measures require a multi-dimensional approach beyond the use of digital health tools.

Subsequent tables provide detailed evidence on benefits thus far for the identified health system priority measures supported from each individual digital health tool provided by the eHealth Centre of Excellence. Unless otherwise stated (referenced), the evidence presented is acquired from the use of the tools across Waterloo-Wellington.

**Table 2.** Evidence of **Virtual Visits** Supporting Improvements in Health System Priority Measures

## OHT Full Application and eCE's Role

Health System Priority Measures	 <b>Virtual Visits</b>
b) Percentage of Ontarians who had a virtual health care encounter in the last 12 months	<ul style="list-style-type: none"> <li>• Since the virtual care solution went live in March 2018, 65 Primary Care Providers (PCPs) (59 family physicians and 6 nurse practitioners) went live and 76% have conducted at least one virtual visit with their patients. Over 7,800 patients have been registered to use the platform, and over 14,000 visits have been completed. <b>Within Year 1, 18.5% of all patients</b> invited to register for virtual care have <b>had at least one virtual care encounter</b>. This equates to 45% of registered patients. In total, 41% of all patients invited have registered.</li> </ul>
c) Percentage of Ontarians who digitally accessed their health information in the last 12 months	<ul style="list-style-type: none"> <li>• Within Year 1, 17.5% of all patients invited to register for virtual care had access to their transcripts from their virtual visit interaction with their health care provider, which often included copies of tests results. This equated to 95% of patients who had a virtual visit encounter.</li> </ul>
j) Timely access to primary care	<ul style="list-style-type: none"> <li>• 95% (n=6117) of patients received a response to their virtual visit request within 2 days compared to 41% who report through the Health Quality Ontario Health Care Experience Survey that they are able to see their PCP in the same day or next day in-person when needed, for Waterloo-Wellington.<sup>1</sup> <ul style="list-style-type: none"> <li>○ Overall, 88% of visits are responded to within 1 day (24 hours)</li> <li>○ 63% of virtual visits are completed within 2 days (n=8838), as compared to 41% of in-person visit, illustrating promising benefits considering that the amount of time required for a virtual visit to be completed is dependent upon the patient response to the asynchronous messages, with over 90% of visits being done through messaging.</li> </ul> </li> <li>• PCPs are responding to virtual visit requests across the days of the week, with approximately 12% of visits being responded to over the weekends, enhancing access for patients.</li> <li>• 73% of visits are being responded to between 5:00 PM and 9:00 AM, outside of conventional working hours, to provide greater access to patients.</li> <li>• Evidence from a recent interrupted time series evaluation study conducted by eCE (involving three providers who adopted the virtual care solution and three non-adopters of virtual care, at the same clinic) illustrated that the adoption of virtual care was associated with a statistically significant (p&lt;0.05) increase in the number of patient appointments (in-person appointments and virtual visits combined) from before to after the adoption of virtual visits. A PCP who adopted virtual care on average was able to see about <b>eleven (11) more patients on a weekly basis</b>, during usual business hours, compared to a PCP who had not adopted the solution. This evidence illustrates the virtual care impact on efficiency and thus capacity to see patients.</li> </ul>

<sup>1</sup> [Health Care Experience Survey](#), provided by the Ministry of Health and Long-Term Care. Accessed July 2<sup>nd</sup>, 2019

## OHT Full Application and eCE's Role

<p><b>g)</b> Avoidable emergency department visits (ED visit rate for conditions best managed elsewhere)</p>	<ul style="list-style-type: none"> <li>• Access to virtual care led to 4% of patients avoiding an emergency room visit, 2.9% avoided the patient doing “nothing” for their condition, and 11.1% avoided the use of a walk-in clinic due to lack of access to their PCP (n=855).<sup>2</sup></li> <li>• A study based on virtual visits in British Columbia found that nearly 11% (n=399) would have gone to the emergency department if the virtual visit had not been available.<sup>3</sup></li> </ul>
<p><b>p)</b> 7-day physician follow up post-discharge</p>	<ul style="list-style-type: none"> <li>• About 1% of provider-initiated virtual visits were for 7-day post discharge follow-up, illustrating that virtual visits provided PCPs with another option to conveniently reach patients and facilitate effective transitions through different levels of care as part of the patient’s circle of care.</li> </ul>
<p><b>i)</b> Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures</p>	<ul style="list-style-type: none"> <li>• Patient Reported Measures<sup>4</sup>: <ul style="list-style-type: none"> <li>○ 92% are likely to recommend virtual visits to friends and family (n=853).</li> <li>○ 32% rated virtual visits as better while 62% rated virtual visits as the same as an in-person visit (n=788).</li> <li>○ 94% are satisfied with the care received through a virtual visit (n=860).</li> <li>○ 95% believe that having a virtual visit saved them time (n=851).</li> <li>○ 93% believe that virtual visit made accessing care more convenient (n=860).</li> <li>○ 85% believe the virtual visit was easy to navigate (n=851).</li> <li>○ A published case study illustrating the patient experience with virtual visits in primary care can be found <a href="#">here</a>.</li> </ul> </li> <li>• Provider Reported Measures (n=28)<sup>5</sup>: <ul style="list-style-type: none"> <li>○ 79% would recommend virtual visits to their colleagues.</li> <li>○ 65% believe that virtual visits have the potential to enhance their capacity to see more patients within a day, while 85% believe it has the potential to enhance their capacity to see patients in a timely manner.</li> <li>○ 75% believe virtual visits enhances the quality of care they provide to their patients.</li> <li>○ 86% believe virtual visits are an efficient way to see patients who do not need an in-person visit.</li> <li>○ 93% believe the application (web-based and/or mobile) was easy to use.</li> <li>○ 89% were satisfied with the virtual care application.</li> <li>○ A published case study on the provider experience with virtual visits in primary care can be found <a href="#">here</a>.</li> <li>○ Use and benefits of provider-initiated virtual visits are highlighted within a published case study <a href="#">here</a>.</li> </ul> </li> </ul>
<p><b>r)</b> Caregiver distress</p>	<ul style="list-style-type: none"> <li>• Key informant interviews illustrated that virtual care supports caregivers by reducing the need to travel to in-person primary care appointments with their loved ones and supports caregivers to feel more confident about their loved one’s health as they have easy access to primary care to ask questions or follow-up.</li> </ul>

<sup>2</sup> Data Source: Qlik dashboard. Data obtained on August 27, 2019.

<sup>3</sup> McGrail, KM et al. (2017). Virtual visits and patient-centred care: Results of a patient survey and observational study. Journal of Medical Internet Research. 9(5).

<sup>4</sup> Data source: Qlik dashboard. Data obtained on August 27, 2019.

<sup>5</sup> Data Source: Healthcare Provider Experience Survey. Data obtained on August 21, 2019.

## OHT Full Application and eCE's Role

	<ul style="list-style-type: none"> <li>• Patients also have the ability to manage interactions with a primary care provider for their dependent through virtual visits. This could decrease caregiver distress and increase convenience by reducing time and energy spent towards travel for in-person assessments of their dependent while still supporting caregiver and family/guardian involvement in care.</li> <li>• Virtual visits facilitate ongoing communication between the patient's caregiver and a PCP and improve contributions in the patient's care.</li> <li>• Reduced mental and physical stress if the caregiver is coordinating care for a dependent with mobility issues because the interactions with the provider can be done virtually without the need to bring the patient to the office.</li> </ul>
<b>n)</b> ED physician initial assessment	<ul style="list-style-type: none"> <li>• Potential to reduce ED physician initial assessment through the ED visits avoided, over time reducing demand.</li> <li>• Opportunity to use virtual visits to divert patients from the ED for conditions that can be addressed virtually.</li> </ul>
<b>l)</b> Frequent ED visits (4+ per year) for mental health and addictions / Repeat ED visits within 30 days for mental health and substance abuse conditions	<ul style="list-style-type: none"> <li>• Key informant interviews with health care providers have highlighted the benefits of virtual care in monitoring of patients struggling with mental health challenges. Virtual care provides convenient access to care for patients, while provider-initiated visits facilitate the option of health care providers to follow-up with patients for monitoring purposes as needed, in order to decrease the risk of exacerbation leading to frequent ED usage.</li> <li>• Virtual care solutions also provide the opportunity for the inclusion of allied health care professionals within the patient's circle of care, providing convenient access to mental health supports.</li> </ul>
<b>e)</b> Rate of hospitalization for ambulatory care sensitive conditions	<ul style="list-style-type: none"> <li>• Virtual care can delay progression of health conditions through proper management and preventative care due to enhanced access, thus avoiding greater use of system resources downstream.</li> <li>• 11% of patient-initiated virtual visits (n=11875) were for a chronic condition.</li> </ul>
<b>d)</b> 30-day readmission rate for selected conditions	<ul style="list-style-type: none"> <li>• Provider-initiated visits support the ability for ongoing and frequent monitoring of the patient who is in a health transition (medication changes or tapering, who has questions about their health care plan, patients with mental health and addiction challenges) supporting patient needs being met and reducing likelihood of 30-day readmission.</li> </ul>
<b>a)</b> Number of patients in hallway beds (ER stretchers and beds in unconventional spaces)	<ul style="list-style-type: none"> <li>• Virtual care supports patient monitoring, proper management and preventative care due to enhanced access, and reduces likelihood of disease progressing in the cases where patients would not have done anything about their condition, if virtual care was not available (2.9% of patients). In the long-term, such benefits support the reduction of demand for hospital beds, reducing number of patients in hallway beds.</li> </ul>
<b>h)</b> Total health care expenditures	<ul style="list-style-type: none"> <li>• The avoided ED visits, admissions and re-admissions from enhanced access to primary care for patients, monitoring of patients as needed to support chronic disease management and transitions in care, will in long-term support reduced healthcare expenditures.</li> </ul>

**Table 3.** Evidence of eConsult Supporting Improvements in Health System Priority Measures

OHT Full Application and eCE’s Role

Health System Priority Measures	 <b>eConsult</b>
<p><b>i) Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures</b></p>	<ul style="list-style-type: none"> <li>● Patient Reported Measures (n=30)<sup>6</sup>:                             <ul style="list-style-type: none"> <li>○ 100% of patients agreed that eConsultation is an acceptable way to access specialist care.</li> <li>○ 87% of respondents said the eConsult service was useful in their situation.</li> <li>○ 97% agreed eConsult is an acceptable alternative to face-to-face specialists’ visits.<sup>7</sup></li> <li>○ 83% would ask their PCP to use the eConsult service on their behalf in the future.</li> </ul> </li> <li>● Provider Reported Measures:                             <ul style="list-style-type: none"> <li>○ 93% of specialists agreed eConsult is a feasible way to improve access to specialist care.</li> <li>○ 88% of specialists agreed eConsult is an effective way to provide continued education for providers.</li> <li>○ 85% of specialists agreed eConsult results in improved communication with providers.</li> <li>○ Specialists were motivated to use eConsult because it provides innovative patient care, reduces wait times, and improves specialist communication with primary care providers (n=175 specialists)<sup>8</sup></li> <li>○ 94% of PCPs rated the service as having high or very high value, citing speed of responses, quality of advice, capacity for improving patient care, and educational opportunities<sup>9</sup></li> <li>○ 92% of PCPs reported high (n=2501) or very high (n=7051) educational value.<sup>10</sup></li> </ul> </li> </ul>
<p><b>r) Caregiver distress</b></p>	<ul style="list-style-type: none"> <li>● The median response time for an eConsult in WWLHIN is 1 day compared to 47 days for a traditional referral. eConsults facilitate timely access to experience-based specialist knowledge, increasing both the PCP and patient/caregiver confidence in developing a treatment plan, facilitating better patient outcomes and reducing the need for specialist referrals.</li> <li>● A case study illustrating timely patient care through eConsult use in primary care, can be found <a href="#">here</a>.</li> <li>● eConsult facilitates prompt access to and communication between primary care providers and specialists, allowing for better-informed recommendations for the PCP and timely advice and reassurance to patients and their caregivers. This reduces not only unnecessary referrals to specialists, but also patient anxiety and expectation for urgent referrals.</li> </ul>

<sup>6</sup> Patient Perspectives on eConsult. Obtained from: [https://docs.wixstatic.com/ugd/ac5147\\_023e92ad5e724ceca00e9a99c05f7082.pdf](https://docs.wixstatic.com/ugd/ac5147_023e92ad5e724ceca00e9a99c05f7082.pdf).

<sup>7</sup> Obtained from: <https://www.jabfm.org/content/31/3/445.full>

<sup>8</sup> Specialist Perspectives on eConsult. Obtained from: [https://docs.wixstatic.com/ugd/ac5147\\_29c22f49ee204be08612e09c2ce8064d.pdf](https://docs.wixstatic.com/ugd/ac5147_29c22f49ee204be08612e09c2ce8064d.pdf).

<sup>9</sup> Using the Quadruple Aim Framework to Measure Impact of Health Technology Implementation: A Case Study of eConsult. Obtained from: <https://www.jabfm.org/content/31/3/445.full>.

<sup>10</sup> Using the Quadruple Aim Framework to Measure Impact of Health Technology Implementation: A Case Study of eConsult. Obtained from: <https://www.jabfm.org/content/31/3/445.full>.

OHT Full Application and eCE’s Role

	<ul style="list-style-type: none"> <li>• A case study illustrating the use of eConsult to support timely access to specialist advice, reducing anxiety and decreasing unnecessary referrals, can be found <a href="#">here</a>.</li> <li>• As a result, eConsult may support caregivers by providing an option to access timely specialist advice and consultation for their loved ones.</li> </ul>
h) Total health care expenditures	<ul style="list-style-type: none"> <li>• The cost of the eConsult service is \$47.35/case compared to the cost of a traditional referral, \$133.60/case.<sup>11</sup></li> <li>• A costing evaluation from the societal perspective calculated an additional savings of \$11 per case, when subtracting delivery costs, specialist remuneration, the costs associated with referral initiated as a result of the service from the costs of referrals avoided through eConsult, and indirect patient savings resulted from avoided travel and lost wages/productivity.<sup>12</sup></li> </ul>

**Table 4.** Evidence of eReferral Supporting Improvements in Health System Priority Measures

Health System Priority Measures	 <b>eReferral - System Coordinated Access Program</b>
c) Percentage of Ontarians who digitally accessed their health information in the last 12 months	<ul style="list-style-type: none"> <li>• In the last 12 months in WWLHIN, more than 38,000 referrals were processed electronically for diabetes, diagnostic imaging and orthopedics referral pathways. For the referrals sent, <b>33% of patients</b> included their email address and were enabled to digitally access their referral status information and efficiently book and confirm their appointments.</li> </ul>
i) Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures	<ul style="list-style-type: none"> <li>• Patient Reported Measures (based on &gt;2000 patient completed surveys):                             <ul style="list-style-type: none"> <li>○ 90% of patients are satisfied with eReferral experience</li> <li>○ 96% found eReferral to be an easy process</li> <li>○ 95% found eReferral notifications improved their experience</li> <li>○ 81% felt more informed about their care</li> </ul> </li> <li>• Provider Reported Measures:                             <ul style="list-style-type: none"> <li>○ 75% of providers are satisfied with eReferral experience</li> <li>○ 76% believe Ocean eReferral has improved the communication between healthcare providers</li> <li>○ 72% believe Ocean eReferral increases the # of complete referrals</li> </ul> </li> </ul>

<sup>11</sup> Quadruple Aim. Obtained from: [https://docs.wixstatic.com/ugd/ac5147\\_c4f4d5d069e1430da2f7e78ca32ef0cf.pdf](https://docs.wixstatic.com/ugd/ac5147_c4f4d5d069e1430da2f7e78ca32ef0cf.pdf).

<sup>12</sup> Using the Quadruple Aim Framework to Measure Impact of Health Technology Implementation: A Case Study of eConsult. Obtained from: <https://www.jabfm.org/content/31/3/445.full>.

OHT Full Application and eCE’s Role

	<ul style="list-style-type: none"> <li>○ 75% believe Ocean eReferral decreases the time spent by their office contacting their patients</li> </ul>
r) Caregiver distress	<ul style="list-style-type: none"> <li>● Caregivers can have the referring doctor include their personal email with the eReferral so they receive all notifications along the journey of the referral. This keeps the caregiver aware of the status of the referral and any appointments that are booked for the patient, thereby reducing the stress and anxiety of feeling unsure of what is happening.</li> </ul>

**Table 5. Evidence of EMR Decision Support Tools Facilitating Improvements in Health System Priority Measures**

Health System Priority Measures	 <b>EMR Decision Support Tools</b>
i) Patient Reported Experience Measures, <b>Provider Reported Experience Measures</b> , and Patient Reported Outcome Measures	<ul style="list-style-type: none"> <li>● Eighty-seven percent (87%, n=31) of PCPs surveyed after an eHealth coaching session believed that such tools have the potential to improve the quality of care provided to their patients and indicated that they would recommend the eHealth coaching session to their colleagues.</li> <li>● <i>“The main issue with the EMR is that as physicians we often don’t know what we don’t know regarding the EMR system. The initial assessment by [project] personnel guided us to know what tools were available to aid in our everyday interaction with patients. <b>Simple instructions that have cut our technical time down has left more time for patient interaction.</b> For example, the Toolbar providing easy access to commonly used <b>applications reduces the time searching</b> for these necessary items and thus, reduces interruption to patient interaction. Also, custom forms direct our patient care to <b>evidence based medicine.</b> We can use this information to give <b>feedback to our patients</b> and their progress in chronic disease management. Prior to having eHealth Coach support, our EMR was mainly used for just recording patient encounters. I’m sure there is a wealth of more information that would help us to use our system to even greater effect.”</i> - Primary Care Physician in Family Health Organization (FHO)</li> </ul>
g) Avoidable emergency department visits (ED visit rate for conditions best managed elsewhere)	<ul style="list-style-type: none"> <li>● Clinical EMR decision support tools translate best practice evidence at the point of care, facilitating care processes based on best practice recommendations, while minimizing undue variations in practice. <a href="#">Evidence</a> illustrates the benefits of tools in supporting evidence-based proactive care through informed decision making and ensuring appropriate steps to improve the patient’s disease trajectory.</li> <li>● EMR decision support tools helped identify patients with chronic diseases, supporting management: <sup>13</sup> <ul style="list-style-type: none"> <li>○ An additional 33% of type 1 diabetics, 13.5% of asthmatics, 11.9% of those with dementia, and 5.2% of those with chronic lung disease were identified.</li> </ul> </li> </ul>

<sup>13</sup> An Exploration of the Value and Impact of Quality EMR Data in Primary Care. 2016, Health Quality Transformation Conference.

## OHT Full Application and eCE's Role

	<ul style="list-style-type: none"> <li>○ Patient identification leads to opportunities for additional care supporting patient needs in primary care and reducing likelihood of exacerbations leading patients to visits ED.</li> </ul>
<b>n)</b> ED physician initial assessment	<ul style="list-style-type: none"> <li>● Proactive patient management in primary care, in accordance to condition-specific best practice guidelines enabled through EMR decision support tools has the potential to impact demand for acute care services (ED usage) and in turn impact ED physician initial assessments.</li> <li>● The sharing of standardized patient information collected through the EMR decision support tools in primary care, has the potential to support the speed of ED initial assessments in the future when primary care data is shared through the electronic health record, supporting quick gathering of patient information for the completion of the initial assessment.</li> </ul>
<b>l)</b> Frequent ED visits (4+ per year) for mental health and addictions / Repeat ED visits within 30 days for mental health and substance abuse conditions	<ul style="list-style-type: none"> <li>● An existing and available EMR decision support tool enables primary care in the proactive screening and management of mental health reducing the likelihood of frequent or repeat ED visits among this population. Content has been adapted from guidelines such as The HQO Quality Standards for Major Depression (2016), Centre for Effective Practice (CEP) – Keeping Your Patient Safe, Canadian Network for Mood and Anxiety Treatments (CANMAT) 2016 Clinical Guidelines for the Management of Adults with Major Depressive Disorder and incorporates clinical expertise of clinicians who specialize in Mental Health. Mental Health metrics, including PHQ-9, GAD-7, SDS and LEAPS are incorporated into the tool, which allows clinicians to gather, document and reference these metrics more efficiently at point of care.</li> <li>● Another existing and available EMR decision support tool with a focus on opioid management and adapted from the National Pain Centre's 2017 Guideline for Opioids for Chronic Non-Cancer Pain led to a 66% reduction in the number of patients using opioids (based on a <a href="#">case study</a>).</li> </ul>
<b>e)</b> Rate of hospitalization for ambulatory care sensitive conditions	<ul style="list-style-type: none"> <li>● EMR tools have supported a 50% reduction in the number of outstanding kidney tests for those with diabetes<sup>14</sup> (diabetes is the number one cause of kidney disease and dialysis in Canada).</li> <li>● A case study illustrating the use of an EMR decision support tool resulted in a higher proportion (74% vs. 31%) of patients screened and managed in accordance to best practice guidelines for CKD, can be found <a href="#">here</a>.</li> <li>● The benefits of managing patients using decision-support tools have the potential to impact the rate of hospitalization due to enhanced control and management of chronic conditions within primary care.</li> </ul>
<b>d)</b> 30-day readmission rate for selected conditions	<ul style="list-style-type: none"> <li>● Proactive patient management in primary care, in accordance to condition-specific best practice guidelines enabled through EMR decision support tools has the potential to impact demand for acute care services (ED usage). <ul style="list-style-type: none"> <li>○ For example, an important part of COPD management is the documentation of clinical information on factors such as the number of acute exacerbations of COPD (AECOPD) per year and where a patient falls on the</li> </ul> </li> </ul>

<sup>14</sup> An Exploration of the Value and Impact of Quality EMR Data in Primary Care. 2016, Health Quality Transformation Conference.

OHT Full Application and eCE’s Role

	<p>dyspnea scale, which helps a clinician determine how well the patient’s COPD is being managed and their risk for future exacerbations requiring hospitalization.<sup>15</sup></p> <ul style="list-style-type: none"> <li>○ A case study illustrating that clinics who opted to use the COPD EMR decision support tool, over 3.5 times more COPD patients have AECOPD documentation and almost 2.5 times more COPD patients have dyspnea scale documentation, compared to when the tool started to be used, can be found <a href="#">here</a>.</li> </ul>
<b>a)</b> Number of patients in hallway beds (ER stretchers and beds in unconventional spaces)	<ul style="list-style-type: none"> <li>● Case studies assessing the impact of decision support tools have illustrated an association between the use of decision support tool and patient management in accordance with best practice guidelines, such as increased influenza immunization (19%↑), pneumococcal immunizations (18%↑), and prescription of appropriate therapy for patients with heart failure (88%↑). Enhanced patient management aligned with best practice guidelines is expected to reduce the likelihood of exacerbations that lead to hospitalization, and in the long term contribute to a reduced demand for hospital beds.</li> </ul>
<b>h)</b> Total health care expenditures	<ul style="list-style-type: none"> <li>● Patient management in accordance to condition-specific best practice guidelines is expected to reduce exacerbation of conditions, leading to reduced use of acute care services and thus a reduction in health care expenditures.</li> </ul>

**Table 6.** Evidence of **Tablets** Facilitating Improvements in Health System Priority Measures

<b>Health System Priority Measures</b>	 <p><b>Tablets</b></p>
<b>p)</b> 7-day physician follow up post-discharge	<ul style="list-style-type: none"> <li>● The use of tablets in the clinic waiting areas enable patients to complete assessments and questionnaires when visiting for post-hospital discharge, to better help primary care clinicians assess their current state and determine a care plan that best aligns with patient needs.</li> </ul>
<b>i)</b> Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures	<ul style="list-style-type: none"> <li>● Patient Report Measures:             <ul style="list-style-type: none"> <li>○ 91.4% (n=30,260) of patients found the tablet easy to use.</li> <li>○ 67.3% (n=30,156) of patients like having something to do while waiting for their appointment.</li> <li>○ A case study illustrating the patient’s experience with using tablets in primary care, can be found <a href="#">here</a>.</li> </ul> </li> </ul>

<sup>15</sup> Müllerova, H., Maselli, D. J., Locantore, N., Vestbo, J., Hurst, J. R., Wedzicha, J. A., ... Wallack, R. Z. (2015). Hospitalized exacerbations of COPD: Risk factors and outcomes in the ECLIPSE cohort. *Chest*, 147(4), 999-1007. DOI: 10.1378/ chest.14-0655

OHT Full Application and eCE’s Role

	<ul style="list-style-type: none"> <li>• Provider Reported Measures:             <ul style="list-style-type: none"> <li>○ Based on the QBIC Session Evaluation Questionnaire findings (n=20), 75% of providers believed that the tablet program content enhanced their knowledge.</li> <li>○ 85% of providers strongly agreed that using tablets has the potential to enhance the efficiencies within their practice.</li> <li>○ 80% of providers strongly agreed that using tablets has the potential to enhance the quality of care they provide to their patients.</li> <li>○ 85% of providers strongly agreed that they would recommend the tablet program to their colleagues.</li> <li>○ “In the past and before the tablets were implemented into our workflow, patients may have downplayed their mental health condition. With the technology integrated into our practice, the tablet allows the patient to focus on how they are feeling and provide more details than he/she would otherwise provide, ensuring that we have a productive appointment that meets their needs.” Primary Care Physician in Sole Practice, WWLHIN</li> <li>○ A case study illustrating the benefits of tablets in eliciting more honest responses from patients, can be found <a href="#">here</a>.</li> </ul> </li> </ul>
<p><b>n)</b> ED physician initial assessment</p>	<ul style="list-style-type: none"> <li>• Tablets can be used to better triage patients in an acute care setting and limit the time required for ED physicians to conduct assessments. i.e. if a patient answers standard questions on a tablet, this could save the ED physician time during their in-person encounter.</li> </ul>
<p><b>l)</b> Frequent ED visits (4+ per year) for mental health and addictions / Repeat ED visits within 30 days for mental health and substance abuse conditions</p>	<ul style="list-style-type: none"> <li>• The use of tablets has led to increased mental health assessments in primary care and sustainment over a period of 2-27 months by 31 primary care clinics in WWLHIN. A case study illustrating the increase and sustainment of standardized, validated mental health assessments in primary care, can be found <a href="#">here</a>.</li> <li>• Standardized screening for mental health concerns has the potential to improve mental health outcomes by increasing the accessibility to complete validated mental health forms on tablets while patients wait to see their primary care provider. This has the potential to improve early identification of patients’ mental health concerns and help connect patients to community resources before the mental health condition is exacerbated.</li> <li>• Over a quarter of all tablet forms (25.8% n=214,514) completed were for mental health assessments completed while patients wait to see their PCP.</li> </ul>
<p><b>d)</b> 30-day readmission rate for selected conditions</p>	<ul style="list-style-type: none"> <li>• Standardized screening for many conditions has the potential to improve health outcomes by increasing the accessibility to complete validated screening assessments on tablets while patients wait to see their primary care provider. This has the potential to improve early identification of risk factors and help better monitor and manage those conditions in a primary care setting and therefore reducing the demand on acute care services.</li> </ul>

OHT Full Application and eCE’s Role

<p><b>h)</b> Total health care expenditures</p>	<ul style="list-style-type: none"> <li>• Avoided ED visits for mental health concerns and hospital readmissions due to enhanced screening and monitoring of patients with mental health challenges and others undergoing transitions in care, enabled through the use of tablets and eForms, has the potential to reduce health care expenditures in the long term.</li> </ul>
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**Table 7. Evidence of Robotic Process Automation Facilitating Improvements in Health System Priority Measures**

<p><b>Health System Priority Measures</b></p>	<div style="text-align: center;">  <p><b>Robotic Process Automation</b></p> </div>
<p><b>g)</b> Avoidable emergency department visits (ED visit rate for conditions best managed elsewhere)</p>	<ul style="list-style-type: none"> <li>• Robotic Process Automation (RPA) has illustrated significant potential in coding chronic conditions to support better identification and monitoring processes of patient populations. The flexibility of RPA in addressing different workflow needs make it scalable and efficient solution to support primary care with variety of data quality improvements enabling proactive care for patients. By enabling accurate identification of patients and supporting population management efforts, RPA further enables the use of other EMR decision support tools translating best practice guidelines for condition-specific management of patients, enabling best practice management and reducing likelihood of hospitalizations for ambulatory care sensitive conditions.</li> <li>• Results of the RPA bot demonstrated a <b>100 percent accuracy</b> when compared to expected results of coding health conditions in the EMR, operating at a rate <b>four times faster than manual coding</b>.</li> </ul>
<p><b>i)</b> Patient Reported Experience Measures, Provider Reported Experience Measures, and Patient Reported Outcome Measures</p>	<ul style="list-style-type: none"> <li>• Coding the chronic conditions using RPA has illustrated significant time savings in comparison to manual coding (i.e. matching and updating free text to chronic condition codes in the EMR problem list). As such, it is expected that provider experience will be impacted positively both from the reduction of upfront costs associated with coding information, but also from the outcomes from higher quality data enabling providers to have a comprehensive view of their patient population and tailor resources as needed to achieve effective improvements across other indicators.</li> <li>• The expected outcomes from using RPA solutions to establish patient monitoring processes and engaging patients over time, has the potential to enhance patient experience with the health care system.</li> </ul>
<p><b>e)</b> Rate of hospitalization for ambulatory care sensitive conditions</p>	<ul style="list-style-type: none"> <li>• RPA enables predictive coding of chronic conditions (i.e. identify patients that have a potential condition but not were diagnosed or have been missed), in addition to historical coding.</li> <li>• Improved EMR data quality allows primary care organizations to: identify patients with specific conditions (including patients who did not have a documented diagnosis) for appropriate chronic disease care; identify complex patients</li> </ul>

## OHT Full Application and eCE's Role

	<p>(high-users of the healthcare system) for high value proactive care interventions, such as medication reconciliation or referral to Health Links; and, understand the patient population (i.e. prevalence of chronic conditions) and direct resources to where they will have the most impact.</p> <ul style="list-style-type: none"> <li>• The ability of the RPA solutions to transfer and update information from one place to another (i.e. EMR to a coordinated care plan within another solution) facilitates information sharing to support provision of integrated care for patients to meet patient needs and reduce risks of exacerbations leading to hospitalization.</li> </ul>
<b>d)</b> 30-day readmission rate for selected conditions	<ul style="list-style-type: none"> <li>• RPA solutions can be used to automate workflows to enable information sharing among care team members, and the team and patient, increasing the likelihood of successful transition in case and reducing risk of readmissions. RPA is an untapped potential in the health care sector, which can be used to automatically feed information to patients to support post-discharge guidelines, symptoms to look for after discharged, reminders about prescription pick-ups or upcoming doctor's appointments, and automation of other processes enabling integrated care planning, ensuring patient needs are met to reduce the risk of readmission.</li> </ul>
<b>l)</b> Frequent ED visits (4+ per year) for mental health and addictions / Repeat ED visits within 30 days for mental health and substance abuse conditions	<ul style="list-style-type: none"> <li>• RPA solutions can be coupled with other solutions for patient assessments and monitoring (i.e. EMR integrated Ocean Forms provided to patients for mental health assessments) enabling continues patient monitoring over time and identification of patients who may be at an increased risk and may require more supports from the care team, preventing the use of acute care services.</li> </ul>
<b>a)</b> Number of patients in hallway beds (ER stretchers and beds in unconventional spaces)	<ul style="list-style-type: none"> <li>• Long-term impacts on the rate of hospitalization for ambulatory care sensitive conditions and 30-day readmission rates from the use of RPA to support proactive, best practice management of chronic conditions and coordinated care planning, has the potential to reduce demand for hospital beds and thus the number of patients in hallway beds.</li> </ul>
<b>h)</b> Total health care expenditures	<ul style="list-style-type: none"> <li>• RPA solutions have the potential to enable substantial organizational value for health care teams, saving human resources, time, and allowing for efficient and meaningful use of high quality EMR data to support high quality patient care.</li> <li>• Long term savings from hospitalizations and ED visits avoided through proactive patient management enabled through access to accurate patient information using condition-specific best practice guidelines has the potential to reduce long term health care expenditures.</li> </ul>