

Victoria And South Island Divisions Of Family Practice

Patient Summaries Pilot

September 2021

Table of Contents

Abbreviations and Acronyms.....	2
Executive Summary.....	3
Background.....	3
Methods	4
Findings.....	4
Conclusion	7
1. Introduction	8
1.1 About the Patient Summaries Pilot	8
1.2 About this case study	10
2. Pilot Implementation and Evolution	11
2.1 The three quality improvement cycles.....	12
2.2. Governance, partnerships, and engagement.....	12
2.3 The process of sharing summaries	13
3. Pilot outputs	18
3.1 Tracking the number of summaries sent.....	18
3.2 The number of FPs sending summaries	21
4. Pilot impacts and sustainability	24
4.1 Impact within the hospital.....	24
4.2 Impact for community-based FPs and their practices.....	28
4.3 Impact on patient care and outcomes	29
4.4 Sustaining impact over time	31
5. Discussion: Conditions for success of the Patient Summaries Pilot	32
5.1 A continuous quality improvement approach.....	32
5.2 Making participation in the process easy for everyone involved	33
5.3 Drawing on a broad network of supports	35
5.4 Obtaining FP buy-in	35
6. Conclusion	38
References.....	39
Appendices.....	41
Appendix 1: Detailed monitoring and evaluation methods	41
Appendix 2. Examples of how summaries were used	43
Appendix 3: Additional data	48

Abbreviations and Acronyms

EHR	Electronic Health Record (in hospitals)
EMR	Electronic Medical Record
EDP	Emergency Department Physician
FP	Family Physician
HIE	Health Information Exchange
MOA	Medical Office Assistant
RJH	Royal Jubilee Hospital
VGH	Victoria General Hospital
TiC	Transitions in Care

Executive Summary

This report presents findings from a case study of *the Patient Summaries Pilot*, delivered in Victoria, British Columbia, from September 2015 to July 2019. This case study covers the development of the patient summaries pilot over the first four years of operation, describing the pilot implementation, local network of project partners, technical components of the patient summaries' development, provider perspectives, and project outcomes. A discussion of the conditions for success is included. As part of the General Practice Service Committee's (GPSC) ongoing evaluation of Patient Medical Home (PMH) initiatives in BC, this case study helps to build a provincial picture of PMH innovation and implementation. Additional GPSC case studies can be found [here](#).

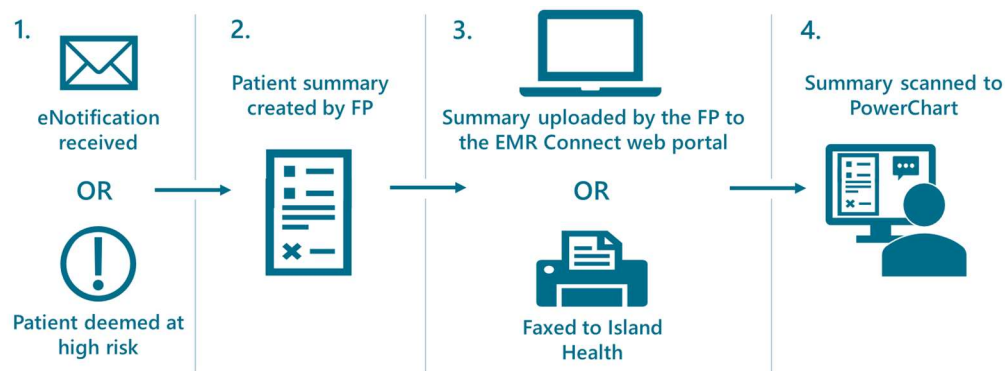
Background

The Patient Summaries Pilot was a key activity within the larger Victoria/ South Island Transitions in Care (TiC) project. It was overseen by the Victoria and South Island Divisions of Family Practice, in collaboration with Island Health. The pilot was funded through the Shared Care Committee, a partnership between Doctors of BC and the Government of BC. The summaries project is a continuation of the eNotification¹ project that began in the Victoria and South Island communities in 2013. eNotifications were sent from hospitals to community physicians, triggered by patient admissions, deaths in hospital, and discharges from hospital. The eNotifications were designed to improve the informational continuity between hospital and community settings, and to support care for frail, vulnerable, or chronically ill patients by sharing timely and relevant information between health care providers. The content of the eNotification initially provided patient identifiers, facility identifiers, a number to call for an exact patient location, and instructions if the notification was in error. However, due to technical limitations, no clinical information could be included in the alert, a major limitation when relaying information for complex patients.

As the use of eNotifications expanded, both family physicians and hospitalists realized that the notifications were highly beneficial to patient care. The limitations of the technology involved with the notifications prompted providers to explore more advanced options for sharing critical information. The exploration process led to the creation and development of the patient summaries pilot, a more sophisticated communication process than the existing eNotifications. The pilot project supported family physicians to create and share summaries of their patient's medical history with hospital-based clinicians at two hospitals in Victoria, BC: Royal Jubilee Hospital and Victoria General Hospital. The pilot was conducted in three cycles: Cycle 1 (September 2015 to March 2016); Cycle 2 (October 2016 to April 2017); and Cycle 3 (April 2018 to July 2019). Summaries were initially shared via fax, and later via direct electronic upload to PowerChart, the hospital's EMR. The process is shown in Figure 1 below.

¹ eNotifications: Hospital physicians could leave a notification on the hospital information system, Cerner, which then sent the notification to an external software platform. The platform could then send the notification to a FPs EMR, or make the notification available for FPs to access on the platform if the FP either did not have an EMR, or their EMR was not compatible.

Figure 1: The final process for sharing patient admission summaries



Methods

The case study drew on data from multiple sources, collected from September 2015 through October 2019. Sources included: data from Island Health on the number of summaries sent; project documents; survey and interview data gathered from family physicians and hospital clinicians; and clinical outcome data from Island Health for patients who had a patient summary and those who did not.

Findings

Overall, a total of 486 family physicians (FPs) from across Island Health submitted patient summaries between April 2017 and October 2019, more than four times the original 101 FPs formally invited to participate in the pilot. Across the three project cycles, more than 5,000 summaries were sent². More than 10% of summaries sent from September 2018 to October 2019 were from FPs located outside the South Island region, and not remunerated pilot participants, indicating the breadth of the project's innovation spread. The number of summaries sent and the number of FPs sending summaries increased throughout Cycle 3. FPs continue to create patient summaries, even after the pilot ended in July 2019. More than three quarters of hospital clinicians surveyed after the end of Cycle 3³ (76%, n=68) had seen a patient summary in PowerChart. Of these, 81% had used a summary to inform a patient's care.

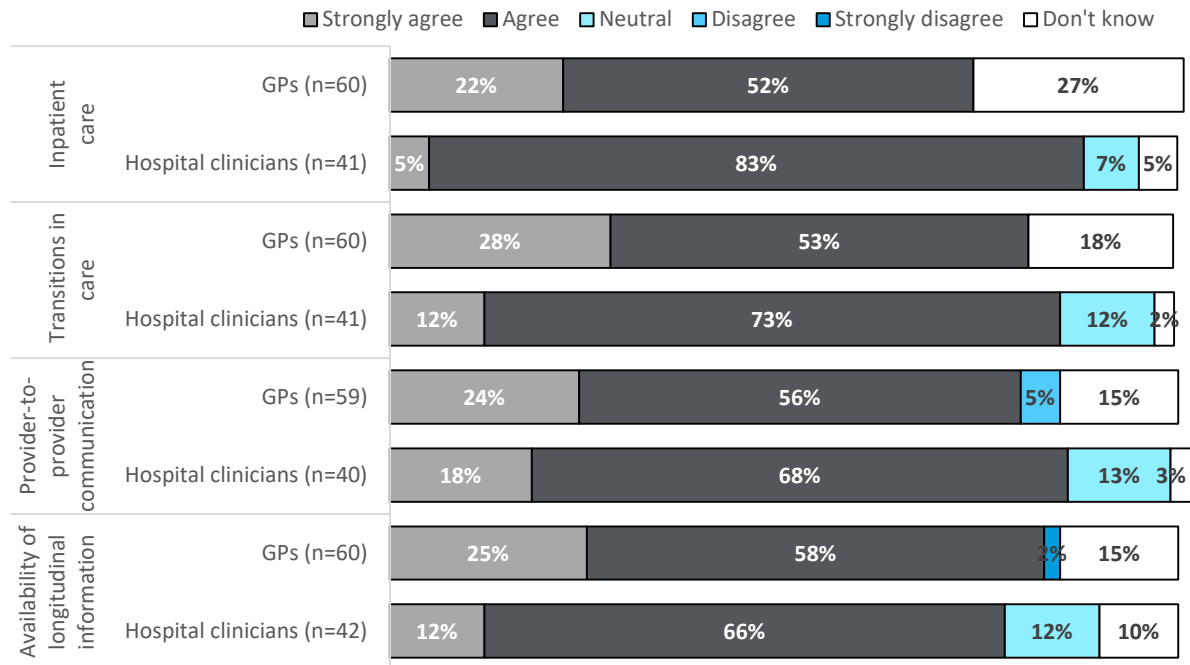
Physician Perspective

Feedback from FPs and hospital-based clinicians surveyed indicated that the patient summaries pilot had been a valuable use of their time, and had a positive impact on patient care, data access, and provider-to-provider communication (Figure 2). Hospital clinicians used the summaries to learn about past diagnoses and tests, as well as a patient's social history and family information. Hospital clinicians reported the summaries being particularly useful for cognitively impaired, non-verbal, and complex patients.

² Tracking for Cycles 1 and 2 was completed manually by physicians. Given the manual tracking process there is likely some undercounting due to physician omission.

³ In September 2019

Figure 2: Proportion of FPs and hospital clinicians who agree that the patient summaries pilot improved intended aspects of care (Cycle 3)



Family physicians reported the value patient summaries had on their work, and how summaries helped them to feel more connected to their patients' care, which was particularly true when hospital staff had contacted FPs for additional information, or when hospital staff shared examples of when they had used the patient summary to support patient care. In the evaluation of Cycle 2 of the pilot, 100% of FPs surveyed (n=30) indicated that the patient summaries pilot had been a valuable use of their time.

“Now that this is happening, it seems ridiculous that it hasn’t always been happening. It really helps me not to have to race to the hospital, it helps the patient by sharing what we know about them when they may be less able.” — Participating FP

Patient Impact

Across the three cycles, FPs provided numerous examples of how patient summaries had been used to inform patient care. Uses of patient summaries included: informing providers of severe allergies, providing information on histories of mental health and substance use concerns, and providing information on recent diagnosis, such as a Transient Ischemic Attack, which were later used to inform patient care. The impact of patient summaries on length of stay and 30-day readmission rates was explored⁴. Patients with a patient summary were less likely to have met expected length of stay targets and were also more likely to be Long Stay Outliers when compared to similar patients without a summary. This finding suggests that patients determined by physicians to benefit from a summary may represent a higher degree of complexity than those without a patient summary and need longer stays in hospital. There was no difference in 30-day re-admission rates for those with or without a summary.

⁴ Using data from Island Health’s EHR and Discharge Abstract Database

“This was and is a great project, meaningful and impactful for family physicians giving us a voice in our patients acute care. It has also created a nice collaborative relationship with our hospital colleagues and more than all of this it facilitates improved patient care.” — Participating FP

Success Factors

Data collected through this case study provided insights into activities that enabled success, including how to best support FPs to create and share patient information, and how to support hospital clinicians to use this information effectively. Success factors are listed below:

1) Establishment of regional relational supports

- High-functioning working groups were formed and maintained over the long-term. Working groups consisted of family physicians, hospitalists, Division staff, allied health, an external evaluator, and Island Health representatives.
- Highly flexible and cooperative relationships between Island Health, the Divisions, and clinicians in hospital and community were developed and nurtured. Group members committed to work together collaboratively.
- A long-term project manager with a diverse set of responsibilities was installed to support the project. She had expertise in project design, quality improvement, facilitation, stakeholder engagement, and evaluation design and implementation.

2) Active use of patient summaries by hospital-based clinicians for patient care

- Continuous improvement cycles identified challenges in accessing and using patient summaries at the hospital in early pilot cycles. Processes were created to resolve identified challenges.
- EMR-compatible templates were developed (for IntraHealth and OSCAR EMR systems), supported by new partnerships with EMR operators. Summary format and content were standardized and made easier to use.
- Education videos produced by project staff encouraged hospital clinicians to access and use summaries.
- Proactive summaries were made accessible for Emergency Department encounters.
- The EMR Connect web-portal enabled direct upload to PowerChart, making the summaries instantly available to hospital-based clinicians, and with a clear indicator on PowerChart when this information is available.

3) High physician participation and physician champions

- In addition to the 100+ physicians officially part of the pilot, an additional 385 FPs external to the pilot began sharing summaries. Pilot physician participants discussing the project with colleagues, promotion of the summaries at regional forums, and written memos in electronic admission notifications about how to transmit summaries were cited as contributors to the expanded uptake.

- 4) Supports and remuneration provided to FPs for creating and sharing patient summaries.
- EMR-compatible templates were developed for patient summaries (for IntraHealth and OSCAR EMR systems). FPs using those EMRs reported that they could create summaries more easily and efficiently than with the previous methods of faxing.
 - The EMR Connect web-portal, developed by Island Health for Cycle 3, enabled FPs to upload summaries directly to PowerChart (Cycle 3).
 - FPs were remunerated for creating and sharing summaries, with different remuneration models tested in each cycle. FPs reported that remuneration enabled them to prioritize and protect the time necessary to create and share summaries.

Conclusion

The *Patient Summaries Pilot* was successful in engaging FPs to create patient summaries: by the end of the pilot, more than four times the number of FPs recruited to the pilot were known to have sent in at least one summary. Summaries were seen and utilized by hospital clinicians, as intended.

Four main factors influenced the pilot's success.

1. Creating IT tools that enabled electronic information exchange, as implemented in Cycle 3 of the pilot, helped simplify the process of sharing summaries, and helped to ensure that these were available to hospital clinicians.
2. A high level of engagement and communication with FPs and hospital staff during the pilot, which included hospital visits, communication with participating FPs, and promotion of the summaries at regional forums, among other methods.
3. IT tool development and ongoing engagement were supported by strong relationships between project partners, facilitated by the Discharge Planning Working Group.
4. The use of Plan-Do-Study-Act improvement cycles for each of the three pilot cycles enabled ongoing process improvements to be made at each stage of pilot project operations.

In sum, patient summaries have been used by hospital clinicians to inform care delivery for patients admitted to hospital; patient summaries were reported to be most valuable when caring for vulnerable patients, such as those with a loss of cognitive function, communication difficulties, and patients with chronic and complex care needs. To that end, the pilot was successful in supporting a key objective of the initiative—improving communication between community- and hospital-based physicians in their shared care of hospital patients.

1. Introduction

This case study is one of several undertaken as part of the General Practice Steering Committee's (GPSC) evaluation of the Patient Medical Home (PMH) initiative. The case studies provide a closer look at a range of projects implemented across the province, to help build a provincial picture of PMH innovation and implementation.

1.1 About the Patient Summaries Pilot

The Patient Summaries Pilot was a key activity within the larger Victoria/ South Island Transitions in Care (TiC) project. It was overseen by the Victoria and South Island Divisions of Family Practice, in collaboration with Island Health. The pilot was funded through the Shared Care Committee, a partnership between Doctors of BC and the Government of BC. The summaries project is a continuation of the eNotification⁵ project that began in the Victoria and South Island communities in 2013. eNotifications were sent from hospitals to community physicians, triggered by patient admissions, deaths in hospital, and discharges from hospital. The eNotifications were *designed to improve the informational continuity between hospital and community settings, and to support care for frail, vulnerable, or chronically ill patients by sharing timely and relevant information between health care providers*. The content of the eNotification initially provided patient identifiers, facility identifiers, a number to call for an exact patient location, and instructions if the notification was in error. However, due to technical limitations, no clinical information could be included in the alert, a major limitation when relaying information for complex patients.

As the use of eNotifications expanded, both family physicians and hospitalists realized that the notifications were highly beneficial to patient care. The limitations of the technology involved with the notifications prompted providers to explore more advanced options for sharing critical information. The exploration process led to the creation and development of the patient summaries pilot, a more sophisticated communication process than the existing eNotifications. The pilot project supported family physicians to create and share summaries of their patient's medical history with hospital-based clinicians at two hospitals in Victoria, BC: Royal Jubilee Hospital and Victoria General Hospital. The pilot was conducted in three cycles: Cycle 1 (September 2015 to March 2016); Cycle 2 (October 2016 to April 2017); and Cycle 3 (April 2018 to July 2019). Summaries were initially shared via fax, and later via direct electronic upload to PowerChart⁶. The pilot supported FPs to create and share summaries of their patient's medical history with hospital-based clinicians at two hospitals in Victoria, BC: Royal Jubilee Hospital and Victoria General Hospital. Summaries were initially shared via fax, and later via direct electronic upload to PowerChart. During the pilot project two types of summaries were created and deployed:

1. Standard Summaries: After receiving an eNotification from the hospital of a patient's recent admission a physician would develop a summary containing a standardized set of patient information to send to the relevant hospital.

⁵ eNotifications: Hospital physicians could leave a notification on the hospital information system, Cerner, which then sent the notification to an external software platform. The platform could then send the notification to a FPs EMR, or make the notification available for FPs to access on the platform if the FP either did not have an EMR, or their EMR was not compatible.

⁶ PowerChart is the hospital-based EMR

2. Proactive Summaries: When a physician determined a patients' overall medical condition required a summary, they would develop one proactively to accompany a patient's referral to the Emergency Department. Proactive summaries could be initiated by a FP/MOA and left on the hospital's reporting system.

The Patient Summaries Pilot links with a range of provincial activities that aim to improve provider-to-provider communication. The pilot also aligns with significant research on the importance of communication across primary and secondary health care providers, shown in Box 1.

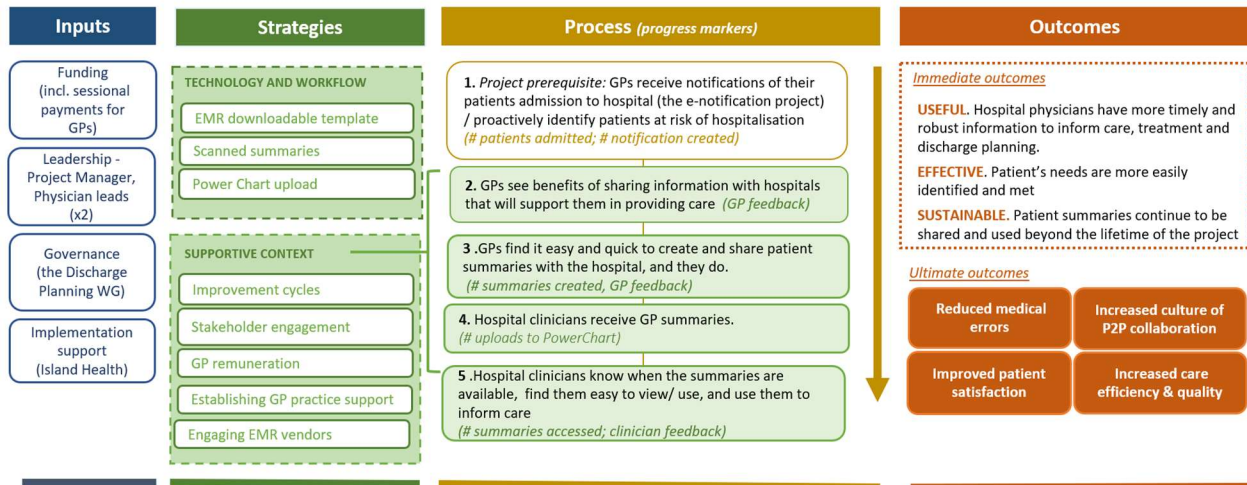
Box 1. The benefits of provider-to-provider communication and how this is reflected in key healthcare policy and initiatives in B.C

The benefits of provider-to-provider communication are widely accepted, particularly in health emergency situations (Wilcox et al. 2006) and when managing patients with complex or long-term health conditions (Zwarenstein & Reeves 2002; Vest et al. 2011a; Strauss et al. 2015). Benefits include reduced medical errors, reduced patient safety incidents, and more timely clinical decisions (Joint Commission in the USA, 2005). Complex and long-term health conditions require clinicians across a range of settings to support patient care, making provider-to-provider communication across care settings vitally important (Zwarenstein & Reeves 2002; Strauss et al. 2015; Vest et al. 2011a). Understanding the longitudinal patient health condition (e.g. health problems, allergies, medications, diagnoses, recent procedures, recent laboratory tests) is critical in the ED to form an appropriate plan of care (Coleman 2003; Shablinsky, Starren & Friedman 1999). FPs are much more likely to understand a patient's family and social history than an ED physician admitting a patient for the first time (Zwarenstein & Reeves 2002).

The importance of provider-to-provider communication has been integrated into key policies and initiatives in BC. The Shared Care initiative, which funded the Patient Summaries Pilot, provides funding to projects that improve relationships between FPs and specialists. Such projects are funded to support the delivery of effective health care, especially for patients with chronic health conditions. Primary Care Networks (PCNs) in BC also aim to increase communication between primary and hospital care providers, further enabling team-based care. More broadly, BC's e-health program aims to provide physicians with more complete patient information to support clinical and management decision-making⁷. Additionally, the patient summaries work can be a resource in the building of the provincial Digital Health Strategy.

⁷https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care/system/ehealth/ehealth_snapshot_february_2009_final_draft.pdf

The logic model below outlines the pilot’s inputs, delivery processes, and intended outcomes. They are explored in more detail throughout the report.



1.2 About this case study

This case study explores the delivery and outcomes of the Patient Summaries Pilot, as well as its successes and lessons learned across the four years of its delivery.

This case study draws on data collected from the start of Cycle 1 of the pilot in September 2015, until three months after the completion of Cycle 3 in October 2019. This includes the following:

1. Surveillance data on the number of summaries shared and received
2. Project documentation, including meeting minutes, funding applications and evaluation reports
3. Surveys and interviews with FPs and hospital-based clinicians across each pilot cycle
4. Insights from a comprehensive review of academic literature on the use of electronic data sharing across health clinicians
5. Clinical outcomes data on length of stay and readmission rates at 30 days for those who had a patient summary and those who did not⁸

Details of all data collection methods, their timing and response rates is provided in Appendix 1. An overview is provided in Table 1 below, across the three cycles of the pilot. Further details on the three pilot cycles are available in section 2.1.

⁸ Source: from data collected in Island Health’s EHR and Discharge Abstract Database

Table 1: Overview of data collection across each QI pilot cycle

Cycle	Methods	Sample
QI Cycle 1 Sep 2015– Mar 2016	<ol style="list-style-type: none"> 1. FP surveys (x2) 2. MOA surveys 3. Hospital staff surveys 4. Interviews with unit clerks 5. Audit of summaries on patient charts 6. FP tracking of summaries sent 	<ol style="list-style-type: none"> 1. 19 FPs 2. 23 MOAs 3. 17 hospital staff 4. 16-unit clerks 5. Audit of 17 patient charts 6. Summary tracking data from 25 FP clinics
QI Cycle 2 Oct 2016 – Apr 2017	<ol style="list-style-type: none"> 1. FP surveys (x2) 2. MOA interviews 3. Hospital clinician surveys 4. Patient Placement: interviews, observations, data entry reviews 5. Audit of summaries within patient charts 6. FP tracking of summaries sent 	<ol style="list-style-type: none"> 1. 76 FPs 2. 5 MOAs 3. 30 observations 4. 5 hospital staff 5. Summary tracking data from 68 clinics 6. Audit of 4 charts 7. Review of 354 Patient Placement entries 8. 20 observation visits within the hospital
QI Cycle 3 Apr 2018 – Jul 2019	<ol style="list-style-type: none"> 1. Summary surveillance data 2. Clinical outcomes data 3. FP surveys 4. Hospital clinician surveys 5. Interviews with hospitalists 6. Literature review 	<ol style="list-style-type: none"> 1. 64 FPs 2. 32 hospital staff 3. 3 delivery partners 4. 67 documents reviewed 5. Tracking data from 3,958 summaries 6. Outcome data from 9,000+ hospitalizations

2. Pilot Implementation and Evolution

Chapter summary

The pilot was supported by a multidisciplinary working group, multiple local partners, a dedicated project manager from the Division⁹, and part-time coordinators and administrative staff. The project team worked with physicians before the pilot to identify what patient summaries should contain, and to identify suitable FPs to participate in the pilot.

The process of sharing patient summaries changed across the three pilot cycles to account for ongoing learning, pilot expansion, and other improvements. In Cycle 3, technologies were used to enable FPs to create summaries more quickly, and to support direct upload of summaries to the hospital Electronic Health Record, PowerChart.

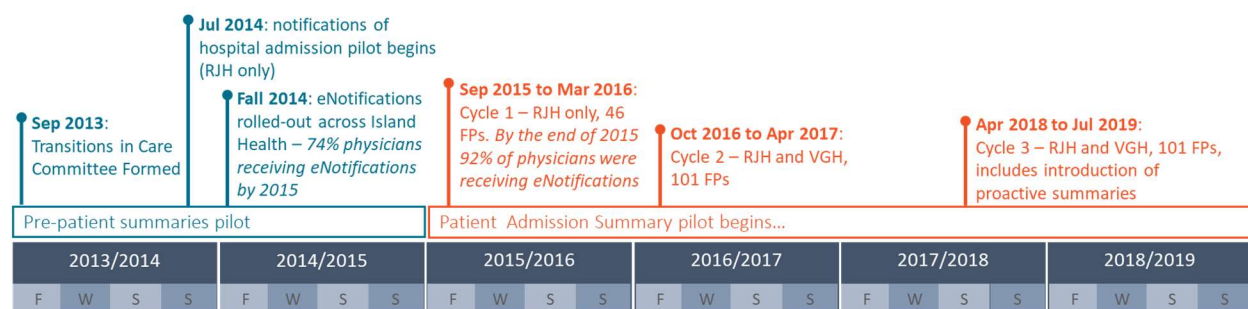
Summaries included a range of information, most often details of relevant tests, diagnoses and allergies. Most summaries (73%) were uploaded to PowerChart within 48 hours of an admission notification being sent to community FPs.

⁹Funding for the project manager is through a combination of Shared Care project funding, and GPSC core funding to Victoria Division.

2.1 The three quality improvement cycles

The pilot was implemented as three quality improvement cycles, with learning from each cycle informing delivery and expansion of the next. Cycle 1 was delivered in Royal Jubilee Hospital (RJH), with 46 FPs from across Victoria participating. Cycle 2 was implemented across both RJH and Victoria General Hospital (VGH), with 101 participating FPs. Cycle 3 continued implementation across the two hospitals with 101 participating FPs, a combination of past participants and new recruits. Cycle 3 also introduced ‘proactive summaries’, with 20 participating FPs agreeing to test proactive summaries¹⁰. The time in between each cycle was spent meeting with stakeholders, analysing the findings from the previous cycle, applying for the next round of funding, and improving the summary process in preparation for the next cycle.

Figure 1: Transitions in Care Project and Patient Admission Summary Timeline, Organized by Fall-Winter-Spring-Summer



2.2. Governance, partnerships, and engagement

The pilot was overseen by the Discharge Planning Working Group, representing the Victoria and South Island Health Divisions of Family Practice (the Divisions), community FPs, hospitalists, pharmacists, Medical Office Assistants (MOAs), and Island Health (Health Information Management and hospital managerial staff). The working group reported to, and received guidance from, a broader Transitions in Care Steering Committee.

The pilot had a designated project manager from Victoria Division, and two designated physician leads: one FP and one hospitalist. The project manager oversaw project activities and chaired working group meetings. The physician leads attended working group meetings and championed patient admission summaries to their clinical peers. The pilot was also supported by multiple local partners, including Island Health and the Regional Support Program (RSP), who supported clinician engagement and provided practical implementation support for the pilot at the clinic level.

In Cycle 1, FPs were recruited to the pilot based on several factors: their hospital admissions data, specifically those with high admissions were targeted first; their personal and professional interest; and their existing personal contacts with the Discharge Planning Working Group. In Cycles 2 and 3, general recruitment notices were sent to the distribution lists of the Divisions, and opportunities to register for

¹⁰Not all FPs in Cycle 3 were recruited to test proactive summaries, but they were informed that proactive summary functionality was available as part of Cycle 3.

the pilots were advertised in electronic newsletters. FPs were remunerated for preparing and sending summaries, with different payment systems tested in each cycle (see Table 2)

Table 2: Remuneration models used in each pilot cycle

Cycle 1	An initial incentive payment of \$200 upfront, a closing payment of \$200 for participation in evaluation activities at pilot end
Cycle 2	Fee per summary of \$40
Cycle 3	A set quarterly payment of \$350 ¹¹

Prior to Cycle 1, FPs and hospitalists were consulted via a face-to-face meeting about the information that should be included in a patient summary. The Divisions used this consultation process to create a checklist for FPs, making it easier for them to identify what to include in their summaries. The checklist information later contributed to the composition of EMR-compatible templates, discussed in section 2.4.2. Across the pilot cycles, hospital-based clinicians from the Discharge Planning Working Group alerted other hospital clinicians to the availability of the summaries and asked them whether they had seen any patient summaries and how they were being used.

2.3 The process of sharing summaries

The process of sharing patient summaries evolved across each of the three pilot cycles. Each cycle was developed based on learning from the successes and failures of the previous cycle.

Cycle 1 – September 2015 to March 2016: FPs/MOAs called the hospital upon receipt of admission notification and identified the patient’s hospital unit, and then summaries were faxed to that hospital unit directly using a list of fax numbers for each hospital unit or ward. Upon arrival at the hospital, unit clerks collected the summaries and put them in the patient’s physical paper chart. The summaries were placed on the front of the patient’s chart, and then transferred into Section 2 (Patient History) by the hospitalist. Evaluation of this cycle showed that because patients were often admitted before they were placed, summaries were being sent to patient holding areas and did not necessarily transfer with the patient when they were moved from one unit to another. As well, some units were more diligent than others about ensuring the summaries were placed on the front of the chart until the hospitalist had confirmed they had seen it.

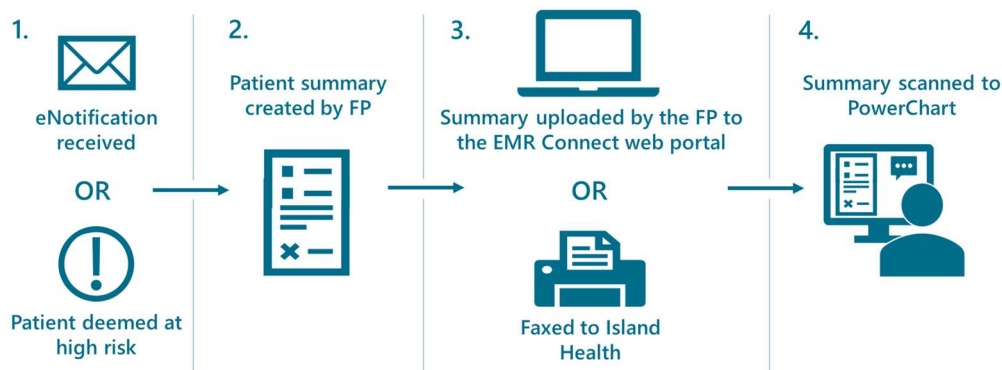
Cycle 2 – October 2016 to April 2017: Patient summaries were sent to one of two central fax lines located within each hospital’s Patient Placement unit, with the patient summary fax then printed and redirected to the appropriate ward via the hospital’s pneumatic tubing system. The fax and tube process increased the delivery rate. However, congestion of the tubing system and other work priorities within Patient Placement led to delays in the retrieval and redirection to the correct ward. There were reports of occasional misplaced summaries related to this system.

Cycle 3 – April 2018 to July 2019: In the final cycle, proactive summaries were introduced. Proactive summaries could be initiated by a FP/MOA and left on the reporting system to accompany a patient if a family physician believed there was a strong likelihood their patient would require medical care from

¹¹ Due to budget constraints, the final quarterly payment was reduced to \$250. Initially the budget had allowed for the piloting of two quarters, but it was decided to extend the pilot to three quarters with the third quarter having a reduced payment.

other providers. The FP/ MOA created a patient summary using either an EMR-compatible template developed by the project team, or via their own EMR’s default template. The FP/ MOA then either faxed the summary to Health Records at Island Health, who uploaded the summary to PowerChart, or uploaded the summary to PowerChart directly using the EMR Connect web-portal. The web-portal option became available starting January 2019. Once the summary had been placed in PowerChart, it was available electronically to any provider with access to the patient’s record. This process is presented in Figure 2 and described in greater detail in the next section.

Figure 2: The final process for sharing patient admission summaries



2.3.1 Technology that supported summary sharing in Cycle 3

In Cycle 3 of the pilot, two key technologies were introduced to support delivery of the pilot: EMR-compatible patient summary templates, and the EMR Connect web-portal.

EMR-compatible templates

During Cycle 3, the Division worked with the EMR systems IntraHealth and OSCAR to enable EMR-compatible templates for patient summaries for their respective systems. For IntraHealth, a clinic manager in the pilot had created her own patient summary template for IntraHealth, which she freely offered to share with other IntraHealth users. By comparison, OSCAR is an open source EMR created and supported by McMaster University’s Department of Family Medicine. It has the option for user customization. A physician with computer programming expertise was hired to develop a patient summary template for OSCAR that physicians throughout Vancouver Island were able to use. The EMR functionality enabled FPs using these EMR systems (25% of FPs in the pilot¹²) to utilize this template to populate their summaries more quickly. The Division also worked to enable EMR-compatible templates for other EMR operating systems, but these were not operational by the end of Cycle 3¹³. As part of the project’s partnership with Island Health, template development and spread were gradually transitioned to the EMR Connect project, which was still ramping up its efforts to engage FP offices in the autumn of

¹² 25 of 101 FPs. Source: Divisions records.

¹³ The Divisions developed a template for MedAccess, but as of January 2020 this has not been shared because of technical difficulties. The Divisions also worked with vendors of the Wolf EMR to discuss developing a template for patient summaries. A fifth commonly used EMR in the Greater Victoria area is Osler, but the Divisions were advised by partners in RSP that it would not be possible since upgrades to Osler were no longer being supported by Telus, which purchased the EMR.

2019. Two FPs surveyed in September 2019 who had access to the EMR-compatible template provided written feedback that this had helped to reduce the amount of time they needed to create summaries.

The EMR Connect web-portal

The EMR Connect project, managed by Island Health, was designed to reduce the administrative burden associated with faxing and scanning summaries and was intended as an interim step toward full electronic two-way information transfer. TiC and RSP helped support Island Health in its efforts to spread the use of the web-portal to FPs who were currently faxing summaries. EMR Connect records show that, as of 22 January 2020, 204 physicians had installed the web portal across Vancouver Island, 108 of these in the South Island¹⁴. Clinic visits were used to provide training to FPs and MOAs in using the web-portal.

Just over 30 per cent of FPs surveyed in September 2019 (20 of 64 FPs) reported that their clinic had used the web-portal to send patient summaries. Among these FPs, experiences of using the web-portal were mixed (see Box 3), but the portal did streamline the process of sharing summaries for some FPs, reducing time delays in their receipt.

Box 3: Using the web-portal

15 FPs provided feedback on their experiences of using the web-portal¹⁵. Six of 15 FPs rated their experience of the portal as positive. They said that the portal was easy to use and that using the portal ensured that the patient summary was available to hospitalists immediately, which FPs believed added tangible value. Nine of 15 FPs rated their experience of the portal as either neutral (7 of 15 FPs) or negative (2 of 15 FPs). These two FPs reported that the portal took longer than direct fax to Island Health and was more cumbersome to use. FPs suggested enabling easier entry of Patient Health Numbers and birth dates and streamlining the number of passwords and steps within the portal.

2.3.2 Patient Summary Contents

FPs participating in Cycle 3 of the pilot were asked what information they provided in patient summaries with the option to choose 'always', 'sometimes' and 'rarely'—Figure 3. The information categories explored were based on the Ministry of Health's recommended information standards for a primary care provider's cumulative patient profile¹⁶. The most common information included by FPs were relevant/recent test results, problems/ diagnosis/ conditions, allergy information, and physician and patient identifiers and contact information.

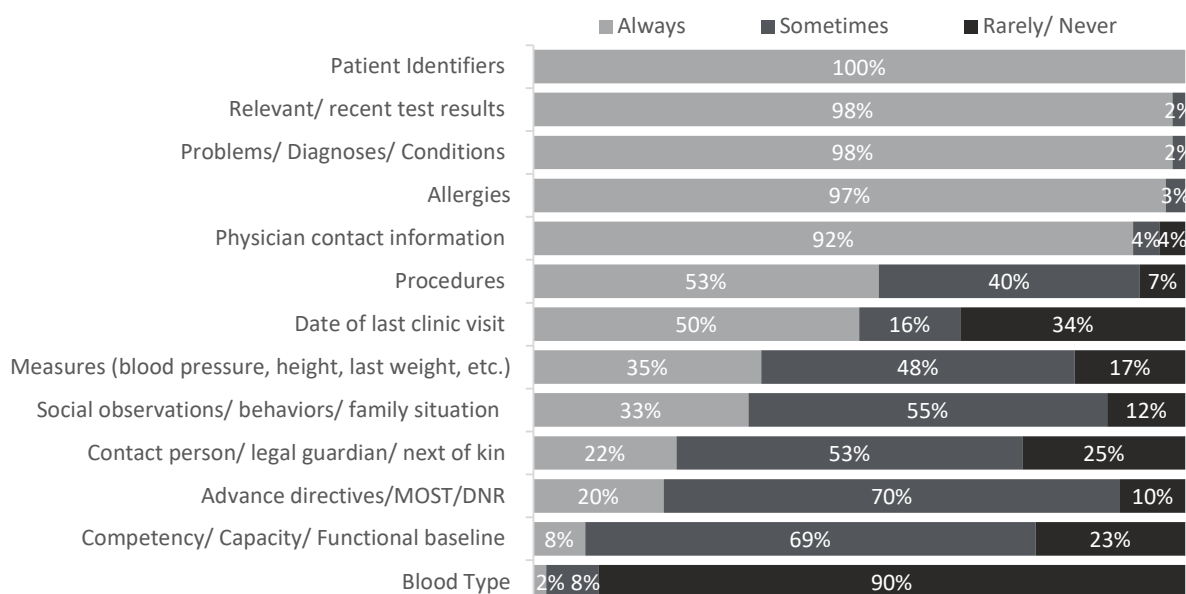
¹⁴ Information on the number of FPs using EMR Connect who were also Patient Summaries pilot participants is unavailable, however overlap between the two groups is likely since EMR Connect staff started their engagement work with pilot participants who were already engaged in sending in summaries.

¹⁵ Five of the 20 FPs who said their clinic had used the portal did not provide feedback because their MOA had used the portal so the FPs were not able to comment.

¹⁶ Ministry of Health's Information Standards Standing Committee (HISSC) recommendations, for standard information in a summary of the primary care provider's cumulative patient profile. It should be noted that the template for IntraHealth was developed before HISSC produced recommendations for standards, but it was later used as a basis for developing template standards.

As part of ongoing project work in both Cycle 2 and 3, hospitalists were asked what information they would like to see more frequently. Allergies, Medical Orders for Scope of Practice (MOST) status, and social and family histories were identified. As seen in Figure 3, most FPs included information on allergies routinely. Most FPs also reported sending information on goals of care/ advance care plans at least sometimes, which can inform MOST. However, MOST status was difficult to provide because not all FPs have MOST ordered for their patients. Sometimes this was because they have not had conversations about advance directives with those patients, but even when they have, not all FPs routinely translate the advance directives into the MOST format. As well, not all EMRs have a coded field for MOST, making it more difficult to extract this information. Family and social history information is also difficult to extract automatically from EMRs, as this information is not uniformly captured and stored. A patient’s family and social history was often mentioned in other narrative fields, making auto-population into a summary difficult.

Figure 3 :FP Summary content , ‘Always’ Sometimes and ‘Rarely/ never.’ Source: FP survey, n=60



2.3.3 Time taken to prepare summaries

In Cycles 1 and 2 some participating FPs tracked the time it took for them to create each patient’s summary. This data was not collected in Cycle 3 because many more summaries were being created by this cycle. Asking FPs to track this would have added to their administrative burden. The average time to create a summary was reported as five minutes in Cycle 1, and seven minutes in Cycle 2.

It is possible that less time was required to complete summaries by Cycle 3—one FP surveyed in Cycle 3 said that the EMR-compatible template had made the process of creating summaries more efficient. Another FP who had participated in two cycles of the pilot said they were able to create summaries more efficiently as they became more familiar with the process. A few FPs also noted that the EMR Connect

web-portal and direct fax to Island Health options had made the process of sharing summaries quicker when compared to previous cycles. Despite the efficiencies introduced in Cycle 3, FPs still reported that the process of creating and sharing summaries was time intensive.

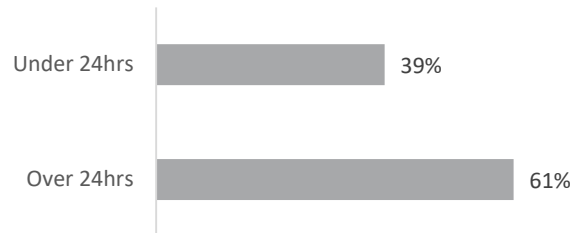
2.3.4 Time taken to receive summaries

The pilot aimed for patient summaries to be available to hospital clinicians within 24 hours of an admission notification being sent to a community FP. This goal was met 39% of the time, shown in Figure 6.

Between August 2017 to October 2019, when summary data tracking began, Island Health monitored the date and time that each admission notification was sent, and the date and time that each corresponding patient summary was uploaded to PowerChart.

Across this period, 39% of summaries were received within 24 hours (1,257 of 3,235 summaries¹⁷). In terms of day and time of submission, the proportion of summaries sent within 24 hours was greater for admissions that occurred on weekdays than on weekends. One tentative explanation is that these admission notifications may not have been seen by the FP for two or even three days, until the FP office re-opened following the weekend. While time of admission was not considered in this analysis, it is possible that late afternoon and evening admissions, when FP offices are closed, contributed to the high proportion of summaries that were sent in over 24 hours after admission.

Figure 4: Time between admission notification and summary being uploaded to PowerChart: Aug. 2017 to Oct. 2019. Source: Summary tracking data



¹⁷ 3,235 is fewer than the total number of summaries sent, due to data errors making this analysis not possible for all date and time data points. For example, 32 data points with negative values (indicating negative date time combinations) were excluded, as well as 691 points which either did not record when the patient was admitted, or when the summary was scanned into PowerChart.

3. Pilot outputs

Chapter summary

More than 5,000 summaries were sent in the months that the three pilot cycles were active—this is likely an underestimate, due to potential underreporting of the number of summaries sent in Cycles 1 and 2.

Objective data on the number of patient summaries sent was available from August 2017 to October 2019 across all three cycles. During this time period 3,958 patient summaries were sent by 486 FPs. The number of summaries sent was much higher during the months that Cycle 3 was active: 205 summaries were sent each month on average during Cycle 3, compared to a monthly average of 26 during cycles 1 and 2. A surprising result is that 13% of summaries sent from September 2018 to October 2019 were from FPs outside the original South Island recruitment region, suggesting that the patient summary process was expanding. It should be noted that while uptake was high when remuneration was available, summaries declined near the end of the pilot. However, post-pilot summary counts were still higher than pre-pilot, and early post-pilot data suggests that the trend is going up.

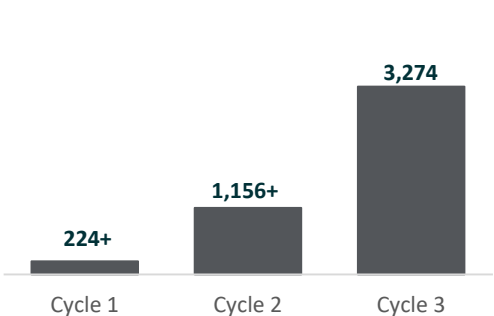
Proactive summaries, those sent for a patient at high risk of hospitalization, frailty, or to accompany a patient’s referral to the Emergency Department, were introduced in July 2018. A total of 681 proactive summaries were sent between July 2018 and October 2019, representing 19% of summaries sent during this time.

3.1 Tracking the number of summaries sent

In Cycle 1, 25 of 47 participating FPs tracked the number of summaries they had sent (53%), compared with 68 of 101 (67%) in Cycle 2. Starting in August 2017 (8 months prior to Cycle 3), the number of patient summaries was directly recorded because Island Health started scanning them into PowerChart, which created the possibility of flagging summaries in administrative data. Scanning into PowerChart allowed for a more detailed and accurate analysis from August 2017 onwards.

3.1.1 Estimated number of summaries sent across the three cycles

Figure 5: Estimated no. summaries sent per cycle



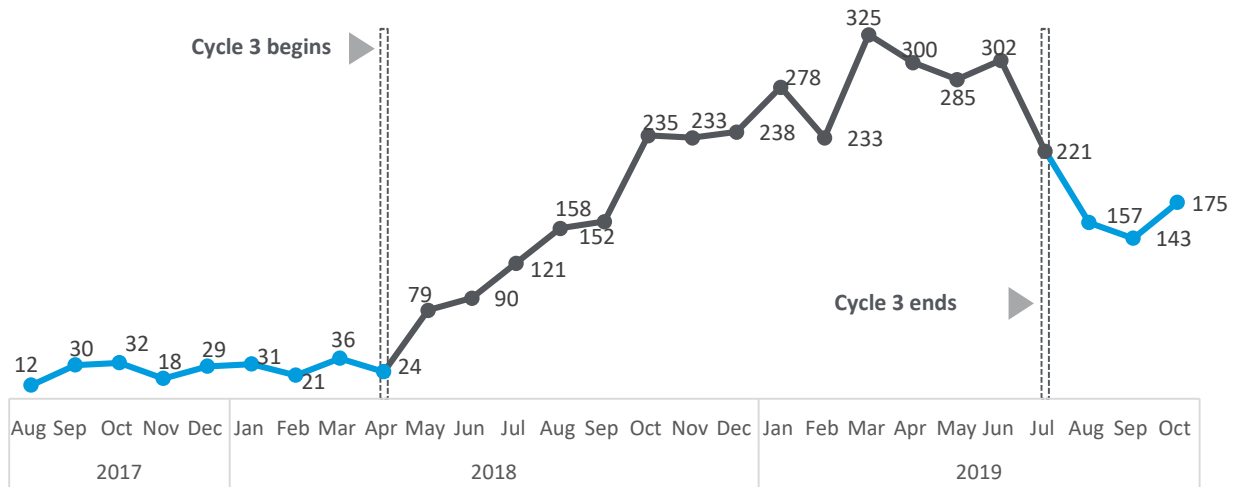
More than 5,000 summaries were sent across the three pilot cycles, shown in Figure 5. The number of summaries sent increased over time: this reflected the increased scope of the pilot across each cycle, with more FPs invited to participate, as well as FPs outside of the pilot voluntarily deciding to participate as they became aware of the process by which summaries could be sent in (see Section 3.2).

3.1.2 Summaries sent from August 2017 to October 2019

From August 2017 onwards, there was an increase in the number of summaries sent per month, from 12 summaries sent in August 2017, to 325 in March 2019, the highest number sent in any month, displayed in Figure 6.

During Cycle 3, 205 summaries were sent per month on average. In the eight months before Cycle 3, 26 summaries were sent per month on average. In the three months after Cycle 3, the average was 158 summaries per month. The number of summaries sent after Cycle 3 ended is discussed in Section 4.4.

Figure 6: Number of summaries sent, August 2017 to October 2019



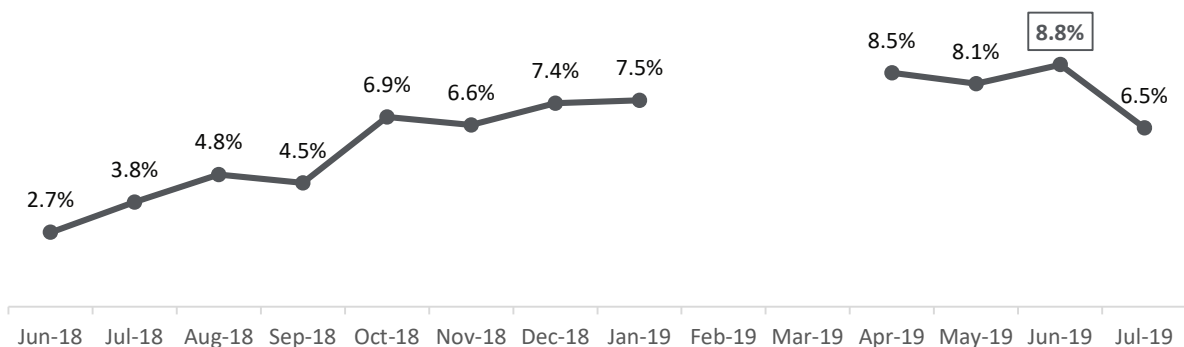
3.1.3 Proportion of hospital admissions with a patient summary created, June 2018 to July 2019

In June 2018 (near the beginning of Cycle 3), according to DAD¹⁸ data provided by Island Health, 2.7% of all hospital admissions in the South Island region had a patient summary attached. The rate had increased to 8.8% of all admissions by June 2019¹⁹. Increases in the number of patient summaries created over time may be due to greater FP engagement with the pilot, and not other factors such as increases in the number of hospital admissions over time.

¹⁸ Discharge Abstract Database

¹⁹ Data provided by Island Health required a separate data extraction process that allowed us to see the total number of admissions for South Island region only, so that we could manually calculate % of total admissions with a summary

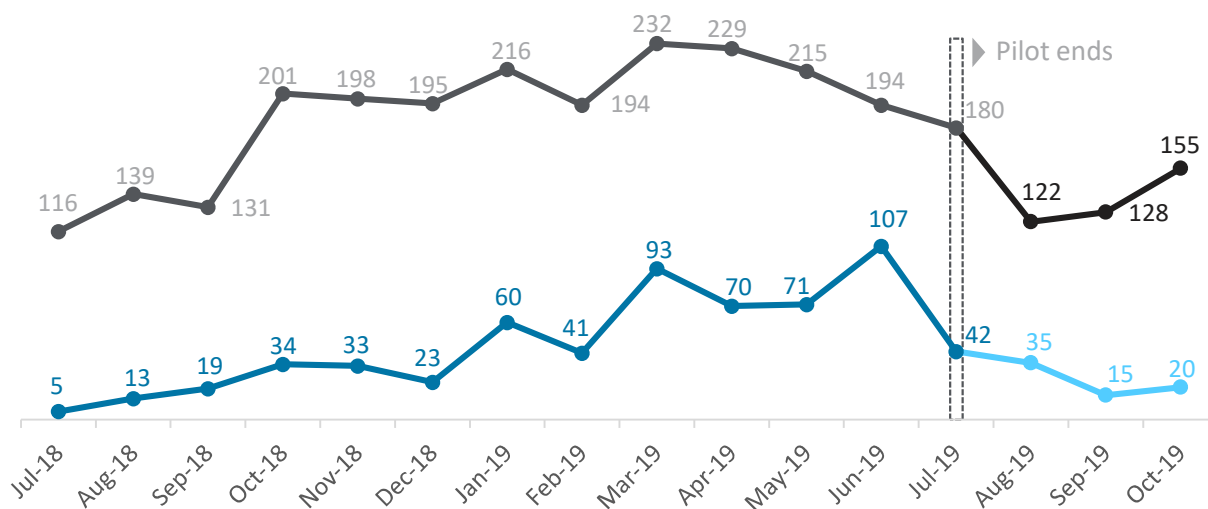
Figure 7: Proportion of admission notifications with a patient summary created, Jun 2018 to Jul 2019²⁰



3.1.4 Proactive summaries

The process of sending in proactive summaries formally began as part of Cycle 3 in July 2018²¹. A total of 681 proactive summaries were sent between July 2018 and October 2019, representing 19% of all summaries sent during this time (3,526 summaries). The proportion of summaries that were proactive increased over time from 4% of all summaries produced in the month of July 2018, to 36% of all summaries produced in the month of June 2019 when the relative proportion of proactive summaries was at its highest, shown in Figure 8. The number of proactive summaries decreased significantly after the pilot ended. The decline is discussed in Section 4.4.

Figure 8: The number of proactive summaries and standard summaries

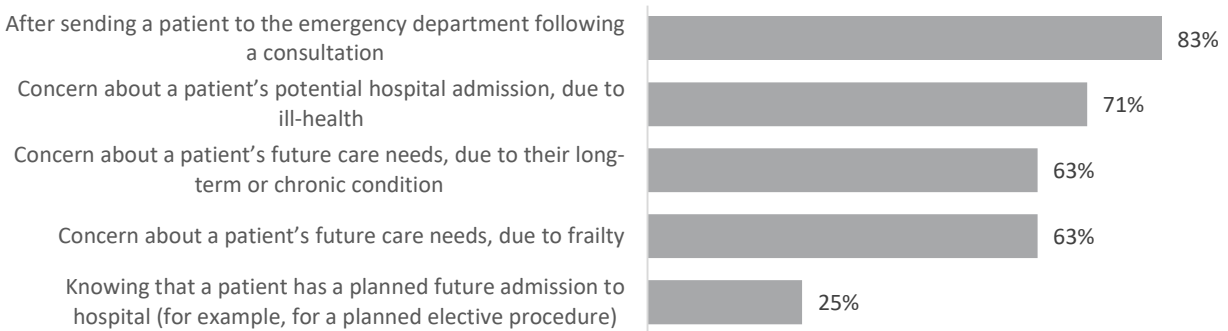


²⁰ Admissions data was missing for February and March 2019 so percentages could not be calculated for this period.

²¹ Initially, 20 of the 101 FPs participating in Cycle 3 were recruited to test proactive summaries, but all FPs participating in the pilot were made aware via email of the ability to send proactive summaries and under what circumstances. Word-of-mouth spreading to other parts of Vancouver Island may have encouraged other physicians to learn about the capacity for proactive summaries.

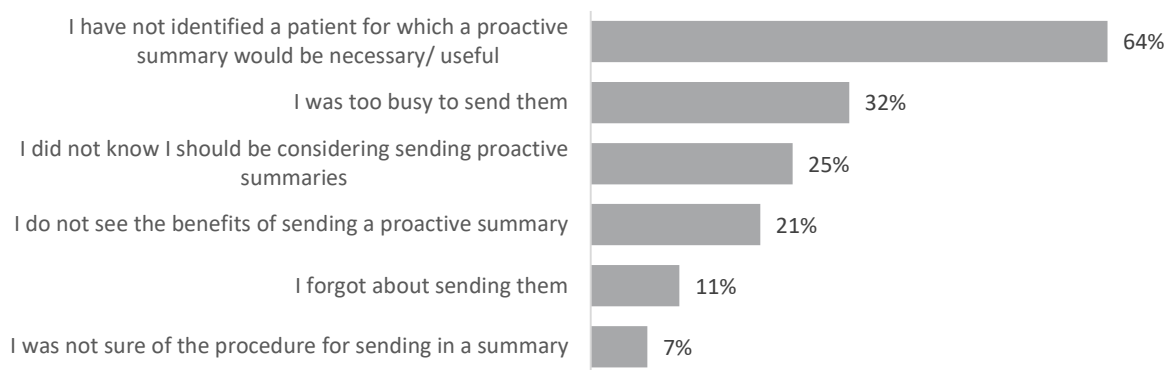
Just over two-thirds of the FPs surveyed in Cycle 3 (38%; 24 of 64 FPs) reported having sent a proactive summary²². The reasons for FPs creating a proactive summary are shown in Figure 11.

Figure 9: FP reasons for preparing proactive summaries. Source FP survey, n=24



Of those who had not sent a proactive summary, almost two thirds (64%, 18 of 28 FPs) had not identified a patient for which a proactive patient summary would be necessary and/or useful. Almost one third (32%) said they were too busy to send proactive summaries, and one quarter (25%) did not know they should be sending them. Figure 12 displays survey results for why physicians declined to send in a proactive summary.

Figure 10: FP reasons for not sending proactive summaries. Source: FP survey, Sept 2019, n = 28²³



The Clinical Analytics team at Island Health explored the number of proactive summaries which were followed by an admission to hospital between January 1, 2018 and February 28, 2019. Around one fifth (21%, 91 of 441) of proactive summaries were followed by an admission to hospital²⁴.

3.2 The number of FPs sending summaries

In total, 486 FPs sent at least one summary from the period of August 2017 to October 2019. It should be noted that officially only 101 FPs were enrolled in Cycle 3 of the pilot. An additional 385 FPs from

²² 39 FPs said they had not sent a proactive summary; 6 FPs were not sure whether they had or not.

²³ 3 responses were removed from this analysis, as their response indicated that they weren't sure whether they had sent proactive summaries and no further information was included.

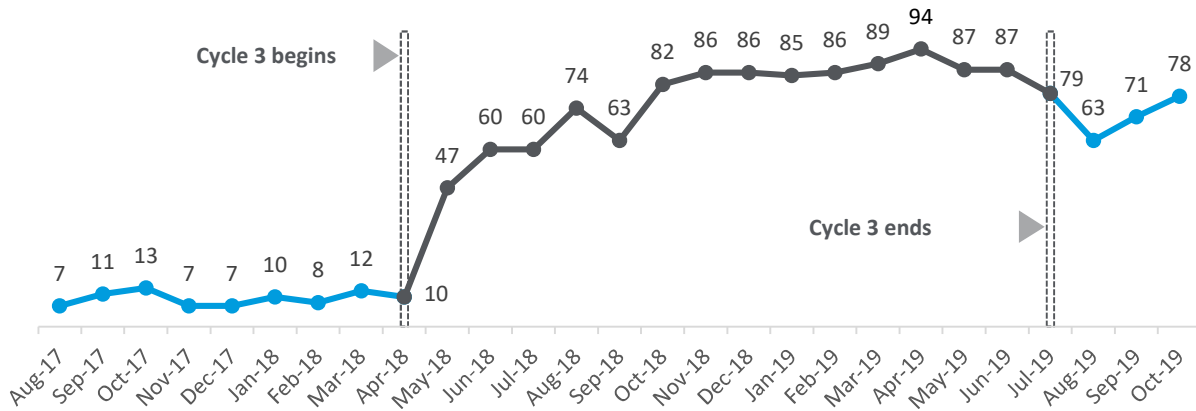
²⁴ Source: Island Health's EHR and Discharge Abstract Database

around Vancouver Island submitted at least one patient summary voluntarily and without remuneration, indicating a significant innovation spread. While data was not collected from physicians about how they heard about the project, there is some speculation that news of the project spread by a combination of word of mouth among physician and Island Health peers, newsletters, Division updates, Island Health channels (including EMR Connect promotions), and the automated eNotification alert.

In terms of summary volume by physicians, most FPs had sent less than five summaries during this time (347 FPs, 71%), but about one in 10 had sent more than 20 summaries during this time (54 FPs, 10%). One FP participant had sent 211 summaries, by far the highest number sent. The project team inquired about this FP's volume and learned that they had had a specialized-focus practice in palliative care and used summaries to communicate with hospital clinicians about this patient group.

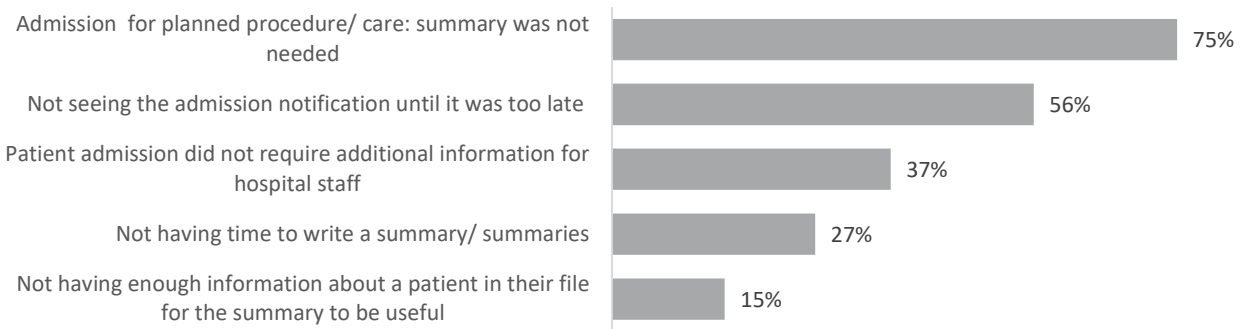
The number of FPs sending at least one summary in each month increased across Cycle 3 (Figure 11). This number peaked in April 2019, when 94 FPs sent a summary.

Figure 11: The number of FPs sending at least one summary, August 2017 to October 2019



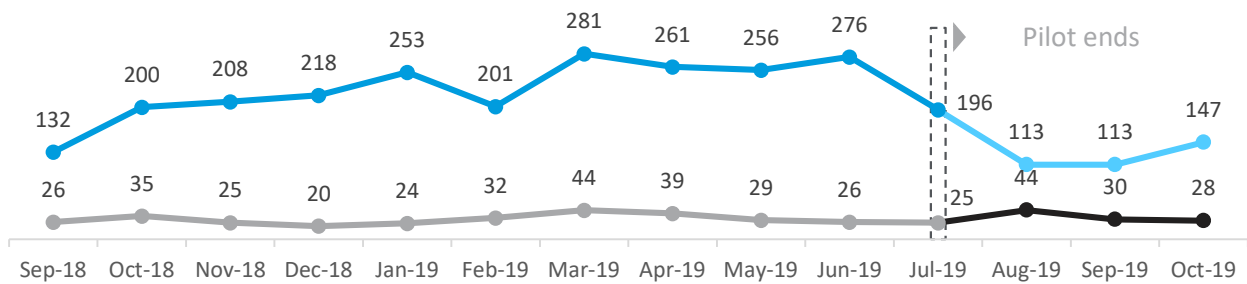
All 64 FPs surveyed in Cycle 3 reported having sent at least one standard (not proactive) patient summary in the past 12 months. Far fewer (15%, 9 of 59 FPs who answered this survey question) reported having sent a patient summary for every patient for whom they had received an admission notification. Reasons for not having sent a summary included not seeing the admission notification in time (56%; 29 of 52 FPs) and not having had time to write a summary (27%; 14 of 52 FPs). However, the majority of FPs (75%) reported not having created a summary because they were not needed or would not be useful, such as when an admission was for a planned procedure that was already supported by pre-operative documentation (see Figure 12).

Figure 12: FP reported barriers to sending standard (not proactive) patient summaries Source: FP survey, n=52



FPs from outside of the South Island region also submitted patient summaries (Figure 13). Between the period of September 2018 and October 2019, 13% of patient summaries were sent by FPs located outside of the South Island region (427 of 2,855 summaries)²⁵, further demonstrating that FPs not involved in the pilot were sending patient summaries.

Figure 13: The number of summaries from FPs in the **South Island region** and from FPs in **other regions**, September 2018 to July 2019



²⁵ Data was only included from September 2018 onwards. Prior to this period the project team had not requested that Island Health track this information systematically, and so the data did not always record the provider region. For the period of April 2018 to August 2018, this information was missing in 214 cases. Other Regions included Central Island, North Island, and Unknown/ Outside of Island Health.

4. Pilot impacts and sustainability

Chapter Summary

More than three quarters of hospital clinicians surveyed (76%, 52 of 68 clinicians) had seen a patient summary in PowerChart in the previous 12 months. Of these, 81% had used at least one patient summary to inform a patient's care. Hospital clinicians reported using summaries to learn about past diagnoses and tests, as well as a patient's social history and family information. Hospital clinicians said summaries are particularly useful for cognitively impaired, non-verbal, and complex patients.

FPs (80%, 47 of 59 FPs) and hospital clinicians (86%, 35 of 40 clinicians) agreed that the summaries had improved communication between FPs and hospital clinicians. They also agreed that summaries had improved access to longitudinal data to support care planning (74% and 78% of FPs and hospital clinicians, respectively). FPs and hospital clinicians also believed that the summaries have had a positive impact on inpatient care (74%; 88%) and care transitions for patients (81%; 85%).

The impact of patient summaries on length of stay and 30-day readmission rates was explored. Patients with a patient summary were less likely to have met expected length of stay targets but were also more likely to be Long Stay Outliers, suggesting that they might represent more complex patients than those without a patient summary. There was no difference in 30-day readmission rates for those with or without a summary.

FPs have continued to create patient summaries since the pilot ended in July 2019, but the number of summaries created has declined. In the three months after the pilot ended, there were 41% fewer summaries created than in the pilot's last three months. However, the number of summaries is still significantly higher than the pre-pilot numbers and it appears that summaries are beginning to trend back up, even without a sustainable fee code.

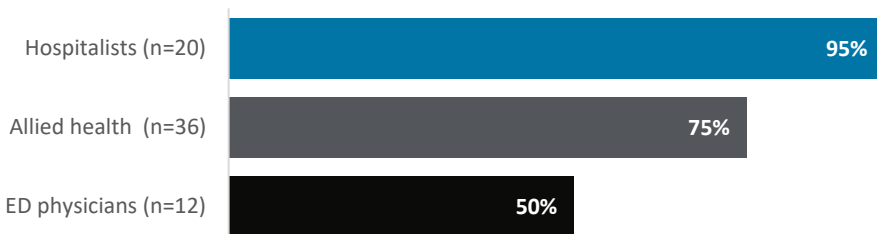
4.1 Impact within the hospital

4.1.1 Awareness of patient summaries

In Cycle 3, 76% of surveyed hospitalists, ED physicians and allied health clinicians (n=68) indicated that they had seen a patient summary in PowerChart in the previous 12 months. Hospitalists were most likely to have seen a summary (95% of hospitalists)—see Figure 14. Lower awareness among ED physicians might reflect that, prior to proactive summaries being sent (from July 2018 onwards), summaries would only be available after sending an admission notification, and patients might have moved on from the ED quickly after admission. Lower utilization of patient summaries by ED physicians aligns with research noting that ED physicians are less likely to use electronic information systems in the presence of extreme time constraints and pressures (Vest et al. 2011)²⁶.

²⁶ Vest, J.R., Jaspersen, J., Jon Sean, Zhao, H., Gamm, L.D., Ohsfeldt, R.L., 2011a. Use of a health information exchange system in the emergency care of children. *BMC Med. Inform. Decis. Mak.* 11, 78. <https://doi.org/10.1186/1472-6947-11-78>

Figure 14: Proportion of **hospitalists, allied health, and ED physicians** who had seen a patient summary in the past 12 months. Source: hospital, allied health and ED physician surveys, Sept 2019, n=68



4.1.2 Using patient summaries

Most hospitalists, allied health professionals, and ED physicians surveyed in Cycle 3 who had seen a patient summary in the last 12 months reported having used a summary to inform patient care (42 of 52; 81%). While the percentages reported in Cycle 3 are higher than reported in Cycle 2 of the pilot (48% of respondents), direct comparison is not possible considering the different physician groups between the two cycles²⁷. In Cycle 3, allied health staff reported the highest rates of patient summary usage to inform care when compared to other staff roles, shown in Figure 17.

Figure 15: The proportion of **hospitalists, allied health and ED physicians** who had used a patient summary to inform patient care. Source: hospital, allied health and ED physician surveys, Sept 2019, n=52



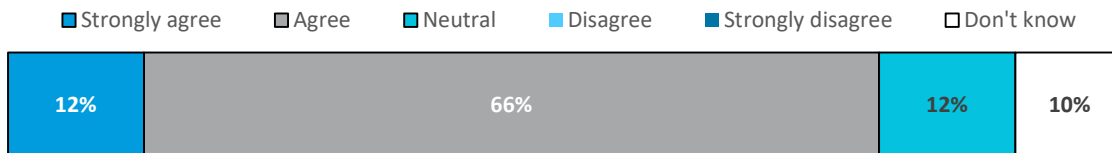
The high usage among allied health professionals might reflect the amount of time available to health professionals to review information in PowerChart prior to beginning care, or how soon the patient summary is available within PowerChart after the patient’s admission. For instance, informal feedback from hospitalists suggested that even when summaries arrive within 24 hours of an admission, it may be too late for hospitalists to use summaries to inform the course of treatment. However, social, family, and lifestyle information in the summaries is highly relevant to developing rehabilitation and discharge plans overseen by allied health professionals (e.g. occupational therapists, social workers). Relatedly, the timeliness of the information may matter less for allied health professionals since they continually develop their plans over the course of the admission.

4.1.3 Providing longitudinal information to support patient care

²⁷ In Cycle 2, 23 hospital specialists, 56 pharmacists, and 13 professionals working within therapy services were asked this question. Emergency physicians were not included in the evaluation until Cycle 3, with the introduction of proactive summaries.

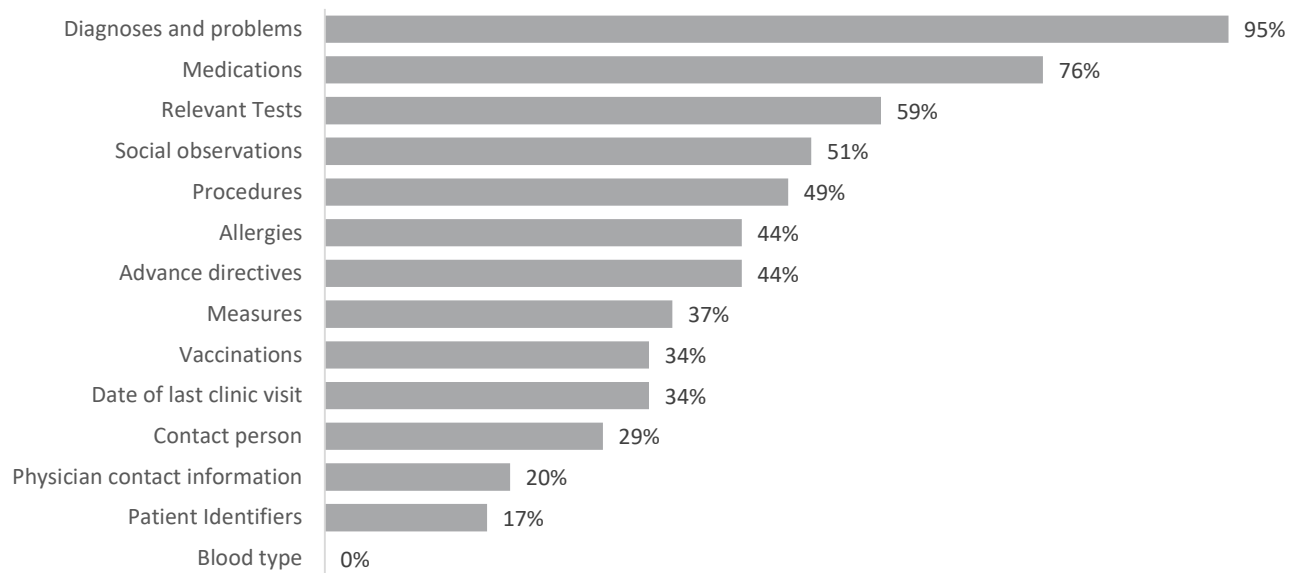
A majority of hospitalists, allied health staff and ER physicians surveyed in Cycle 3 (78%, 33 of 42) agreed that patient summaries improved longitudinal information available during inpatient stays (12% strongly agreed, 66% agreed; see Figure 16). There were no significant differences across health profession types.

Figure 16: Hospital clinicians' agreement that patient summaries improve longitudinal information available during inpatient stays. Source: hospital, allied health and ED physician surveys, Sept 2019, n=42



Hospitalists, allied health and ED physicians (n=41) most often reported using details of past patient diagnoses and problems to inform care (39 of 41 respondents, 95%). Details of medications were also commonly used (76%), as well as details of relevant tests (58%), social observations (51%), and procedures (49%) (Figure 17). This was consistent with qualitative feedback from clinicians in previous pilot cycles, although this was not previously explored as part of a quantitative survey question. In interviews and written feedback across the three cycles, hospital clinicians reported using details of a patient's psychiatric history, immunization schedules, and history of alcoholism to support patient care.

Figure 17: Some information in patient summaries is used more often than others to inform patient care. Source: hospitalist, ER physician and allied health surveys, Sept and Nov, n= 41



4.1.4 Supporting cognitively impaired, non-verbal, chronic and complex patients in particular

Interviews with hospital clinicians across each cycle, and written survey feedback from hospital-based clinicians in Cycle 3, noted specific patient groups for which patient summaries were most often useful. This was consistently reported across clinician types (hospitalist, ER physician, allied health providers) and across pilot cycles.

Physicians noted that summaries had supported care for those too sick to speak, who did not speak English as their first language, and for those with a cognitive impairment or a neurological disorder. As

one hospitalist said: *“At times our patients are confused so the information is helpful to fill in the gaps, especially if there is no family member or friend available.”*

Four surveyed physicians said they used the summaries for patients with dementia disorders. An example was provided by a hospitalist who had found additional information in the patient summary to support a patient with dementia:

“The patient and their family member both said that there was no history of heart problems for the patient. But in my investigations, I wondered about Congestive Heart Failure, and there in the patient summary was an old MI, something like 1986, which would have never been on PowerChart, and some other cardiac history. This was helpful for the management of that patient before I was able to get an echo and such.” – Hospitalist

Two physicians also noted the summaries being helpful when patients were shy about disclosing their medical history, particularly if a friend or family member was present. One hospitalist interviewed noted a case where a young female patient had not disclosed their recent cancer treatment when consulted in front of a male friend, despite being asked about this directly. However, the summary provided some information on this treatment, which enabled the doctor to prompt the patient without their friend present and as a result allowed the doctor to amend their approach to pain management.

Four surveyed physicians and two interviewed hospitalists mentioned using patient summaries for patients with long-term and complex conditions. Physicians noted using summaries for those with comorbid mental health and substance use concerns, where social histories within the summaries could be extremely helpful in understanding the person’s condition and the life challenges they were facing.

4.1.5 Providing an opportunity to communicate with FPs and specialists

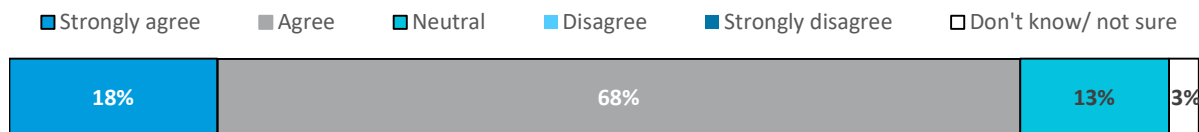
Interviews with hospitalists, and written survey feedback from hospitalists, ER physicians and allied health professionals, indicated that the patient summaries had supported sharing a range of information that only a patient’s FP might have access to. These included details of the patient’s family history, information on patient’s recent tests, and information on the patient’s longitudinal care.

“Information is always helpful to ER doctors who are constantly making decisions with a LACK of information.”— ER physician

“Knowing that a FP already knew about a problem was helpful as I knew to call them to discuss it before starting my own evaluation from scratch.” —Hospitalist

Hospitalists also reported contacting the patient’s FP or specialist for additional information about the patient, which was supported by quantitative survey data: 86% of surveyed hospital staff (35 of 40 hospital staff) agreed (18% strongly agreed, 68% agreed) that patient summaries had improved provider-to-provider communication (Figure 18).

Figure 18: Hospital staff degree of agreement that patient summaries improved provider-to-provider communication. Source: hospitalist, ER physician and allied health surveys, Sept and Nov, n= 40



4.2 Impact for community-based FPs and their practices

Across the cycles, surveyed FPs reported the value patient summaries had on their work, and how summaries helped them to feel more connected to their patients' care, which was particularly true when hospital staff had contacted FPs for additional information, or when hospital staff shared examples of when they had used the patient summary to support patient care. In the evaluation of Cycle 2 of the pilot, 100% of FPs surveyed (30 of 30 FPs) indicated that the patient summaries pilot had been a valuable use of their time.

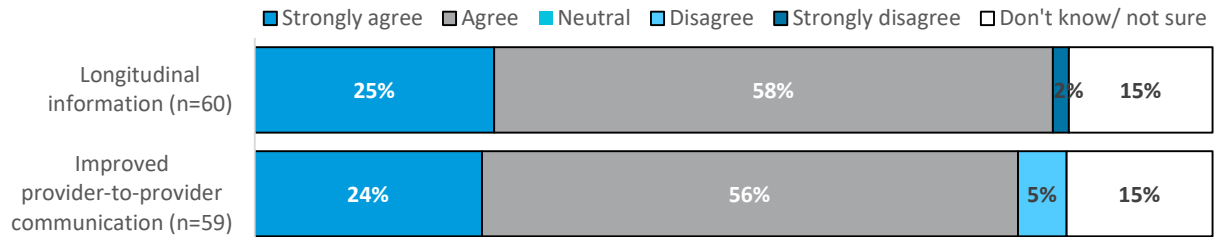
“Now that this is happening, it seems ridiculous that it hasn’t always been happening. It really helps me not to have to race to the hospital, it helps the patient by sharing what we know about them when they may be less able.” — Participating FP

“This was and is a great project, meaningful and impactful for family physicians giving us a voice in our patients acute care. It has also created a nice collaborative relationship with our hospital colleagues and more than all of this it facilitates improved patient care.” — Participating FP

Like hospital-based clinicians, most FPs (47 of 59 FPs) agreed that provider-to-provider communication had improved because of the patient summaries project (24% strongly agreed, 56% agreed) (Figure 19). Three FPs disagreed; one FP said this was because communication with the hospital was one-way, with them sharing summaries but not receiving feedback from hospital clinicians about how this had influenced the patient’s care. This was a concern shared by other FPs (discussed further in Section 4.4).

Most FPs (50 of 60 FPs) also agreed that availability of longitudinal information available during inpatient stays had increased because of the patient summaries pilot (25% strongly agreed, 58% agreed) (Figure 19). Across the three cycles, FPs said that being able to communicate details of recent tests reduced possible test duplication in the hospital, saving money and time. One FP in Cycle 2 noted that they felt the summaries had reduced major medication mistakes, and another noted how it saved hospitalists from using outdated information that they might have for the patient.

Figure 19: Improved availability of longitudinal information available during inpatient stays and provider to provider communication²⁸. Source: FP survey, Sept 2019²⁹



Across the three cycles, FPs provided numerous examples of how patient summaries had been used to inform patient care. This included: summaries being used to inform of severe allergies; to provide information on histories of mental health and substance use concerns; and to provide information on recent diagnosis, such as a Transient Ischemic Attack, which were later used to inform patient care. Further examples provided by FPs are in Appendix 3.

A small number of FPs reported instances where patients had been more satisfied or engaged with their care because of a patient summary.

One FP noted how their patient had seen two specialists, both of whom noted the great summary they had received from the FP and noted that this had made her feel ‘extra special, like royalty’, and had supported her to receive ‘wonderful care’. Another noted how their patient had decided to attend the ED after their FP provided them with a copy of their patient summary, which included details of past alcohol use, to share with ED staff.

4.3 Impact on patient care and outcomes

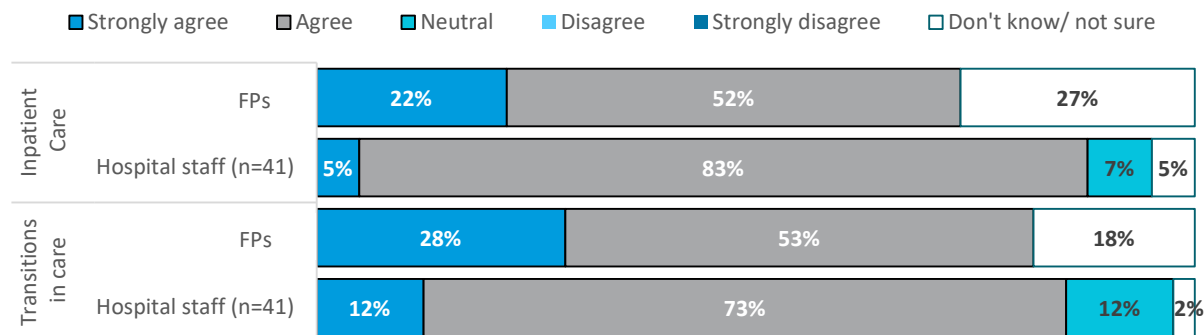
4.3.1 Impact on inpatient care and transitions in care

FPs and hospital clinicians were asked whether they believed that patient summaries had a positive impact on inpatient care, and a positive impact on transitions in care. Figure 20 summarises responses to these questions. Overall, FPs and hospital-based staff agreed with these statements, and FP responses were similar to those in Cycle 2 of the pilot, where they were asked the same questions (see Appendix A). Over one quarter of FPs (16 of 60 FPs surveyed, 27%) did not know whether the summaries had improved inpatient care, and close to one-fifth did not know whether summaries had had a positive impact on transitions in care (11 of 60 FPs surveyed, 18%), which likely reflected the fact that they cannot directly witness these impacts as a community-based care provider.

²⁸ 9 FPs responded ‘Don’t know’ to each of these questions—these responses were removed from this analysis.

²⁹ The one FP who disagreed that access to longitudinal data improved did not say why.

Figure 20: Positive impact of patient summaries on both inpatient care and transitions in care. Sources: FP, hospitalist, ER physician and allied health surveys, Sept and Nov 2019



4.3.2 Length of stay and readmissions rates

The Clinical Analytics team at Island Health explored differences in length of stay and 30-day readmission rates for patients with patient summaries created between January 1, 2018 and February 28, 2019 (n= 1,319 summaries, for 1,557 hospital visits)³⁰, compared to those who had not (the control group; n= 47,816 hospital visits). The team used data collected in Island Health’s EHR and Discharge Abstract Database. Attempts were made to create a matched control group based on CIHI’s Case Mix Groups (CMG)³¹ and by age-group, but an accurate matched sample group was not possible. Despite the limitations of the results based on the lack of a matched sample, the results below are intriguing and worth consideration:

1. Patients with a patient summary were more likely to be Long Stay Outliers, 7% compared to 4% for the control group. The higher percentage of Long Stay Outliers appears to indicate that patients with patient summaries were more complex than the control group, for reasons beyond case mix or age. This is supported by feedback from FPs³² who said they were more likely to provide patient summaries for their more complex patients.
2. Relatedly, patients with a patient summary were less likely to have met expected length of stay targets (47% of patient summary patients compared to 62% of the control group), staying longer in hospital than expected.
3. There was no difference between those with patient summaries and the control group in 30-day all-cause readmission rates.

Further research is needed to explore the impact of patient summaries on clinical outcomes in a way that adequately controls for patient and system complexity. While detailed data were provided to the project team on the Case Mix Group categorizations by patient, a robust quantitative analysis of patient data was outside the scope of this report.

³⁰ Some patients were hospitalized multiple times during the study period

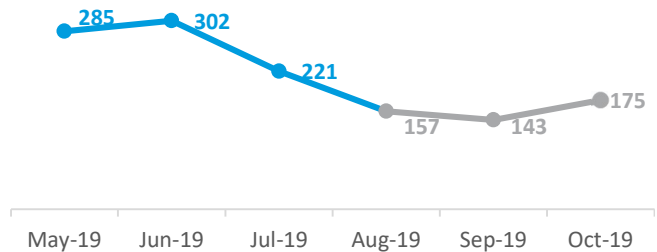
³¹ Case Mix Groups+ (CMG+) methodology is designed to categorize acute care inpatients into statistically and clinically homogeneous groups with similar clinical and resource-utilization characteristics. The methodology was designed by the Canadian Institute for Health Information

³² Feedback collected from open survey responses and from informal feedback from FPs direct to the project team

4.4 Sustaining impact over time

The number of summaries sent by FPs were tracked for three months following the pilot's official end in July 2019. FPs continued to send summaries after the pilot, but not as many as they had before the pilot. The reduction in submissions is in line with post-project expectations, in that utilization of a pilot process will decrease once the project ends. During the three months before the pilot ended, 808 summaries were sent, declining to 475 summaries in the three months following the pilot (a 41% reduction). The number of FPs sending summaries also decreased (from 298 FPs to 246, a 17% decrease).

Figure 21 FPs continued to send patient summaries after the pilot, but not as many as during the pilot



From the data collected during the evaluation, two explanations for the decline may be considered:

1. Lack of a summary feedback mechanism: Ten surveyed FPs noted that they had not received feedback on their summaries from hospital clinicians, and so did not know how useful they were, which they found frustrating. When asked what would support them to continue to send summaries, seven FPs said that having feedback on whether the summaries were useful would motivate them to send them.
2. Lack of continued financial and structural support: In their written survey feedback, three FPs were concerned about whether patient summaries would be sustainable in the face of additional tasks and pressures they faced each year. They suggested that continued reimbursement, easier methods of creating and sharing summaries, particularly for those unable to use the EMR-compatible templates, would support continued use of patient summaries. As mentioned previously, while summaries initially decreased post the pilot and funding period, the early post pilot data suggests that the number is trending back up.

5. Discussion: Conditions for success of the Patient Summaries Pilot

Chapter Summary

The research conducted as part of this case study identified several key factors that led to the success of the Patient Summaries Pilot.

First, implementing a continuous improvement approach kept physicians engaged with the process, and demonstrated ongoing value to project funders. Second, the project used feedback collected throughout its delivery to ensure the process of creating and using summaries was as simple as possible. Finally, the pilot built broad engagement through its project working group, which included the stakeholders required to move the work forward. FP engagement, critical to the creation of patient summaries, was supported through regular communication, the use of FP champions, and remuneration models that fit FP preferences.

5.1 A continuous quality improvement approach

The Patient Summaries Pilot had a strong focus on quality improvement from its outset, being implemented in a series of Plan-Do-Study-Act cycles (PDSA cycles, Dewing, 1993). The pilot purposively started as a small-scale pilot, incorporating feedback and learning from previous cycles. Having ready access to a range of data throughout the pilot enabled the project team to identify challenges quickly and objectively, as well as ensure the project remained on track. Full details of the methods used to monitor delivery of the pilot is available in Appendix 2 (Detailed monitoring and evaluation methods).

One interviewed stakeholder believed that the quality improvement approach used had helped ensure continued engagement from physicians throughout. The iterative approach allowed the project team to course correct in a more contained environment and maintain good will with participating physicians:




“It was so important to start small, because if things weren’t working as well—like summaries not being easy to read, or FPs providing long summaries that couldn’t be digested by hospital staff—then we could fix it before it was too big a problem. And before physicians grew frustrated.” — interviewed project stakeholder

Project staff also believed that this continuous improvement approach helped demonstrate the value of the pilot to Island Health: each cycle had data to demonstrate its value, as well as highlight where additional investment could support future success.

Exclamations indicate challenges that arose during each cycle, and the green check marks indicate a solution developed to address each challenge.

Figure 22 summarizes key learnings from each improvement cycle, and how this led to the next round of quality improvements. Exclamations indicate challenges that arose during each cycle, and the green check marks indicate a solution developed to address each challenge.

Figure 22: Key learnings and improvements by pilot cycle

 Cycle 1	 Cycle 2	 Cycle 3
<ul style="list-style-type: none"> ✓ GPs provided with fax numbers for hospital wards ⚠ Patient and clinician movement meant summaries were not getting into the right hands 	<ul style="list-style-type: none"> ✓ Central fax lines created for summaries at each hospital ✓ Payment per summary model tested ⚠ Congestion at the central fax line led to delays and misplacement ⚠ Payment model causes administrative burden for GPs 	<ul style="list-style-type: none"> ✓ EMR Connect web-portal introduced ✓ EMR-compatible templates developed ✓ Summary cover pages removed ✓ Scanning introduced ⚠ Pages take time to load, including summary cover page ⚠ Manual scanning created workload burden for health records

5.2 Making participation in the process easy for everyone involved

5.2.1 Making participation easy for FPs

FPs often lack the time they would like to communicate with other health professionals about patient care (Beulieu et al. 2009; Jones et al. 2015; Ross et al. 2010). Participant FPs reported a lack of time as a barrier to generating patient summaries, despite reporting their value.

Three pilot activities aimed to support FPs to create and send summaries more easily:

1. Providing a single fax number between cycles 1 and 2
2. The introduction of an EMR-compatible template for patient summaries in Cycle 3
3. The introduction of a system for direct uploads of patient summaries to PowerChart, through the EMR Connect web-portal

5.2.2 Making participation easy for hospital staff

Not all hospital clinicians reported having used a patient summary when available. Throughout the pilot, hospital clinicians reported the following reasons that made patient summaries difficult to use:

- Unavailability of the summary at the time they needed it, due to the time delay between an admission notification and placement of a summary on PowerChart
- Not knowing that the summary was available
- Summaries being difficult to read in earlier cycles, when summaries were faxed
- Summaries were difficult and time consuming to navigate, due to inconsistent structures and lay-outs.
- The time taken to load each page when faxed.
- Logistical challenges, such as the inclusion of a cover page, which contained no patient information³³
- Extended length of some summaries, for example one summary was 17 pages in length
- The summaries not containing needed information they needed, such as FP contact information

Most of these challenges were addressed through quality improvement work across the three cycles, shown in Table 3.

Table 3: Challenges in using patient summaries addressed throughout the pilot

Challenge identified	Mitigation
Delays in summary availability	- Direct upload to PowerChart via the EMR connect web-portal
Summaries being difficult to read, load and navigate	- A move from faxed to scanned summaries - An EMR-compatible template for summaries - Cover pages removed from summaries in Cycle 3 - Communication to FPs about how to reduce the length of summaries
Summaries not containing the right information	- An EMR-compatible template for summaries - Communication to FPs about what to include in their summaries, including their contact information

The challenges identified by hospital staff align with broader research on the barriers to using electronic health information by busy physicians (Box 4).

Box 4. What we know about supporting physicians to use electronic health information

Quick and easy access is important. Wilcox et al. (2006) compared the use of patient summaries³⁴ before and after making the summary easy to download – just making the summary easier to access (and not amending the summary itself) increased viewing of the summaries from 16% to 40%. Vest & Jaspersen (2012) found that 77% of health information exchange HIE users did not access any information beyond the first two screens shown.

Knowing when data is available helps. Hincapie et al. (2011) found that HIE systems that notify users of the presence of data had higher use than those that did not, as did Wilcox et al. (2006)— physicians felt use of HIE was inefficient when they spent significant time searching for information that may or may not be available.

Organising data helps too. Physicians often felt that HIE includes large amounts of data that is not organized for quick clinical use (Strauss et al., 2015). Physicians may be looking for a specific data item, but an abundance of other information made this difficult to find. In a qualitative study by Jones et al. (2015), multiple primary care providers suggested that receiving a short, structured summary regarding a patient hospitalization was an attractive alternative to the multiple pages of data they currently receive.

³³ The Island Health team responsible for scanning the summaries were made aware of this issue during Cycle 3 and ensured that cover pages were no longer scanned.

³⁴ For previous outpatient and inpatient admissions

5.3 Drawing on a broad network of supports

The Discharge Planning Working Group included a variety of stakeholders, including front-line users of the information being transferred (such as hospitalists and pharmacists), and decision-makers who could support process changes within the hospital. Island Health was a key partner on all Transitions in Care work, and their involvement in Working Group meetings enabled them to hear first-hand about opportunities for processes improvement. As an example, participation of Island Health on the Working Group led to the creation of the EMR Connect web-portal as a solution to administrative burden associated with the volume of faxed and scanned summaries. Development of the web-portal was a major accomplishment that supported the success of the electronic transfer of summaries in Cycle 3.

The project also had a dedicated Division appointed project manager throughout. Feedback from project partners interviewed in Cycle 3 suggested that the dedicated project manager had been critical to the success of the pilot. They were able to manage and build the network of supports, as well as managing day-to-day progress of the pilot and ensuring feedback and learning was used for continuous improvement.

5.4 Obtaining FP buy-in

Throughout the pilot, there were concerns raised by FPs about the summaries, despite the general value and support summaries were receiving throughout the region. A few FPs were wary that the summary process might reduce the likelihood of hospital-based clinicians calling them, which they felt was more valuable than one-way communication with hospital staff. As one surveyed FP commented in Cycle 3: *'Family doctors are struggling with death by a thousand paper cuts, tons of 'small' tasks that add up to unsustainability.'* Other FPs were concerned about the time required to create summaries—specific concerns were raised for proactive summaries, where the immediate impact of generating the summary was not always clear (see Box 5).

Box 5. FP reservations about proactive summaries

In their written survey feedback, 8 FPs outlined reservations about the benefits of proactive summaries:

- Five FPs said that the process of deciding which patients might require a proactive summary and preparing summaries for these patients was too time-consuming and so they did not see the value in it.
- Two FPs said that it was not possible to know whether a patient would be admitted to hospital, so creating a proactive summary was not worth the time invested if it may not be used.
- Two FPs said the summary might be inaccurate by the time an admission occurred.
- One FP said that they would consult another physician directly if they felt a hospital admission was imminent and so a patient summary was not needed.

In order to achieve physician buy-in, the working group needed to address the issue of added administrative burden posed by the completion of patient summaries. Three key mechanisms were used to build buy-in from FPs: communication; physician champions; and remuneration for summaries.

5.4.1 Communication and championship

The Discharge Planning Working Group included FPs, hospitalists and allied health staff. These staff took part in planning the patient summaries pilot from its outset, and so were invested in it from the very

beginning. They also became key communication points for South Island physicians, sharing details of the project with their peers. Having this high level of engagement likely supported the spread of patient summaries to a greater number of FPs.

Broader opportunities for FP engagement were also utilized throughout the project:

- Text was added to electronic admission notifications in April 2018 to alert FPs across South Island that they could create and share a patient summary, and how to do this.
- The Divisions provided feedback to FPs after each round of the pilot, to outline how summaries were being used, along with information about their impact.
- The Divisions attended regional FP forums to discuss patient summaries.
- The Divisions participated in small group learning sessions and EMR conferences held in the region.
- The Divisions sent email reminders to FPs in Cycle 3, with tips and tricks on what to include in their summaries³⁵.

5.4.2 Remuneration

The pilot provided remuneration to FPs for creating patient summaries, with different remuneration models tested in each cycle. Most FPs preferred to receive a set quarterly payment as used in Cycle 3, or else had no preference (see Table 4).

Table 4: Remuneration models used in each pilot cycle

Cycle and remuneration model	Notes
Cycle 1. An initial payment of \$200 upfront, a closing payment of \$200 at pilot end	-Some FPS returned the second payment because they had not sent enough summaries to feel the payment was warranted.
Cycle 2. Fee per summary of \$40	-FPs were compensated for each summary.
Cycle 3. A set quarterly payment of \$350	-In Cycle 3, 88% of FPs preferred this method of payment to a fee per summary, or else had no preference (23 of 26 surveyed FPs). -FPs preferred this model due to the reduced administrative burden. -One FP felt this was 'more generous' for each summary completed in Cycle 3 than the fee per summary model in Cycle 2

Remuneration was important to FPs participating in the pilot. Table 7, below, shows the survey results of physician's responses to questions about payment and patient summaries. In Cycle 2, 13% of surveyed FPs said they would 'never' send a patient summary if they were not compensated, and zero FPs (0%) would send a summary for every relevant patient if there was not fee-for-service compensation.

³⁵ These reminders had mixed success. Some FPs felt overwhelmed by what they were to remember to include in their summaries, other FPs appreciated the reminder to prepare summaries, particularly proactive ones.

Table 7: Per cent of FPs who would send patient summaries **with or without** fee-for-service remuneration. Source: FP survey, patient admission summaries pilot, Cycle 2. (n=30)

	With remuneration	Without remuneration
Every admission	53%	0%
Most admissions	37%	20%
Only admissions for complex patients or specific concerns	10%	67%
Never	0%	13%

6. Conclusion

The *Patient Summaries Pilot* was successful in engaging FPs to create patient summaries—by the end of the pilot, more than four times the number of FPs recruited to the pilot were known to have sent in at least one summary. Summaries were seen and utilized by hospital clinicians, as intended.

Four main factors influenced the pilot’s success. One, creating IT tools that enabled electronic information exchange, as implemented in Cycle 3 of the pilot, helped simplify the process of sharing summaries, and helped to ensure that these were efficiently available to hospital clinicians. Two, a high level of engagement and communication with FPs and hospital staff during the pilot, which included hospital visits, communication with participating FPs, and promotion of the summaries at regional forums, among other methods. Three, IT tool development and ongoing engagement were supported by strong relationships between project partners, facilitated by the Discharge Planning Working Group. And four, the use of PDSA cycles for each of the three pilot cycles enabled ongoing process improvements to be made at each stage of pilot project operations.

Patient summaries have been used by hospital clinicians to inform care planning for vulnerable patients, such as those with a loss of cognitive function, communication difficulties, and patients with chronic and complex care needs. To that end, the pilot was successful in supporting a key objective of the initiative—improving relationships between FPs and specialists in their shared care of patients with serious, chronic health conditions.

The impact of the project on patient outcomes proved difficult to measure. While patients with a summary were less likely to have met expected length of stay targets, they were also Long Stay Outliers, which could indicate that they were more complex cases than the control group, for reasons beyond case mix or age: this could likely have confounded the analysis. Further research would be required to explore these effects more robustly.

The pilot faced some challenges throughout its delivery. It proved difficult to enable the sharing of summaries within 24 hours, as initially intended—the web-portal, developed in Cycle 3 and further promoted after the pilot ended, should go some way in improving this. Creating EMR-compatible templates for all EMR systems was difficult because of differences across systems and the number of different EMR systems used across Victoria. Finally, sustaining the sharing of summaries now that the pilot has ended, when FPs are no longer remunerated for their efforts, might prove a challenge to the legacy of the project. Some FPs continued to send summaries after the pilot ended, but the number of summaries sent dropped in the three months following the pilot.

References

- Afilalo, M., Lang, E., Leger, R., Xue, X., Colacone, A., Soucy, N., Vandal, A., Boivin, J.-F., Unger, B., (2007). Impact of a standardized communication system on continuity of care between family physicians and the emergency department. *CJEM* 9, 79–86.
- Beaulieu, M.-D., Samson, L., Rocher, G., Rioux, M., Boucher, L., Del Grande, C., (2009). Investigating the barriers to teaching family physicians' and specialists' collaboration in the training environment: a qualitative study. *BMC Med. Educ.* 9, 31. <https://doi.org/10.1186/1472-6920-9-31>
- Brown, T. (2008). Design Thinking. *Harvard Business Review*, June 2008.
- Deming, W.E. 1993. *The New Economics*. MIT Press. Cambridge, MA. page 135.
- Graumlich, J.F., Novotny, N.L., Nace, G.S., Aldag, J.C., (2009). Patient and physician perceptions after software-assisted hospital discharge: cluster randomized trial. *J. Hosp. Med.* 4, 356–363. <https://doi.org/10.1002/jhm.565>
- Hincapie, A.L., Warholak, T.L., Murcko, A.C., Slack, M., Malone, D.C., (2011). Physicians' opinions of a health information exchange. *J. Am. Med. Informatics Assoc. JAMIA* 18, 60–65. <https://doi.org/10.1136/jamia.2010.006502>
- Jones, C.D., Vu, M.B., O'Donnell, C.M., Anderson, M.E., Patel, S., Wald, H.L., Coleman, E.A., DeWalt, D.A., 2015. A failure to communicate: a qualitative exploration of care coordination between hospitalists and primary care providers around patient hospitalizations. *J. Gen. Intern. Med.* 30, 417–424. <https://doi.org/10.1007/s11606-014-3056>
- Maslove, D.M., Leiter, R.E., Griesman, J., Arnott, C., Mourad, O., Chow, C.-M., Bell, C. (2009). Electronic versus dictated hospital discharge summaries: a randomized controlled trial. *J. Gen. Intern. Med.* 24, 995–1001. <https://doi.org/10.1007/s11606-009-1053-2>
- Menachemi N., Rahurkar S., Harle C.A., Vest J.R (2018). The benefits of health information exchange: an updated systematic review. *J Am Med Inform Assoc.* 2018 Sep 1;25(9):1259-1265. doi: 10.1093/jamia/ocy035.
- Motamedi, S.M., Posadas-Calleja, J., Straus, S., Bates, D.W., Lorenzetti, D.L., Baylis, B., Gilmour, J., Kimpton, S., Ghali, W.A., (2011). The efficacy of computer-enabled discharge communication interventions: a systematic review. *BMJ Qual. Saf.* 20, 403–415. <https://doi.org/10.1136/bmjqs.2009.034587>
- Rahurkar, S., Vest, J.R., Menachemi, N., (2015). Despite the spread of health information exchange, there is little evidence of its impact on cost, use, and quality of care. *Heal. Aff. (Project Hope)* 34, 477–483. <https://doi.org/10.1377/hlthaff.2014.0729>

Ross, S.E., Schilling, L.M., Fernald, D.H., Davidson, A.J., West, D.R., 2010. Health information exchange in small-to-medium sized family medicine practices: motivators, barriers, and potential facilitators of adoption. *Int. J. Med. Inf.* 79, 123–129. <https://doi.org/10.1016/j.ijmedinf.2009.12.001>

Strauss, A.T., Martinez, D.A., Garcia-Arce, A., Taylor, S., Mateja, C., Fabri, P.J., Zayas-Castro, J.L., (2015). A user needs assessment to inform health information exchange design and implementation. *BMC Med. Inform. Decis. Mak.* 15, 81

Vest, J.R., Jaspersen, 'Jon Sean, Zhao, H., Gamm, L.D., Ohsfeldt, R.L., (2011a). Use of a health information exchange system in the emergency care of children. *BMC Med. Inform. Decis. Mak.* 11, 78. <https://doi.org/10.1186/1472-6947-11-78>

Wilcox, A., Kuperman, G., Dorr, D.A., Hripcsak, G., Narus, S.P., Thornton, S.N., Evans, R.S., (2006). Architectural strategies and issues with health information exchange. *AMIA ... Annu. Symp. proceedings. AMIA Symp.* 2006, 814–818.

Zwarenstein, M., Reeves, S., (2002). Working together but apart: barriers and routes to nurse--physician collaboration. *Jt. Comm. J. Qual. Improv.* 28, 209,242-247.

Appendices

Appendix 1: Detailed monitoring and evaluation methods

Method	Pilot improvement cycle			Description of method	Response rates – per cycle		
	1	2	3		1	2	3
FOCUS: CREATION OF THE SUMMARIES (COMMUNITY-BASED PHYSICIANS)							
FP surveys	√	√	√	In cycles 1 and 2, two surveys were conducted. In cycle 3 only one survey was conducted. The surveys explored FPs experiences of sending summaries, and their perceptions of how the summaries were affecting provider-to-provider communication and patient care.	1. 19/47 (40%) 2. 14/40 (35%)	1. 30/101 (30%) 2. 76/99 (77%)	64/92 (70%)
FP Data Tracking	√	√		Every month FPs participating in the pilot reported on the summaries they provided to each hospital. FPs reported the date and time of the admission notification, the time to prepare the summary, the hospital and ward that the summary was sent, the time and date the summary was sent, and whether a response was received. FP tracking was not needed in cycle 3, as the process used in cycle 3 enabled automated monitoring of the summaries.	25/47 (53%)	68/101 (67%)	n/a
Chart audit	√	√		In each of the cycles, the chart audit focused on a different aspect of the program. The cycle 1 audit assessed whether the patient summaries were being placed in patient charts. In this audit, FPs of admitted patients in the chart audit were contacted to confirm whether summaries had been sent. The cycle 2 audit focused on determining the quality of patient summaries. Hospitalists were asked to rank the quality of patient summaries they encountered.	17 charts	4 charts	n/a
Targeted MOA interviews		√		A phone survey of MOAs at clinics that completed their summaries in less than 5 minutes. This was part of an effort to look at specific quality improvement areas.	-	5/7 (71%)	n/a
Targeted FP communication		√		FPs who had not submitted any data received an email survey asking about why they had not yet submitted data. This was part of an effort to look at specific quality improvement areas	-	14/33 (42%)	n/a
Patient Placement Data Comparison		√		Data collected by Patient Placement was compared to Patient Summary data submitted by physicians. The comparison checked whether patient summaries sent by physicians appeared in the Patient Placement data and, if they did appear, if they had identical records.	n/a	354 entries	n/a
FP Office Admin Data	√			MOAs were asked to track: when an eNotifications arrived, the amount of time needed to prepare the summary, the ward of the patient, the patient MRP and the date/time the summary was sent to hospital.	25/47 (53%)	n/a	n/a
MOA Survey	√			Assessed MOA awareness of the pilot, whether summaries were being sent, challenges MOAS were facing and to receive recommendations for improvement	23/48 (48%)	n/a	n/a
FOCUS: AWARENESS AND USE OF THE SUMMARIES (HOSPITAL-BASED STAFF)							

Hospitalist and ER physician survey	√	√	√	Surveys were sent to Hospitalists and ER Physicians which included questions awareness of patient summaries, how summaries were being used (if at all), and the impacts summaries were having on patient care.	n=5*	5/15 (33%) (5 hospitalists)	n=32* (20 hospitalists, 12 ER doctors)
Hospital Provider Surveys	√	√		Hospital providers (including hospitalists, pharmacists, speech pathologists, etc.) were asked about their awareness of patient summaries and how patient summaries were affecting patient care within the hospital.	5/13 (38%); + 12 Intws	28/92 (30%)	n/a
Hospital Provider interviews	√			Cycle 1 included face to face interviews with hospital providers	12 Intws		
Allied Health Providers Survey			√	Surveys were sent to Allied Health Providers (n=38) which included questions about awareness of patient admissions summaries and when, how and with what impacts summaries were being used by Allied Health Providers.	n/a	n/a	n=38*
Patient Placement Interviews		√		Patient Placement staff were interviewed about the process of receiving and forwarding summaries from the central fax line	n/a	30/101 (30%)	n/a
Observation Notes		√		Weekly visits were made to patient placement and a sample of wards in each hospital during the pilot to identify process improvements	n/a	20 visits	n/a
Unit Clerk Interviews	√			In-person interviews were conducted at the hospital to determine if patient summaries were being recognized on the ward, and if they were being placed correctly in the chart.	16 Intws	n/a	n/a
FOCUS: PILOT DELIVERY AND GOVERNANCE							
Intws with delivery partners			√	Representatives from island health; the EMR Connect program; and GPSC Practice Support Program.	n/a	n/a	3 Intws
Document review			√	The evaluation team accessed and reviewed working group action items and project notes.	n/a	n/a	n/a
ADDITIONAL METHODS							
Literature review	This literature review explored the benefits of provider to provider communication, examples of ways to improve it, and its key barriers and enablers: the review focused on provider to provider communication by electronic means. Relevant literature was identified through academic journals (using search-engines such as PubMed, Science Direct and Google Scholar) and through targeted review of publications by relevant public sector and academic organisations ³⁶ . A total of 67 documents were identified, of which 44 contained information deemed relevant to the review.						
Island Health data	The Clinical Analytics team at Island Health analysed data on patient length of stay and readmission rates. This analysis was used in this report.						

* Sample size unknown: the survey was distributed openly and the potential number of respondents is not known.

³⁶ Relevant organisational 'thought-leaders' and public sector bodies, such as The BC Patient Safety and Quality Council and the King's fund in the UK (among others)

Appendix 2. Examples of how summaries were used

Cycle 1		
Quote	Role	Source
<p>"I advised a patient to go to the ER for urgent admission and sent in a summary to the ER, as well as faxing it to be uploaded into Power Chart. My patient's story was complicated as I was worried she might have liver failure. She was duly admitted, worked up further, then discharged to follow up with me. Today she told me that she had seen multiple specialists and 2 had made a point of telling her about the wonderful detailed records they had received from me. She felt she had received wonderful care, and thanked me because she felt that because of my wonderful notes the doctors had treated her as if she was 'extra special, like royalty.'"</p>	FP	Pilot feedback (email)
<p>"I thought you might be interested in an especially smooth patient transition as a result of the above projects. I was reviewing tasks Sunday night before the work week and saw that an elderly, frail patient was in the ER that afternoon (saw lab work). Further down my task list I saw an ER consult note (through the Dyndoc program) explaining that she had a hip fracture. The ER document came even before the radiology reports came to my EMR! I knew from that document that she would be admitted so I sent in a Patient Admission summary before I even got the eNotification of admission."</p>	FP	Pilot feedback (email)
<p>"The previous medical history/issues was most helpful and is often the least reliable component of information from the patient."</p>	ED Physician	Pilot feedback (email)
<p>"I sent a pro- active Summary in May 13th, and yesterday my patient with end stage CHF was admitted to RADU. My summary was referred to multiple times for med rec, MOST, treatment plan, caregiver burden, previous labs, and basically has prevented an extensive unnecessary work up (in my opinion) and a plan to send patient home ASAP."</p>	FP	Pilot feedback (email)
<p>"I have had a resident call to update us before releasing the patient, which is appreciated. We had lots of feedback on a patient that we sent to Emerg from the office."</p>	FP	FP Survey
<p>"I think even just being notified of admissions and discharges has been hugely helpful. I had a little kid discharged on Friday after being in a day with pneumonia. The discharge summary had not yet been sent to my office but was on Powerchart – I went on Cerner and read it and it advised that the kid be seen in my office in a few days – I was able to get my MOA to call mom to arrange an appointment for today. It makes the patient really feel like everyone is working together and that is a good feeling. Also, I saw one of my elderly patient's was admitted with a pacemaker problem – there was nothing on Powerchart from the specialists so I called her daughter and she was impressed that I knew her mom was in hospital without her having to tell me."</p>	FP	FP Survey
<p>"Prior to this program I often attempted to phone the hospitalist or specialist involved to relay this information but this proved to be inefficient and non productive and often resulted in no more than a futile game of "telephone tag". The information I provide is a list of medication allergies and intolerances, medical and surgical history, comprehensive medication list and dosages, recent laboratory results and investigations, and recent consultation letters of significance. I am very confident that</p>	FP	FP Survey

this information is imperative in the safe and efficient care of my hospitalized patients and I have heard this comment from hospitalist and specialist alike.”

[In Cycle 1, a survey of hospitalists was conducted by a member of the working group and they reported that] “One hospitalist polled stated she learned of a patient’s cancer diagnosis from the summary.
 Another learned of an allergy to a medication that was incomplete in Powerchart; this was for a medication the hospitalist was considering prescribing. When the hospitalist noted the allergy and the severity, he notified the hospitalist pharmacist (leading to an updating of the allergy and severity on Powerchart) and used an alternative agent. Note: the patient was unable to communicate the allergy to the hospitalist for medical and cognitive reasons.
 Another hospitalist was appreciative of a family doctor’s efforts to send in relevant outpatient specialists’ consultations in addition to the summary, consultations that are not available in hospital/on Powerchart.
 A few hospitalists have been appreciative of social history provided, which has affected their communication with family, caregivers, etc. Even knowing whom to contact!”

Working Group Members

Hospitalist Survey

Cycle 2

Quote	Role	Source
<p>“I went to 4C and 4D (VGH). I ended up talking to the Paediatric Resident. I thought she was the unit clerk, but it turns out she was the Resident and is in fact the chief Resident. She was so helpful. She knew all about the pilot and was aware of it when she was a Cardiology resident at RJH and from her time in FPs offices. She said that the FP summaries were really useful for complex histories. patients were extremely unreliable about their past medical histories - ie. she would say to the patient that ‘I see you’ve had 3 heart attacks’ and the patient would say, ‘No, I’ve only had 2’. Yet the summary clearly stated that there had been 3 previous heart attacks, and provided the dates, etc. She also had some examples of using the summaries to discuss the patient’s diseases - i.e. Diabetes. She’d say to the patient, ‘How is your diabetes?’ And the patient would say, ‘I don’t have diabetes’. Yet, the summary clearly stated the diagnosis of diabetes, and stated the dosage of insulin that the patient had been prescribed. The patient would say - oh that, that’s gone now, and I don’t have that anymore, because I take insulin.”</p>	<p>FP</p>	<p>Observation Notes</p>
<p>“I visited 4A and 6C and D and all the summaries had arrived. I had a great chat with a Nurse Practitioner about both the summaries coming in and then the EDD notifications going out! She said that this information is so helpful and that the Unit Clerks do an awesome job of making sure that the MRPs are aware of the summaries. Her example was that she’d just had a patient that needed an ECG but it was going to take 10 days for that to happen and they were unable to keep her in the hospital for those 10 days. So she noted that on the EDD notification to the FP and asked them to keep a look out for it and monitor the patient in the meantime. The FP then phoned the hospital and spoke to the NP and they were able to arrange for her care and subsequent appointments. The NP said she was so grateful for that and felt that the patient would receive great follow up care and not fall through the cracks.”</p>	<p>FP</p>	<p>Observation Notes</p>
<p>“I have found the summaries helpful. In particular, found documentation of a decision to stop anticoagulation for an elderly man with Afib due to previous PUD and bleed.”</p>	<p>Hospitalist</p>	<p>Hospital Provider Survey</p>
<p>“One that I recall was very helpful, as the patient had dementia or confusion and therefore was really helpful with the history. Pt and family member also said they had no hx of heart problems, but I wondered about some CHF, and there in the summary was an old MI (something like 1986, which would have never been on Powerchart) and</p>	<p>Hospitalist</p>	<p>Hospital Provider Survey</p>

some other cardiac history. Helpful with that patient and CHF management before I was able to get an echo or such.”		
“Complex patient who had some history I knew could easily be missed and should be known. One too with emotional issues.”	FP	FP Survey
“One of my most complicated patients was admitted to the ICU. The attending doctor told me he relied on my summary extensively when he was doing his consult, and I could see that he had.”	FP	FP Survey
“Made a difference in decisions on end-of-life care in at least 3 patients.”	FP	FP Survey
“I had several cases of complex patients on multiple meds where I think the summary was useful for the treating docs.”	FP	FP Survey
“I have a complex patient who is in and out of hospital about 3 times a year. Although most of the historical information was already available in Powerchart, the Nurse Practitioner and I working with the patient in the community had been working on several important issues since the past hospitalization and I had to gather all the information to send to the hospital so they were aware of all the changes, even though it had only been 6 weeks since he was last discharged. The patient himself was not able to give this information due to memory difficulties, so it was even more critical that it come from his community care providers.”	FP	FP Survey
“Utilized a summary to assist with BPMH in conjunction with PharmaNet for patient with delirium who was unable to provide medication information.”	Hospitalist	Hospital Provider Survey
“Summary helped alert staff to swallowing difficulties experienced by patient and triggered an SLP referral”	Hospitalist	Hospital Provider Survey
“Summary provided rationale for a particular medication. Summary provided details of adverse reaction to particular medication.”	Pharmacist	Hospital Provider Survey

Cycle 3

Quote	Role	Source
“Prevented multiple admissions and helped streamline care once in hospital.”	FP	FP Survey
“Sent a Summary with a patient to the mainland for Respite Care. Patient developed respiratory failure secondary to pneumonia. Admitting ER doctor thanked me in his consult note for the Summary as it made his job a lot easier!! Wow!”	FP	FP Survey
“Patient was septic and severely neutropenic from multiple myeloma and complications of treatment and I had blood cultures done the previous evening and they grew staph and the ER physician and nursing were able to immediately get him into a private "isolation" room and start him on emperic iv therapy which probably saved his life -as he was also hypotensive.”	FP	FP Survey
“My patients are quite complex with comorbid chronic mental health and substance use concerns. They have experienced many barriers to care and often do not want to present to ER with acute concerns such as a cellulitis that is in need of IV antibiotic treatment. One such patient, who was concerned about the care they would receive in ER, was reluctant to go to ER and be assessed. Working with our nurses, we put together a patient summary that I both faxed to ER and also provided a hard copy of to the patient. This enabled the patient to feel that "something was being done for him" and he did attend ER. He was seen and assessed, although did not stay for the course of IV therapy that he needed. However, him being seen in ER and assessed was a significant positive step for him.”	FP	FP Survey
“pt w/decompensated autoimmune cirrhosis; pt reported to be in f/u post admission that hospital MDs found the info helpful”	FP	FP Survey

"Some patients need to be admitted due to the complexity of their problems and may have been sent home without the summary."	FP	FP Survey
"One patient had a past Hx of addictions; notifying caregivers in advance changed prescribing habits - one patient with mild cognitive impairment that wasn't terribly evident. Helped with information transfer - one patient with allergies not recorded in hospital or PharmaNet."	FP	FP Survey
"I sent in a summary of a patient with metastatic breast cancer when she presented to hospital with a small bowel obstruction. I had already done an abdominal CT and spoken to her oncologist."	FP	FP Survey
"I could see that it was reviewed and care changed as a result of recent MOST status and pt history of longstanding alcohol abuse with complications. This prevented well worked up longstanding problems from being re - investigated and referred to specialists."	FP	FP Survey
"Young female patient diagnosed with valve lesion as outpatient by myself got identified with bacterial endocarditis much sooner due to communication to hospital."	FP	FP Survey
"I had a hospitalist comment in their discharge summary that sounds it was very helpful to have the MOST forms from the FP."	FP	FP Survey
"[Proactive summary] patient has dementia and brain injury, not great historian, it help ERP knowing all details and save time."	FP	FP Survey
"[Proactive summary] I saw an elderly frail woman in the office for a recent TIA (mini-stroke). Knowing that the risk of stroke in the first 30 days after TIA is quite high, I decided to send in a proactive summary. She didn't have a stroke, but did fall and broke her hip, and was admitted in the next 2 months after the summary was sent in. The ER doctor noted the summary and sent a note thanking me for sending it in."	FP	FP Survey
"[Proactive summary] All of my prenatal have their office charts sent in which lists their bloodwork results and blood pressures at each visit etc."	FP	FP Survey
"[Proactive summary] I sent a summary in pro-actively for a patient with end-stage CHF. He was subsequently admitted with an exacerbation, and the MRP used the summary (as mentioned in the admission note) to determine the current pre-admission diuretic dose and also the MOST status. It allowed the MRP to understand the goals of care and feel comfortable with a quick admission and rapid return home."	FP	FP Survey
"Allowed insight into current FP management strategy and avoiding having to refer to UMAC because things were being appropriately worked up and managed."	ED Physician	Hospitalist/ ER Physician Survey
"Accurate med list changed how I ordered meds in hospital. Knowing that a FP already knew about a problem was helpful as I knew to call them to discuss it before starting my own evaluation from scratch."	Hospitalist	Hospitalist/ ER Physician Survey
"Summary provided past medical history of aflutter, which explained why patient was on warfarin. [This summary] provided information that the patient was unable to."	Hospitalist	Hospitalist/ ER Physician Survey
"Vaccinations given, other diagnosis not in PowerChart, information of medications patient is on, information about where creams being applied, what eyes eye drops being used in etc."	Pharmacist	Allied Health Professionals Survey
"Vaccination history eg. prevnar, pneumovax - informed decision to give pneumococcal vaccination in hospital. Allergic reactions where reaction is not documented in Powerchart and patient cannot recall."	Pharmacist	Allied Health Professionals Survey
"Summaries provide medical history info that is relevant (such as history of reflux, head and neck cancer etc.) when doing swallowing assessments. Summaries also give me a sense of a patient's baseline level of functioning which allow me to tailor treatment goals in rehab settings."	Speech and Language Pathologist	Allied Health Professionals Survey

<p>“Primary care prescriber had indicated recent changes to medication regimen that was not yet reflected on Pharmanet...ensured patient received current dosing”</p>	<p>Pharmacist</p>	<p>Allied Health Professionals Survey</p>
<p>“Patient unable to provide own medication history; used patient summary to assist with BPMH in comparison with Pharmanet. Used patient summary to assist with allergy assessment.”</p>	<p>Pharmacist</p>	<p>Allied Health Professionals Survey</p>
<p>“Advance directives re: feeding tubes are very helpful in guiding decision making in dysphagia management.”</p>	<p>Speech and Language Pathologist</p>	<p>Allied Health Professionals Survey</p>
<p>“Many of the patients in my population have some degree of cognitive impairment; I feel much more comfortable with medication reconciliation and medication therapy management the more sources of information I can use to inform my decisions. It’s sometimes difficult to get in touch with family physicians and I feel badly interrupting their busy days - the summaries often answer the most pertinent questions.”</p>	<p>Pharmacist</p>	<p>Allied Health Professionals Survey</p>

Appendix 3: Additional data

Time taken to create patient summaries

In Cycle 1, 72% of summaries (150 of 210 summaries) were sent to the hospital within 24 hours of notification of admission being received by the family physician's office (Figure A1).³⁷ In Cycle 2, 45% of summaries (515 of 1137) were sent to the hospital within 24 hours of notification of admission being received by the family physician's office (A2).

Figure A1. Time elapsed between admission received and summary sent to hospital, Cycle 1

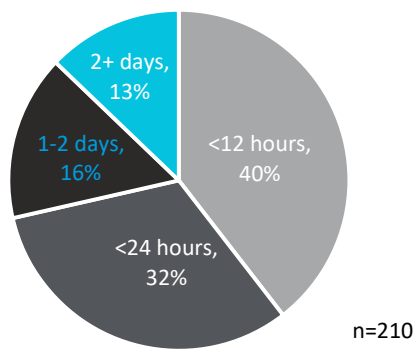
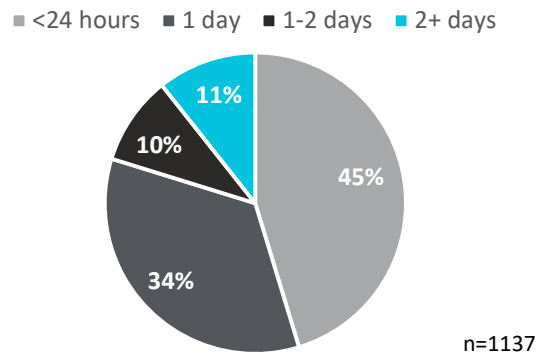
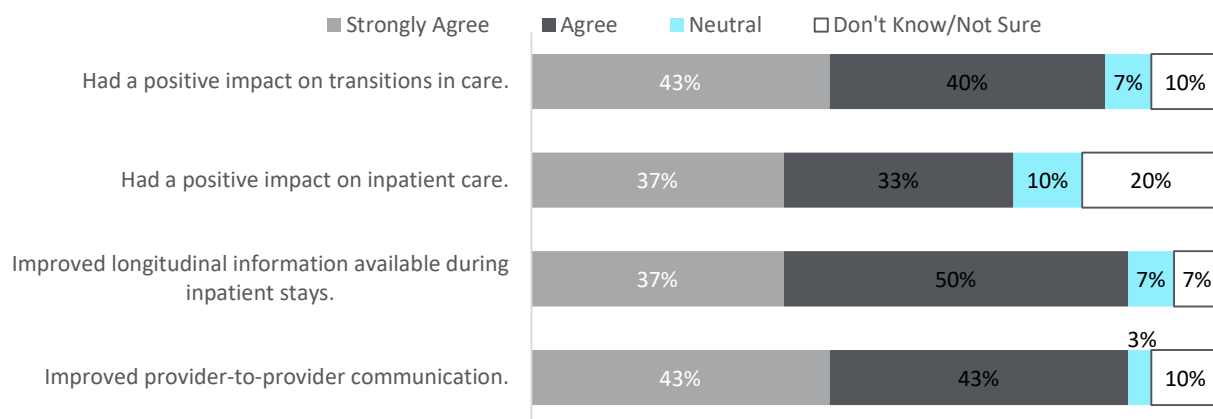


Figure A2. Time elapsed between admission received and summary sent to hospital, Cycle 2



Impacts of patient summaries

A3- The patient summaries pilot project has... Cycle 2, FP survey (n=30)



³⁷ Based on data from 210 patient summaries (25 FPs), Sept 1 2015 - Feb 29 2016. 31 summaries were excluded from the analyses due to unknown time between admission notification and summary being sent to the hospital.