

# *Pan-Canadian Nursing Electronic Health Record (EHR) Business and Functional Elements to Support Clinical Practice*

## Reference Document



## Webinar Objectives

1. Identify how Canada Health Infoway (*Infoway*) engages with clinicians
2. Describe the process used to develop the nursing reference document outlining EHR business and functional elements to support clinical practice
3. Demonstrate Nursing needs identified to facilitate adoption and optimized use of an EHR
4. Discuss challenges, lessons learned and key success factors
5. Identify how nurses could use the reference document going forward

# Presentation Outline

1. Setting the *Infoway* Context
2. Developing the Nursing EHR Reference Document
3. Showcasing the Reference Document
4. Challenges, Lessons Learned & Key Success Factors
5. Using the Nursing EHR Reference Document

# Setting the *Infoway* Context

## Who and what is *Infoway*?

**With our partners, *Infoway* helps accelerate the development, adoption and effective use of digital health solutions across Canada**



# Vision

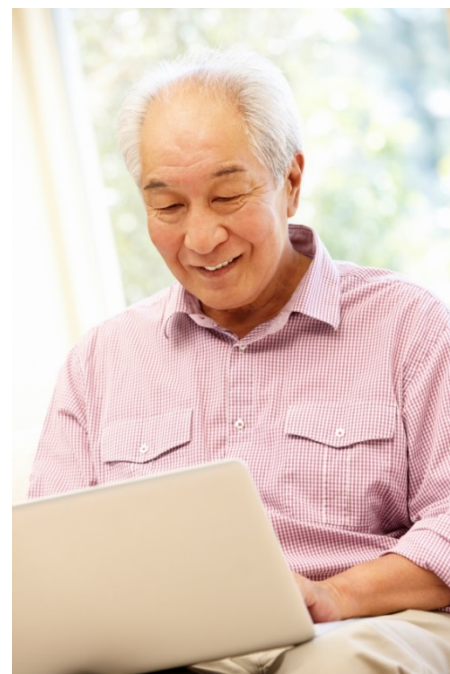
**Healthier Canadians through innovative digital health solutions**





## *Infoway* is looking forward

**Our priority is to leverage existing investments and take advantage of trends and emerging technologies to improve the patient experience**




# One patient, one record

Results and images

Patient information

Medical alerts

- Help
- Logout



**GME0000  
Smith,  
Caroline**

Sex: Female  
DOB: 1940/01/01  
Next of kin: John Smith

Phone: 365-565-9090  
Address: 19 Provincial Rd.  
Edmonton AB  
T6M 1R7

GP: Dr. N. Evans, Evans  
Phone: 333-465-5545  
Address: 11 Terrence Ave., Edmonton, AB T4Y 8U9

Other Healthcare Providers					
Name	Disp.	Last Encounter	Next encounter	Right of Access	
Diaz, Ellen	Cardiology	01/2006	07/2006	Y	
Fournier, Janice	RN	08/2005		N	
Cohen, Richard	Dermatology	08/2005	N		

Medications			
Date	Medication	Prescriptions	Last Filled
11/1989	Hydrochlorothiazide 25 mg	One tab at breakfast	12/2005
03/1999	Hydrochloride 5 mg	One tab twice daily	12/2005
01/2001	Metformin 500 mg	Two tabs twice daily	12/2005
03/2001	Atorvastatin 20 mg	One tab at supper	12/2005
12/2002	Atenolol 50 mg	One tab at breakfast	12/2005
02/2002	ECASA 325 mg	One tab at breakfast	12/2005
02/2006	Ramipril 10mg	One tab at supper	02/2006
06/2005	Cloxacillin 500 mg	Discontinued	
05/2004	Beclomethasone Cream	Discontinued	

Encounter History						
Date	Facility	Speciality	Clinician	Reason	Type	
02/2006	GP			Hypertension	-	
01/2006	Cardio Assoc	Cardiology	Diaz, E.	CAD	Outpatient	
12/2005	GP			Diabetes	-	
10/2005	General Hosp	Dietician	Johnson, H.	Diabetes teaching	Outpatient	
08/2005	GP			Diabetes	-	
08/2005	GP			Cellulitis	-	
08/2005	Home Visit	RN	Fournier, J.	Cellulitis	-	
08/2005	GP			Cellulitis	-	
07/2005	Polyclinic	Dermatology	Cohen, R.	Stasis dermatitis	Outpatient	

Immunizations				Diabetic Indices		
Type	Most Recent	Number Received		Type	Value	Most Recent
Influenza	11/2005	7		A1C	0.071	12/2005
Pneumovax	03/2005	1		LDL	2.41	12/2005
Twinrix	08/2002	3		BP	135/75	02/2006
Td	04/1996	1		Urine		
				Microalb	0.02	08/2005
				Eye Exam		05/2005
				Home Gluc (average)	7.4	01/2006

Patient Record																																	
<ul style="list-style-type: none"> <li>• Summary</li> <li>• Lab Results</li> <li>• Diagnostic Images</li> <li>• Details</li> <li>• Notes or Comments</li> </ul>																																	
<p><b>Alerts</b></p> <ul style="list-style-type: none"> <li>Allergies – Sulfa Drugs</li> <li>Pap smear due</li> <li>Td due</li> <li>A1C above target</li> </ul>																																	
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Medication history

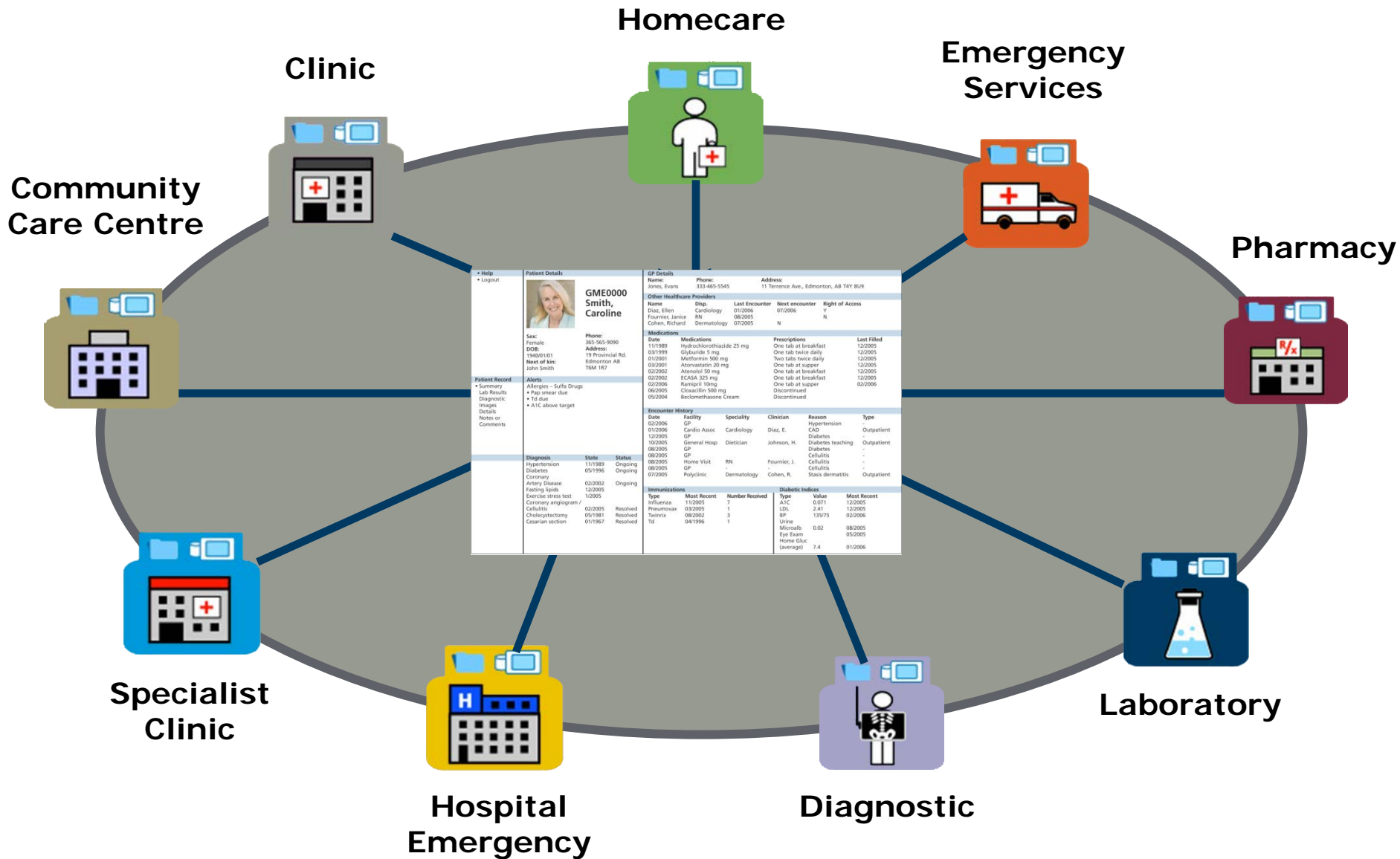
Interactions

Problem list

Immunization



# Points of care

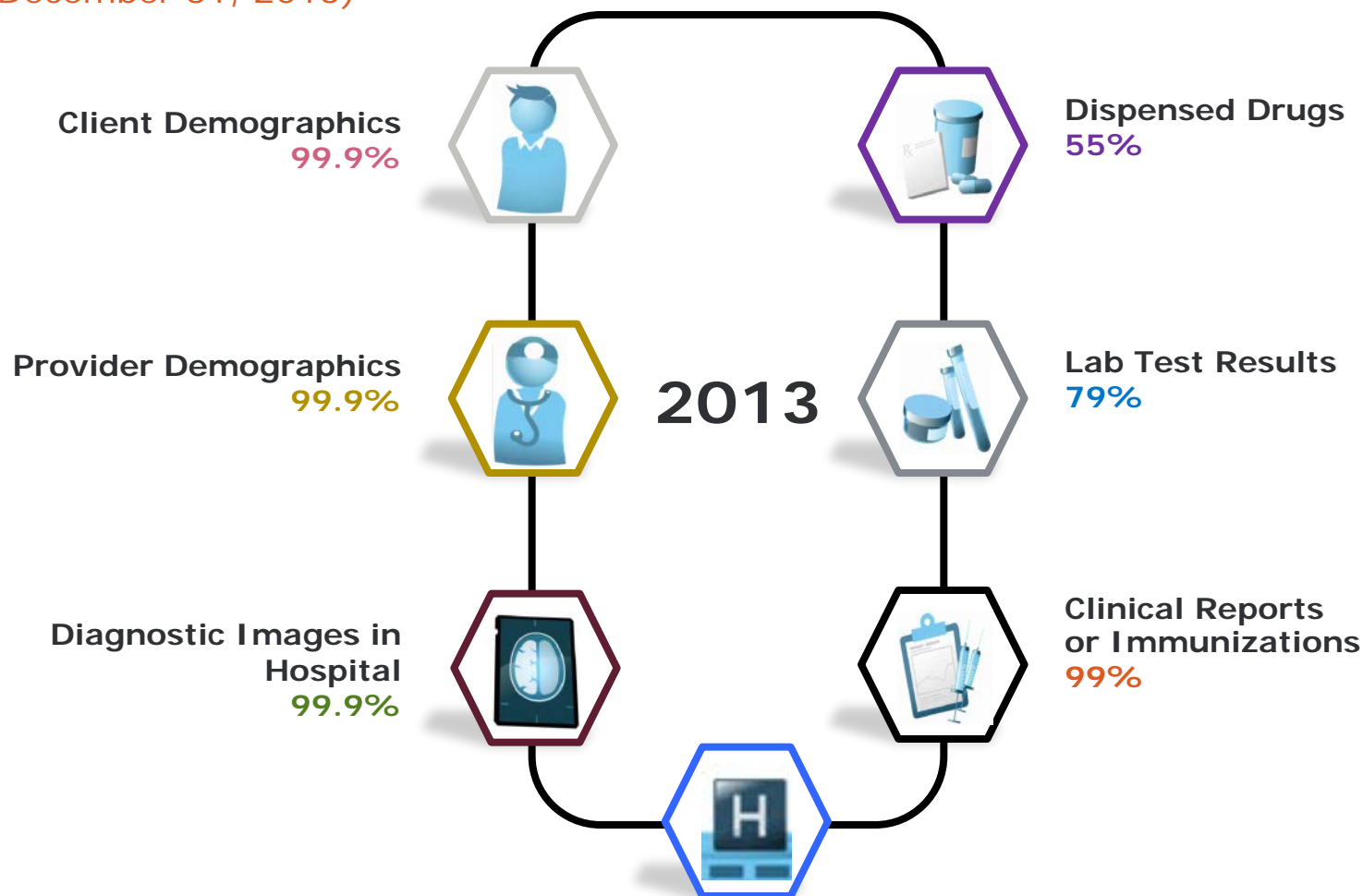


# EHR systems for patient-centric, inter-professional collaborative care



# Digitization of information for authorized users

(December 31, 2013)



**Telehealth Videoconferencing in 98% of Hospitals**

Digitization does not measure the extent of use by providers, but rather the information and systems that are in place.

# *Infoway's Clinical Engagement Strategy*



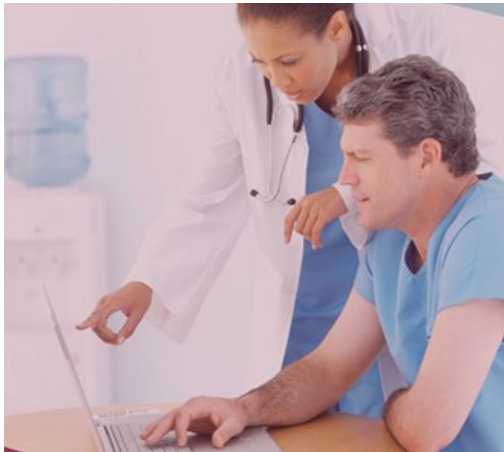
**Advocate for  
clinical value  
&  
engagement**



*Ensuring that our clinically-oriented initiatives benefit from the perspectives of clinicians and health care leaders by engaging individuals and associations with specific expertise to work with Infoway on individual projects and strategies.*

Examples include:

- Review and validation of the Blueprint clinical use cases, e-prescribing requirements, drug information systems, benefit evaluation studies, Electronic Health Record nursing data elements
- Health System Use (HSU) Architecture and Deployment project
- Patient Consent Directives project
- Electronic Medical Record HSU project
- Canadian Pharmaceutical Bar Coding Project
- e-Prescribing Harmonization project



*Continue to foster a strong clinical voice to drive key elements of our mission and to foster clinical champions committed to improving health and healthcare through the effective use of digital solutions.*

**Link with  
clinical  
leaders**



Examples include:

- Establishment of inter-professional Clinical Council with clinician and patient representation
- Realigned and renewed physician, nursing, and pharmacy reference groups
- Engaged over 100 National/Provincial healthcare organizations and established 37 National/Provincial partners to lead the Clinician Education Campaign



*Understand front-line clinicians' needs & perspectives, supporting capacity building through peer networks, and using multi-faceted strategies to address knowledge gaps identified by clinicians.*

Examples include:

- 11 jurisdictional Peer-to-Peer Networks across Canada, resulting in over 300 Peer Leaders (physicians, nurses, pharmacists & clinic managers/office staff) engaging 10,000+ of their colleagues in the adoption and use of electronic medical records, drug information system and/or the electronic health record
- Established *Infoway* online Peer Network community which includes the active participation of over 100 health care professionals from across Canada



*Connect with clinical educators and students and invest in initiatives to enable clinicians in training and faculty to embrace a culture of change and to transform how they educate and provide care in a technology-enabled health care environment.*

Resources developed include:

- Teaching toolkit for nursing and eResource for pharmacists, faculty, and students
- Pharmacist & nursing informatics entry-to-practice competencies developed
- Competencies incorporated into accreditation standards for nursing schools
- Influenced accreditation standards for medical schools and Royal College Canadian Medical Education Directions for Specialists (CanMEDS)
- Established student & faculty awards



**The next  
generation**

*Strengthen relationships with regulatory bodies, accreditation & quality initiatives at pan-Canadian and jurisdictional levels by influencing & supporting the necessary people, practice, process and policy changes required to optimize the use of digital health to increase value for individuals, clinicians, and the health system.*



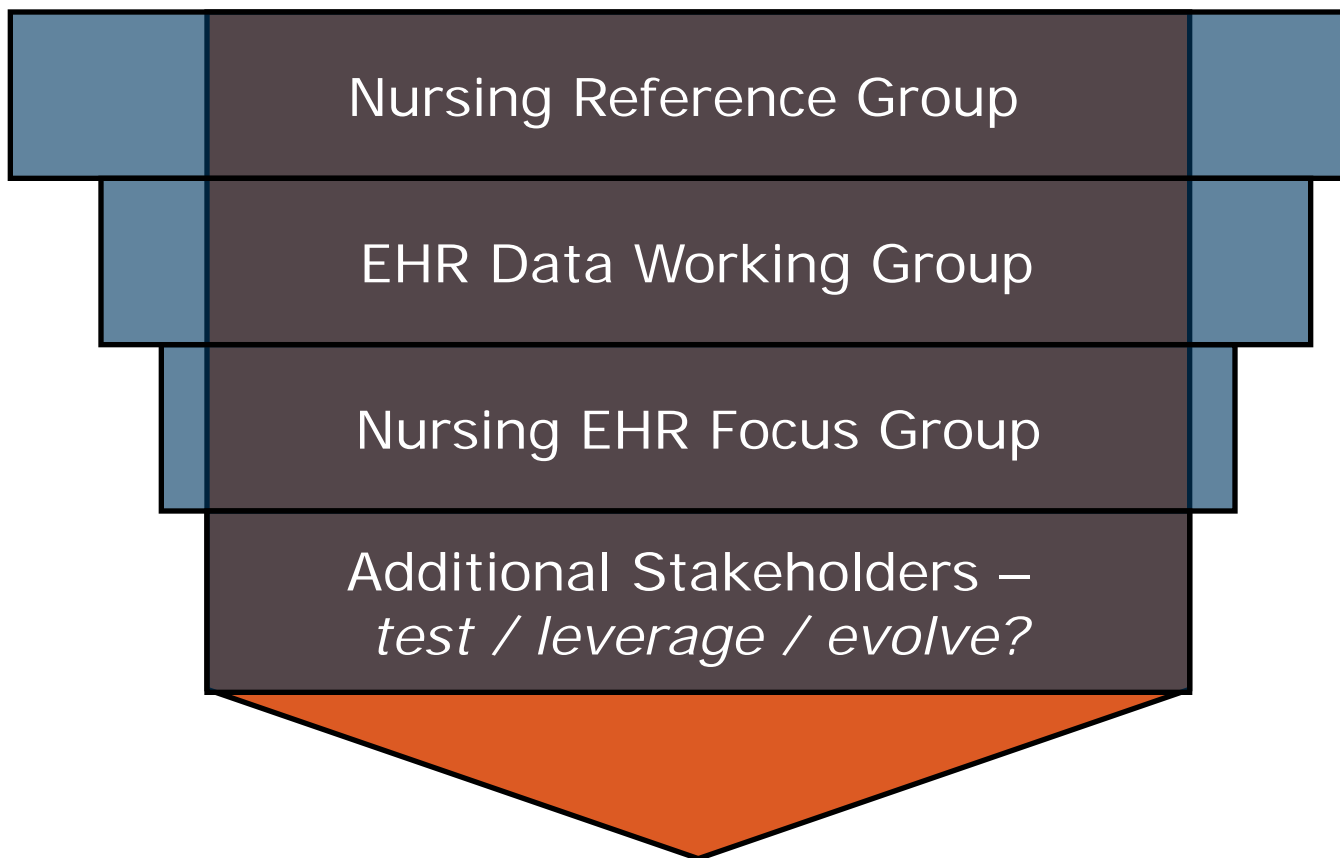
**Advance  
Professional  
Practice**

Examples include:

- Advancing Care 2014 Peer Leader Symposium (materials will be posted soon)
- 12 [LEADing Practices](#) identified in partnership with Accreditation Canada, CMA, CNA & CPhA

# Developing the Nursing EHR Reference Document

## Stakeholders



*Pan-Canadian Nursing EHR Business and  
Functional Elements Supporting Clinical Practice  
– Reference Document*

## Nursing Reference Group

- Recognized the strategic importance of proactively identifying key EHR business and functional elements for nurses
- Timely access to information will help inform the overall nursing care management of patients/clients/residents improving their experiences and outcomes across the continuum of care
- Acknowledged that the EHR needs to enable appropriate and efficient patient information flows between the EHR and other information and communication 'point-of-service' systems
  - Establish a Pan-Canadian Nursing EHR working group to develop, complete and make available an EHR Nursing Requirements Reference Document



## Objectives for the EHR Data Working Group

- Identify a methodology to support the inclusion of nursing data in the EHR
- Leverage existing nursing standardized assessment tools (Health Outcomes for Better Information and Care) and best practice guidelines to support the inclusion of nursing data in the EHR and inform nursing practice
- Identify the proposed business rules, required standards and implications for professional practice
- Provide the completed work/outputs to the Nursing Reference Group Committee for final review and validation

## Method

- Review of the literature
- Presentations:
  - EHRS Blueprint Framework Review: Ron Parker, Emerging Technologies, Infoway
  - C-HOBIC: Peggy White, Director for C-HOBIC
  - Decision-making at the Point of Care: Dr. Diane Doran
  - Practice guidelines: Heather McConnell, Director, RNAO
- Series of face to face meetings and conference calls

## Guiding Principles – Nursing data

- Should be structured and codified to ensure the sharing and re-use of patient information across disciplines and care settings
- Should be directed by common centralized trusted sources to ensure consistent understanding and interpretation of patient information
- Should reflect practice according to clinical standards or practice guidelines to trigger consistent application of clinical decision support, provide real-time recommendations, and contribute to the shared care plan
- Should be simple and concise to facilitate timely access to patient information
- Should be consistently understood by the data warehouse analytics to allow meaningful analysis of patient and service outcomes

# Assumptions

1. Information about the patient can be effectively shared between health care providers and across care settings within a jurisdiction and/or across jurisdictions.
2. Technologies are available to support the capture of patient information at the point of care.
3. Patients have access to information and communication technologies such as Personal Health Records, internet, wireless devices to enter and share information with their health care providers.
4. Health care providers and the patient contribute to the shared care plan, i.e. the same care plan can be shared between providers and the patient.
5. Resources such as assessment templates, clinical practice guidelines and patient educational pamphlets useful for patient care and decision making are easily available and accessible through technologies at the point of care.

## Deliverables & Recommendations

- September 2011, EHR Data WG delivered to the Nursing Reference Group (NRG) for review and validation:
  - EHR Clinical Scenario
  - High level Nursing EHR Functional Requirements Reference Document
  - NRG recommendation to engage a small group of nurses who are currently using advanced technologies in clinical practice to review and validate the requirements

# Nursing EHR Functional Requirements Focus Group



## PROCESS -

- Pre-reading materials sent ahead of one-day face-to-face event
- Overview of EHR /Blueprint; clinical scenarios; draft Nursing EHR functional requirements
- Facilitated group discussion use pre-determined questions

## OUTCOME –

Scenario: *"Too perfect" to "this is literally my day.."*

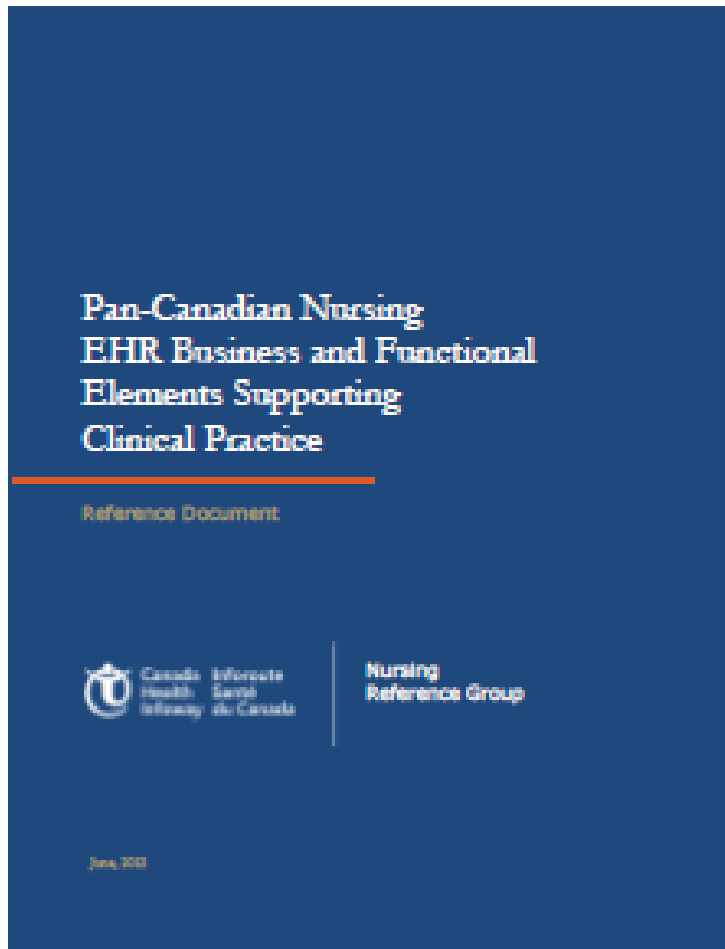
### Functional Requirements:

- Overall group validation
- Key gaps in functional requirement added e.g. availability of multi-media in EHR; business continuity procedures to include access to EHR data



# Showcasing the Reference Document

# *Pan-Canadian Nursing EHR Business and Functional Elements Supporting Clinical Practice – Reference Document*



- Find the document on the [Canada Health Infoway](https://www.infoway-inforoute.ca/index.php/resources/guides-workbooks/doc_download/567-pan-canadian-nursing-ehr-business-and-functional-elements-supporting-clinical-practice) corporate website under Resources in Guides /Workbooks
- Document link:  
[https://www.infoway-inforoute.ca/index.php/resources/guides-workbooks/doc\\_download/567-pan-canadian-nursing-ehr-business-and-functional-elements-supporting-clinical-practice](https://www.infoway-inforoute.ca/index.php/resources/guides-workbooks/doc_download/567-pan-canadian-nursing-ehr-business-and-functional-elements-supporting-clinical-practice)

# Framework: Nursing EHR Data

## Clinical/Business & Functional Requirements

### – Perspectives:

- Patient
- Nurse
- Health Information

### – Functionality Components:

<b>Patient</b>	<b>Safety</b>	<b>Privacy</b>	<b>Patient/Family-centred care</b>	<b>Care Coordination</b>
<b>Nurse</b>	<b>Usability</b>	<b>Productivity</b>	<b>Clinical Decision Support</b>	<b>Collaborative Practice</b>
<b>Health Information</b>	<b>Critical Data Access</b>	<b>Data Sources</b>	<b>Data for Patient Care and Health System Use</b>	<b>Communications</b>

# Developing the pan-Canadian Nursing Functional Elements for the Electronic Health Record

[https://www.inforoute-inforoute.ca/index.php/resources/other/doc\\_download/582-developing-the-pan-canadian-nursing-functional-elements-for-the-ehr](https://www.inforoute-inforoute.ca/index.php/resources/other/doc_download/582-developing-the-pan-canadian-nursing-functional-elements-for-the-ehr)

## Developing the pan-Canadian Nursing Functional Elements for the Electronic Health Record

### Overview

The vision of healthier Canadians through innovative e-health solutions is supported by an infrastructure that provides residents of Canada and their health care providers with timely, appropriate and secure access to the right information when and where they enter into the health care system. Once completed, the electronic health record (EHR) will provide a lifetime record of a person's significant health history and is designed to facilitate information and communication sharing across the continuum of care, across health care delivery organizations and eventually across the country.

Canada Health Inforoute's (Inforoute's) Nursing Reference Group (NRG) recognized the strategic importance of proactively suggesting key EHR business and functional elements for nurses. Timely access to information will help inform the overall nursing care management of patients/clients/residents improving their experiences and outcomes across the continuum of care.

### About Inforoute's Nursing Reference Group

The NRG is one of three discipline-specific clinical groups (physicians, nurses, pharmacist) providing expertise to inform Inforoute's plans to accelerate digital value for Canadians and their healthcare providers through the use of information and communication technologies. NRG members represent pan-Canadian nursing leaders including practicing nurses, informatics experts, academics and other provincial, territorial and federal partners.

### Clinical Engagement Outcomes

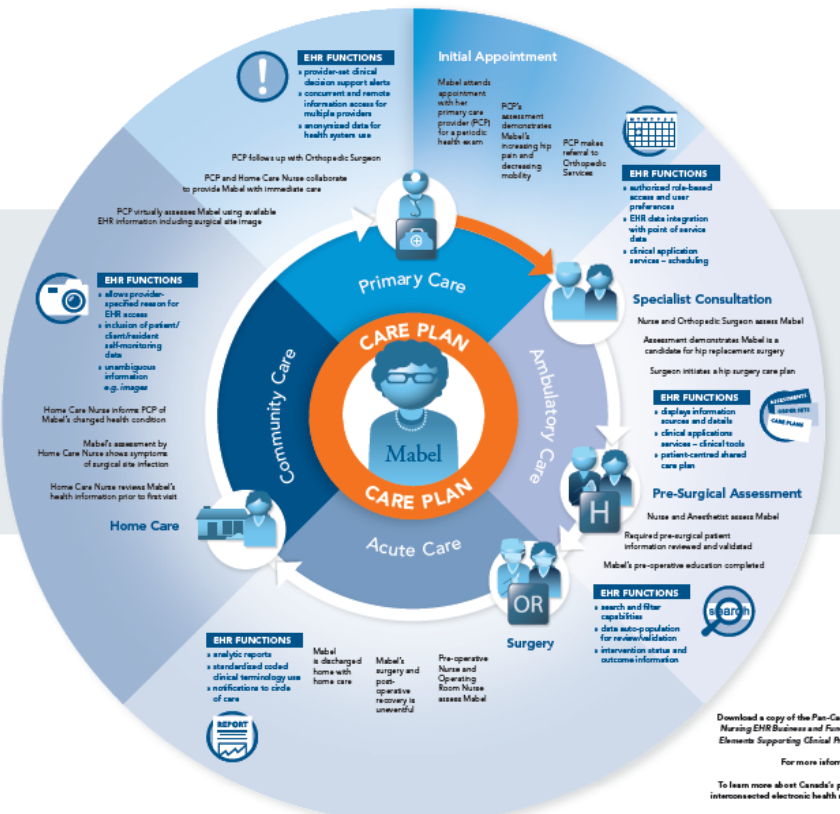
As part of the NRG, a pan-Canadian working group was established to develop the methodology and leverage existing nursing standardized assessment tools and best practice guidelines supporting the inclusion of nursing data in the EHR to inform nursing practice.

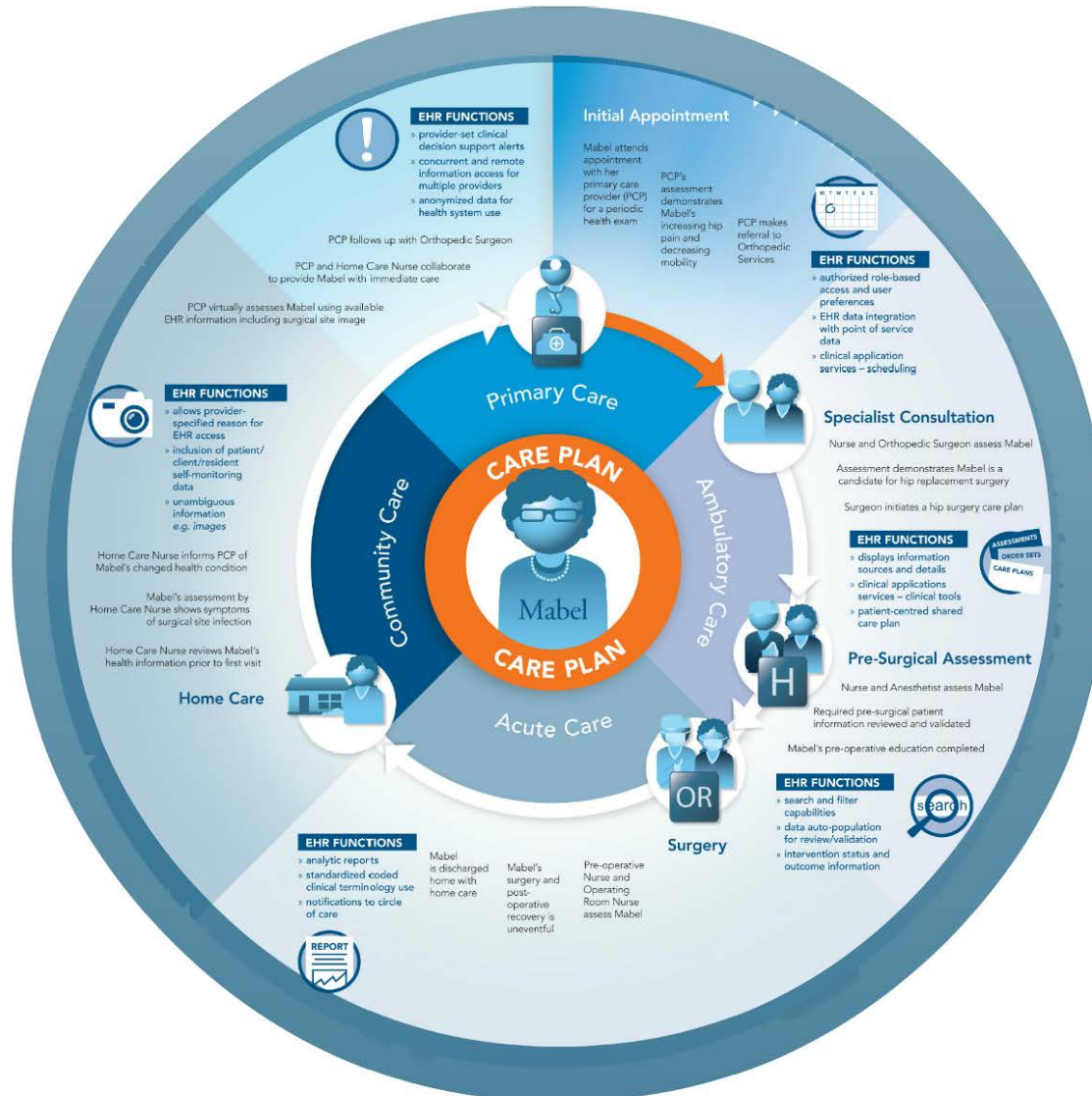
It was recognized that the EHR needs to enable appropriate and efficient patient information flows between the EHR and other information and communication systems. EHR functionality at a broad level needs to enable safety, privacy, patient/family centred care, care coordination, communication, usability, productivity, clinical decision support, collaborative practice, identifiable data sources, critical data access and anonymized data for health system use.

### Clinical Scenario

A clinical scenario was developed to illustrate the future practice state enabled by the EHR. It depicts the nursing management of post-operative pain – across healthcare providers and across care settings, described within a patient's hip surgery experience.

*Mabel Lambert as featured in this scenario is a 57 year old female with a history of diabetes, hyperlipidemia, hypertension and osteoarthritis (OA). Due to her advanced OA she was referred by her primary care provider (PCP) to orthopedic surgical services. Her care management spans multiple health care sectors.*





- » concurrent and remote information access for multiple providers
- » anonymized data for health system use

follows up with Orthopedic Surgeon

Primary Care Nurse collaborate with immediate care

available  
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appointment with her primary care provider (PCP) for a periodic health exam

PCP's assessment demonstrates Mabel's increasing hip pain and decreasing mobility

PCP  
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Primary Care



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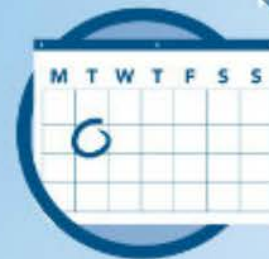
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## Initial Appointment

Mabel attends appointment with her primary care provider (PCP) for a periodic health exam

PCP's assessment demonstrates Mabel's increasing hip pain and decreasing mobility

PCP makes referral to Orthopedic Services



## EHR FUNCTIONS

- » authorized role-based access and user preferences
- » EHR data integration with point of service data
- » clinical application services – scheduling



- » EHR data integration with point of service data
- » clinical application services – scheduling



## Specialist Consultation

Nurse and Orthopedic Surgeon

Assessment demonstration  
candidate for hip replacement

Surgeon initiates a



# Specialist Consultation

Nurse and Orthopedic Surgeon assess Mabel

Assessment demonstrates Mabel is a candidate for hip replacement surgery

Surgeon initiates a hip surgery care plan

## EHR FUNCTIONS

- » displays information sources and details
- » clinical applications services – clinical tools
- » patient-centred shared care plan





atory Care



- » displays information sources and
- » clinical applications services – clinical
- » patient-centred care plan

## Pre-Surgical

Nurse and Anest

Required pre-surgical patient information reviewed and

Mabel's pre-operative education

care plan

## Pre-Surgical Assessment

Nurse and Anesthetist assess Mabel

Required pre-surgical patient  
information reviewed and validated

Mabel's pre-operative education completed

### EHR FUNCTIONS

- » search and filter capabilities
- » data auto-population for review/validation
- » intervention status and outcome information



re

Re  
inf

Mabel's



# Surgery

## EHR FU

- » search and  
capabilities
- » data auto  
for review
- » interventi

## EHR FUNCTIONS

- » analytic reports
- » standardized coded clinical terminology use
- » notifications to circle of care



Mabel  
is discharged  
home with  
home care

Mabel's  
surgery and  
post-  
operative  
recovery is  
uneventful

Pre-operative  
Nurse and  
Operating  
Room Nurse  
assess Mabel

Surg



urse shows symptoms  
f surgical site infection

e Nurse reviews Mabel's  
rmation prior to first visit

## Home Care



Com



## EHR FUNCTIONS

- » allows provider-specified reason for EHR access
- » inclusion of patient/client/resident self-monitoring data
- » unambiguous information  
*e.g. images*

Home Care Nurse informs PCP of Mabel's changed health condition

Mabel's assessment by Home Care Nurse shows symptoms of surgical site infection

Home Care Nurse reviews Mabel's health information prior to first visit

Community Care

- » concurrent and remote information access for multiple providers
- » anonymized data for health system use

follows up with Orthopedic Surgeon

the Care Nurse collaborate with immediate care

available  
e

appointment with her primary care provider (PCP) for a periodic health exam

PCP's assessment demonstrates Mabel's increasing hip pain and decreasing mobility

PCP  
ref  
Or  
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Primary Care



## EHR FUNCTIONS

- » provider-set clinical decision support alerts
- » concurrent and remote information access for multiple providers
- » anonymized data for health system use

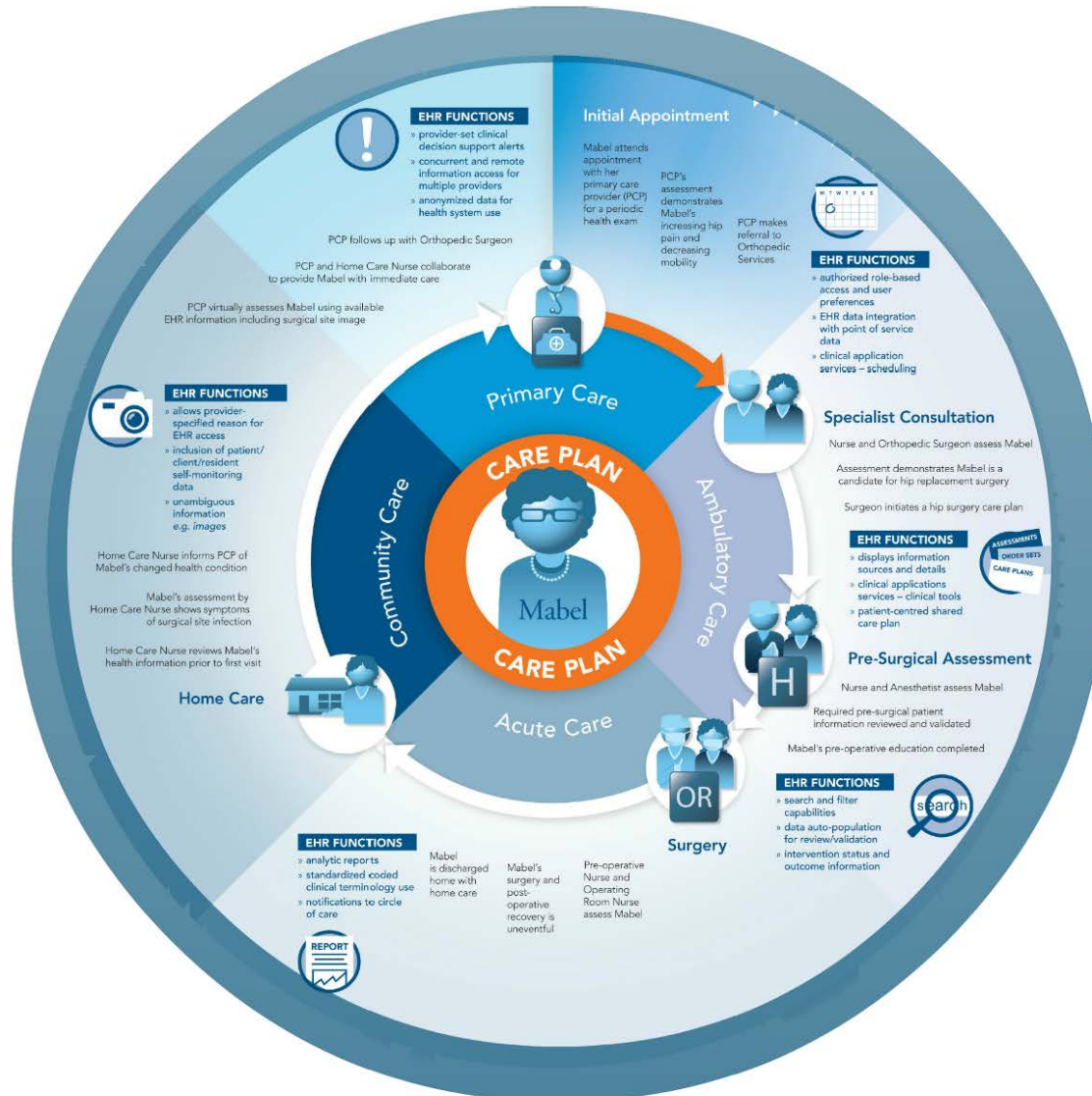
PCP follows up with Orthopedic Surgeon

PCP and Home Care Nurse collaborate to provide Mabel with immediate care

PCP virtually assesses Mabel using available EHR information including surgical site image







# Challenges, Lessons Learned & Key Success Factors

## Challenges

- Thinking about a futuristic EHR (2015 or beyond) in terms of current understanding of the EHR
- Understanding how the EHR will fit into the workflow of nurses
- Provincial/jurisdictional variations in the EHR e.g. variation in level of detail captured provincially/jurisdictionally (even organizationally) may become a barrier in the future for sharing of patient health information across sectors of care and/or jurisdictions



## Lessons Learned

- Prepare nurses to participate e.g. help nurses understand the difference between point of service applications (HIS, EMR) and an EHR
- Clinical scenarios resonate with clinicians!
- Iterative, consensus methodology worked well

## Key Success Factors

- EHRs must meet the needs of Canada's clinicians to ensure adoption, integration into practice and patient-centred care.
- Clinicians must be engaged from the outset to identify what their needs are so that '*form follows function*'.
- The Nursing EHR business and functional elements can contribute to supporting and achieving optimized clinical practice by enabling:
  - Use of standardized and coded data to support information sharing and enabling the appropriate re-use and display of data for improved nursing productivity and efficiency
  - Use of a shared patient care plan for improved inter-professional and patient communications and coordination of care
  - Use of standardized evidence-based clinical content and clinical decision support for improved patient safety and care evaluation

# Using the Nursing EHR Reference Document

# National Nurses Survey



- Canada Health Infoway, in partnership with the Canadian Nurses Association (CNA)
- Total of 1,690 surveys were completed in English and French in 3 weeks between February-March, 2014
- Results in the final report are based on those in clinical nursing only (n=1,094).

<http://bit.ly/nursessurvey>

## What are Canadian Nurses Saying

- 83% of Canadian nurses are comfortable using digital health tools in practice
- 78% feel that digital health tools could improve continuity of care
- 72% feel that digital health tools could improve patient safety



## What are Canadian Nurses Saying...

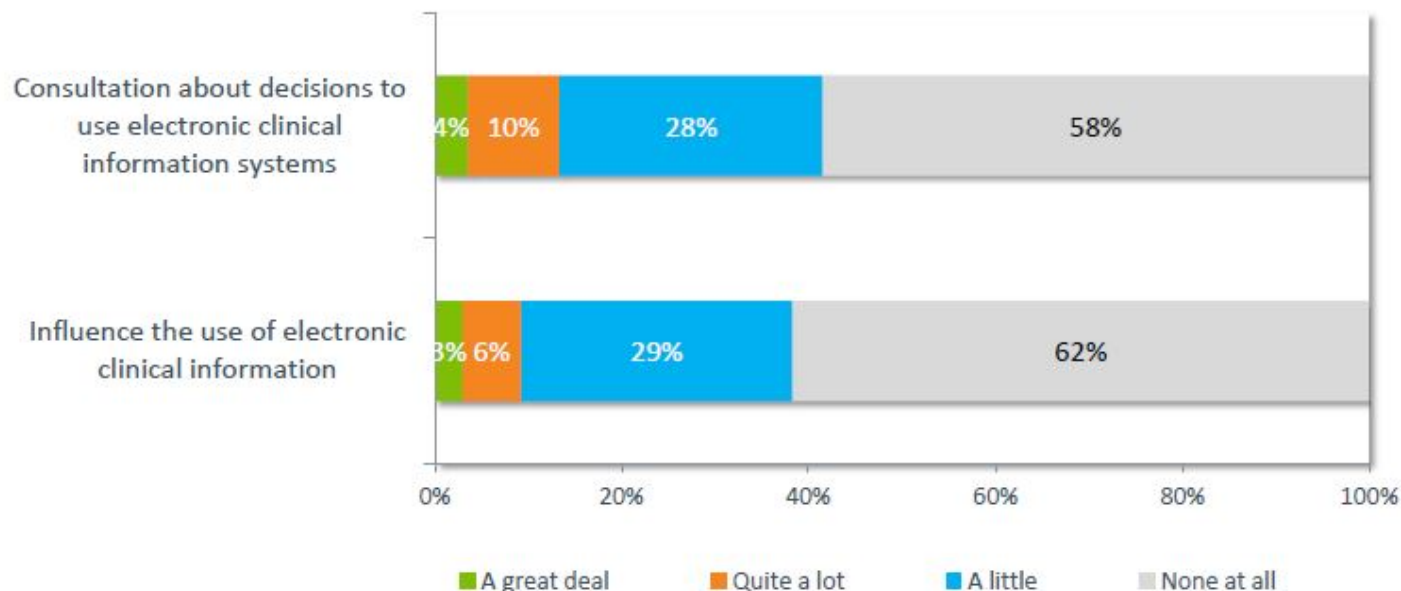
- 57 % say that the legacy systems and tools at their disposal are not adequate for their role
- 61% report the use of both paper and electronic systems to access patient information
- 54% report having multiple log-ins to access different clinical systems and inadequate types of tools and access for their roles
- 65 % of nurses currently using digital health tools use them mainly to enter and retrieve patient notes



## Few claim high levels of consultation prior to implementation

Q19. How much consultation has there been with you about decisions to introduce electronic clinical information systems and tools in your workplace?

Q20. How much have you been able to influence the use of electronic clinical information systems and tools in your workplace?



Base: All respondents in clinical practice providing direct care (n=931)  
 Excludes those who responded: Not applicable - no electronic systems in place



## Test, Leverage, Evolve

- *Pan-Canadian Nursing EHR Business and Functional Elements Supporting Clinical Practice - Reference Document* can help nurses inform and guide digital health systems design, functionality/features needed and the essential nursing data required within the EHR

Additional Stakeholders –  
*test / leverage / evolve*

# Additional Infoway Resources

## Knowing is Better for Clinicians


### ■ What is worth knowing for clinicians?

When it comes to enhancing clinical value and understanding the progress of interconnected electronic health record and other systems, knowing is better than not knowing. See what it means for clinicians.

- [Learn more](#)
- Learn from National [LEADing Practices](#)
- [Become a Clinical Champion](#)

## Pan-Canadian Clinician Peer Network

Share:  Like  Tweet 

 A A A

### Welcome to the Pan-Canadian Clinician Peer Network!

Canada Health Infoway's (*Infoway*) Clinician Peer Network is a pan-Canadian peer-to-peer program that promotes the active engagement of health care providers involved in the implementation of health information and communication technology (ICT) systems across Canada.

The network brings together natural leaders – physicians, nurses, pharmacists and other health care providers to:

- share best practices and build new knowledge
- provide clinical leadership to develop expertise and facilitate learning
- identify common and unique barriers in the implementation of change and clinical transformation.

<https://www.infoway-inforoute.ca/index.php/communities/pan-canadian-clinician-peer-network>

# Questions and Answers



[clinicaladoption@infoway-inforoute.ca](mailto:clinicaladoption@infoway-inforoute.ca)



Canada Inforoute  
Health Santé  
Infoway du Canada

Thank you