

# Cardiology Referrals and Consults – Synchronous and Asynchronous

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# Conflicts of Interest

- Paid by U of M for academic work
- Grant funding from CIHR, Research Manitoba, PHAC
- Principal investigator on grant funded by IBM and Calian administered by the Canadian Institute for Military and Veterans Health Research related to the identification of PTSD in electronic medical records
  - There are no products related to these funders that will be discussed in this program

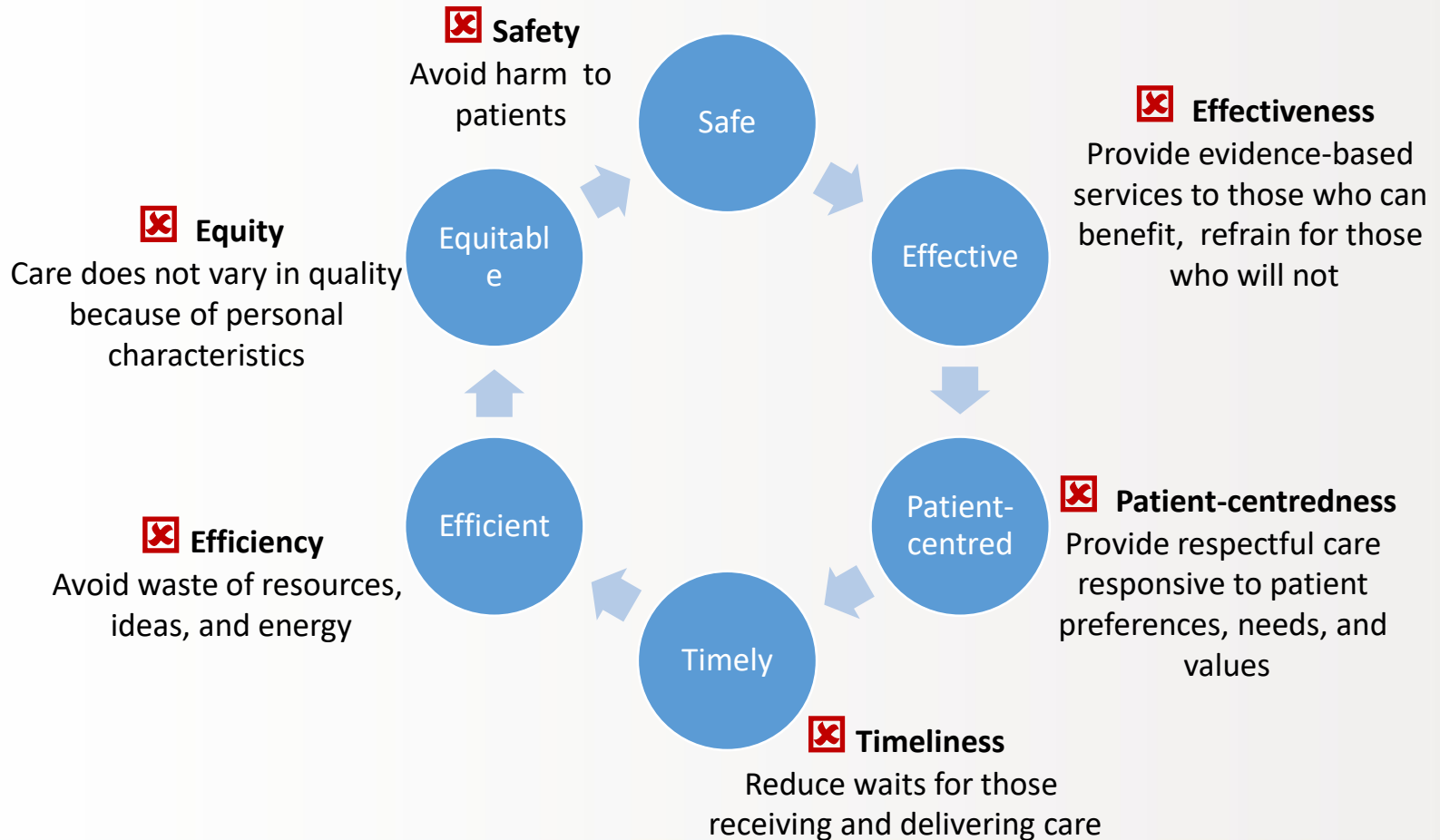
# Objectives

- Describe what some of the limitations of the current referral process
- Explore some of the solutions to improve the quality of Cardiology referrals in particular, with a view to all referrals/consults
- Discuss the types of questions Cardiologists typical receive and consider how best they can be addressed

# True Story from a Cardiologist...

- A patient goes to the ER and/or to a specialist and a consult is then sent to “Cardiology.” No one seems to ask the patient if they have a family doctor. Cardiology then, if they do their homework, discovers that there are multiple, often duplicative consults, either in place and/or completed. This problem can be solved but it will require a few questions to the patient and the availability of system data. Both of these approaches seem to be difficult!

# The current referral process does not meet the dimensions of healthcare quality



# Safety, Effectiveness , Efficiency

- Do you have access to Cardiologist expertise when you need it?
- Can you easily answer a patient's question regarding when they will be seeing a Cardiologist, or if they even need to?
- Do you or your patients spend undue time managing referrals, transporting themselves to get their obtaining the correct opinion/test?

# Do you trust this device in 2020?



[www.wired.com](http://www.wired.com) › [story](#) › [fax-machine-vulnerabilities](#) ▼

## [Fax Machines Are Still Everywhere, and Wildly Insecure - Wired](#)

Aug 12, 2018 - "Fax is perceived as a **secure** method of data transmission," says Balmas. "That's a huge misconception—it's absolutely not **secure**." In addition to ...

[www.theatlantic.com](http://www.theatlantic.com) › [technology](#) › [archive](#) › [2018/11](#) ▼

## [Why People Still Use Fax Machines - The Atlantic](#)

Nov 18, 2018 - Despite attempts to replace it, a mix of regulatory confusion, digital-**security** concerns, and stubbornness has kept **fax machines** droning around ...

[www.cloudworldwideservices.com](http://www.cloudworldwideservices.com) › [3-security-risks-of...](#) ▼

## [3 Security risks of using analog Fax machines and how to ...](#)

Feb 19, 2019 - 2. Risk of non-compliance · A standard, analog **fax machine** is rarely encrypted and may store electronic copies of the documents sent or received ...

[www.engadget.com](http://www.engadget.com) › [2018-08-20-fax-machine-hack](#) ▼

## [If you're still using a fax machine for 'security' think again ...](#)

Aug 20, 2018 - While the human race, by and large, has moved on from **fax machines**, they're still out there. The medical and real estate industries still cling to ...

# Is the current referral process timely ?





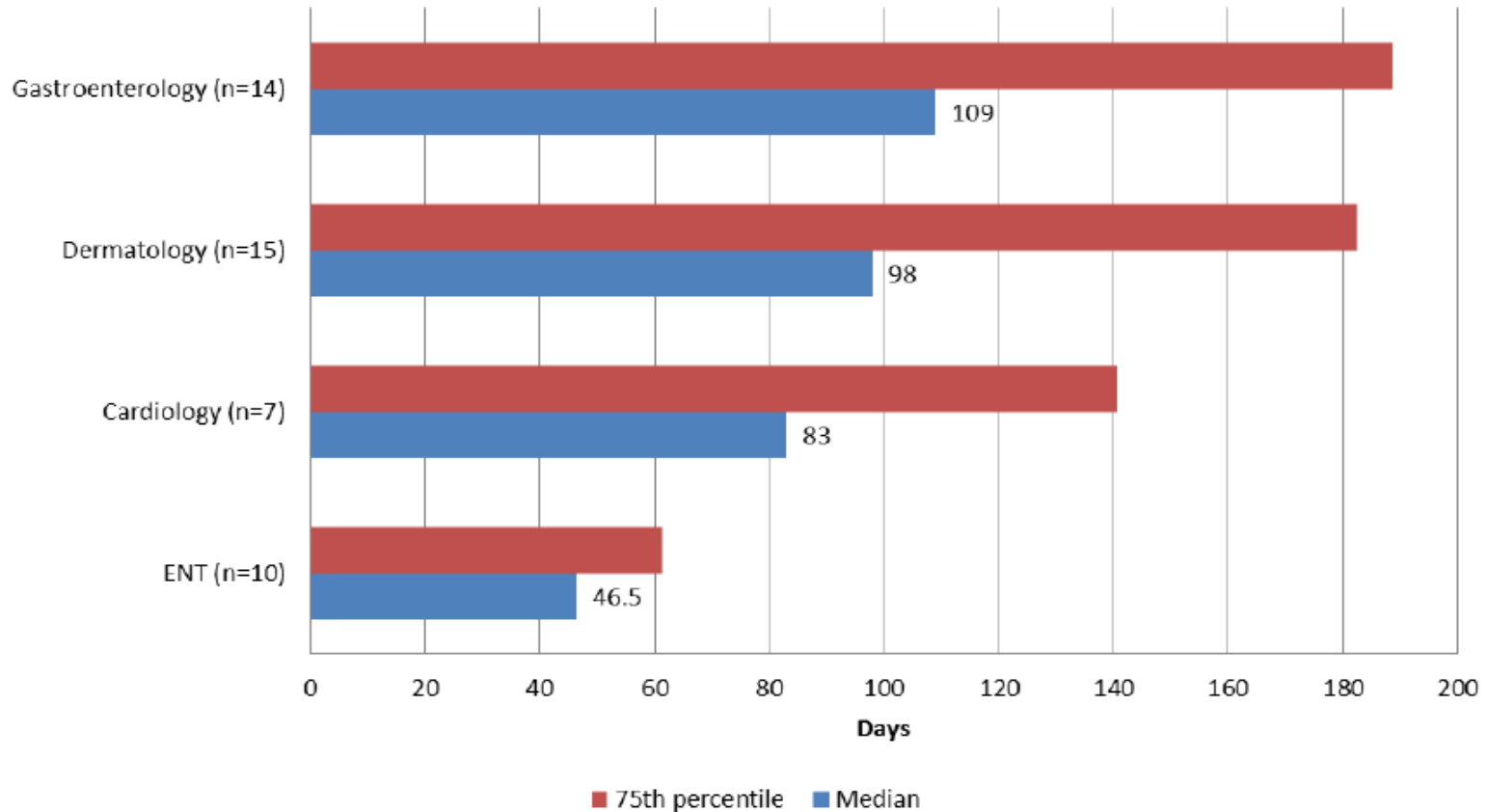
# Timeliness of in-person referrals

- Wait time study – median wait over 90 days for 2 clinics in Winnipeg
- Manitoba median wait time 130 days (Fraser Institute 2019 report)

Liddy C, Moroz I, Affleck E, Afkham A, Boulay E, Cook S, Crowe L, Drimer N, Ireland, L, Jarrett P, MacDonald S, McLellan D, Mihan A, Miraftab N, Nabelsi V, Russell C, Singer A, Keely E. How Long are Canadians Waiting to Access Specialty Care? *Canadian Family Physician* 2020; 66: 434-444.



# Median Wait Time 1 by Most Popular Specialties



# Wait times for specialists are longest in Canada and not improving

**Patients who waited 4 weeks or longer to see a specialist, after they were advised or decided to see one in the last 2 years: Country results from highest to lowest**

Canada, 56% (below average); Norway, 52%; New Zealand, 44%; Sweden, 42%; United Kingdom, 37%; Commonwealth Fund average, 36%; France, 36%; Australia, 35%; Germany, 25%; United States, 24%; Netherlands, 23%; Switzerland, 22%

**Table 9** Wait time for specialist, trend over time

Country	2010	2013	2016
Canada	56%	57%	56%
Commonwealth Fund average	35%	32%	36%

The trend over time is fairly stable for Canada.




*Worse in 2020 (38%)*

# Lack of Equity

- Wait time for individual based on the “luck of who you refer to:
- Variable in Different parts of the country and different parts of the province

After you were advised to see or decided to see a specialist how long did you have to wait for an appointment?

	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	YK	NWT	NU	Can.	CMWF avg.
Less than 4 weeks	35	33	30	42	40	38	29	39	34	41	22	38	36	38	54

 Above average  Same as average  Below average

22

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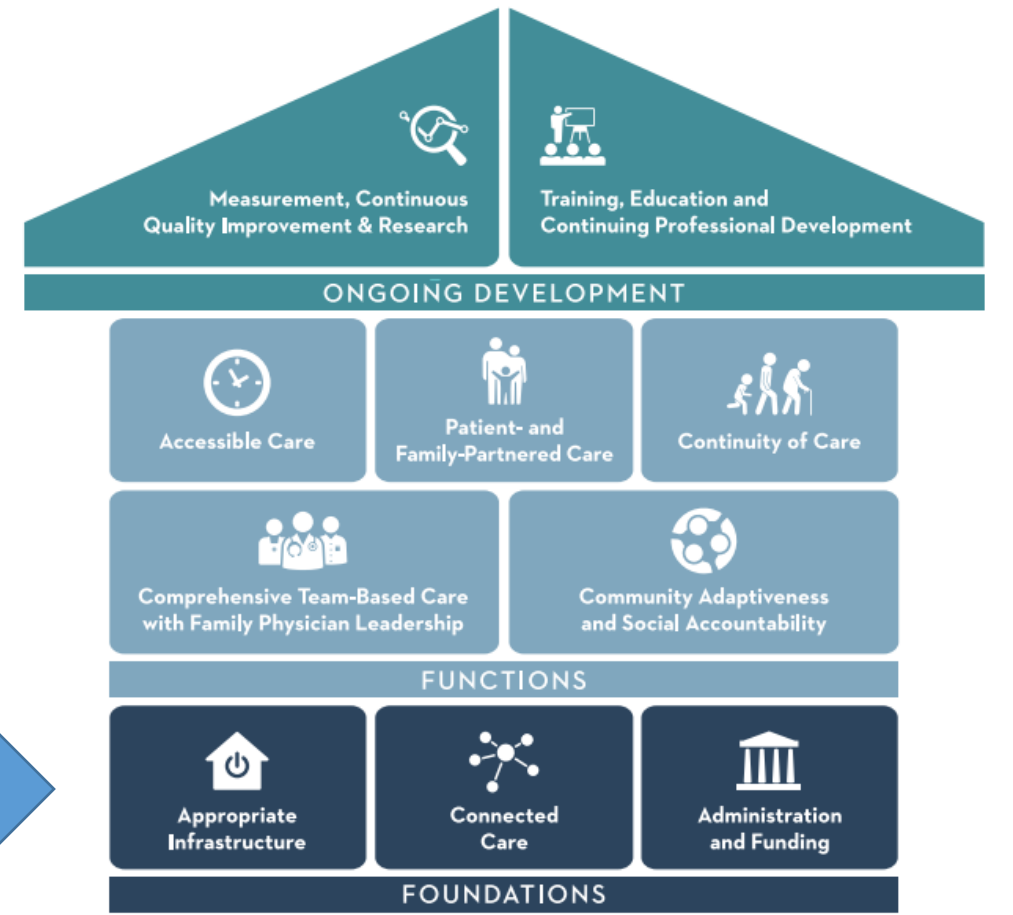
# A nice reliant automobile...



# What are the solutions to this problem?

- Improved consult/referral content quality
- Improved consult/referral appropriateness
  - Patient Centered shared decision making
  - Choose Wisely
- Improved consult/referral system that uses 20<sup>th</sup> century technology
  - Virtual Visits and Virtual Synchronous Consults
  - Asynchronous virtual consultations (BASE eConsult Manitoba)
  - Digitally managed coordination of care; centralized intake, point of care solutions, waitlist management

# Patient's Medical Home



# What is your question? How Urgent is it?

- Good consults/referrals are a two way street
  - “Please see re: Chest Pain?”
- Does the patient want/need the referral?
  - Are you practicing shared decision making?
  - Are the tests and treatments we are offering (i.e. lipid testing, repeat echo, routine ECG) needed?
- How much information does the receiver need to triage and provide you the answer you need?
- Do you need the answer today, in 2-3 days, in 2-6 months?



# What makes a good referral?

- Demographics, **initial statement identifying the question/request, description of chief complaint, associated symptoms, relevant collateral, PMHx, PSHx, relevant psychosocial, medications, allergies, relevant clinical findings, investigation results, management to date, provisional dx/impression, statement of expectations**
- Clear succinct writing; short paragraphs/one topic each, one idea per sentence

François J. Tool to assess the quality of consultation and referral request letters in family medicine. *Can Fam Physician*. 2011 May;57(5):574-5..

Newton J, Eccles M, Hutchinson A. Communication between general practitioners and consultants: what should their letters contain? *BMJ*. 1992;304(6830):821-4.

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Health Sciences



University  
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# Appropriateness

**Choosing  
Wisely  
Canada**



- |          |  |   |
|----------|--|---|
| <b>1</b> | Don't perform stress cardiac imaging or advanced non-invasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present. | ▼ |
| <b>2</b> | Don't perform annual stress cardiac imaging or advanced non-invasive imaging as part of routine follow-up in asymptomatic patients.  | ▼ |
| <b>3</b> | Don't perform stress cardiac imaging or advanced non-invasive imaging as a pre-operative assessment in patients scheduled to undergo low-risk non-cardiac surgery.         | ▼ |
| <b>4</b> | Don't perform echocardiography as routine follow-up for mild, asymptomatic native valve disease in adult patients with no change in signs or symptoms.                     | ▼ |
| <b>5</b> | Don't order annual electrocardiograms (ECGs) for low-risk patients without symptoms.   | ▼ |

# Shared Decision Making

## The **SHARE** Approach

### 5 Essential Steps of Shared Decision Making



Agency for Healthcare  
Research and Quality

The SHARE Approach: A Model for Shared Decision Making - Fact Sheet. Content last reviewed September 2016. Agency for Healthcare Research and Quality, Rockville, MD. <https://www.ahrq.gov/health-literacy/curriculum-tools/shareddecisionmaking/tools/sharefactsheet/index.html>

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Health Sciences



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# Is Virtual Care New Normal?

- “Will the lesson persist in the new normal that the office visit, for many traditional purposes, has become a dinosaur, and that routes to high-quality help, advice, and care, at lower cost and greater speed, are potentially many?”
- - Don Berwick

# Milestones in Health Information Technology

- 1843 Fax machine
- 1876 Telephone
- 1919 William Osler Dies of Spanish Flu
- 1946 First Computer
- 1960 Mainframe and “SOAP” Note
- 1981 Personal Computer
- 1991 Internet
- 1998 Google
- 2007 First iPhone (first smartphone was about 10 years earlier)
- 2010 Tablet Computer
- 2013 Zoom
- **2019 SARS-CoV-2**



# Health Care Delivery in February 2020



# AT&T's Vision 27 years ago

## *Have you ever?*



**AT&T**

- Sent a fax from a beach?
- Tucked your baby in from of phone booth?
- Carried your medical history in your wallet?
- Attended a meeting in your bear feet?
- Watched the movie you wanted to, the minute you wanted to?
- Gotten a phone call on your wrist?



# Health Care Delivery in March 2020





# So what is “virtual care”?

- Virtual Care Task Force CMA, CFPC, RCPSC in February 2020 published: *Virtual care: Recommendations for scaling up virtual medical services*
- Defines Virtual care as, “any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies, with the aim of facilitating or maximizing the quality and effectiveness of patient care.”\*

\*Shaw J, Jamieson T, Agarwal P, et al. Virtual care policy recommendations for patient-centred primary care: findings of a consensus policy dialogue using a nominal group technique. *J Telemed Telecare* 2017;0(0):1–8.



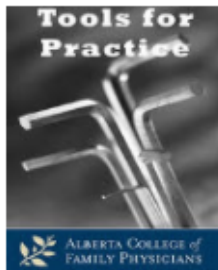
# 6 Habits for Highly Successful Habits for Health Information Technology Implementation

1. Put patient care first
2. Assemble a team with the right skills
3. Relentlessly ask WHY
4. Keep it simple
5. Be Darwinian
6. Don't lose the forest for the trees

# Virtual Care and Cardiology Referrals and Consults

- Not all issues require in person assessments
- In hospital clinic space is limited
  - synchronous virtual visits can address some of these limitations
- COVID related slowdown is an opportunity to reassess care priorities and “build a better health system”

# Diagnostic Accuracy of Virtual visits



**Virtual visits versus face-to-face: Diagnostic accuracy in primary care**

**Clinical Question: What is the diagnostic accuracy of primary care physicians performing virtual visits compared to in-person visits for undifferentiated presentations?**

**Bottom Line: Based on limited, lower-level evidence, diagnostic accuracy of virtual visits was between 71-91%, measured using standardized patients or case review at 3 months. Diagnostic accuracy/agreement of virtual care seems similar to in-person visits. These studies do not address continuity of care or patient outcomes.**

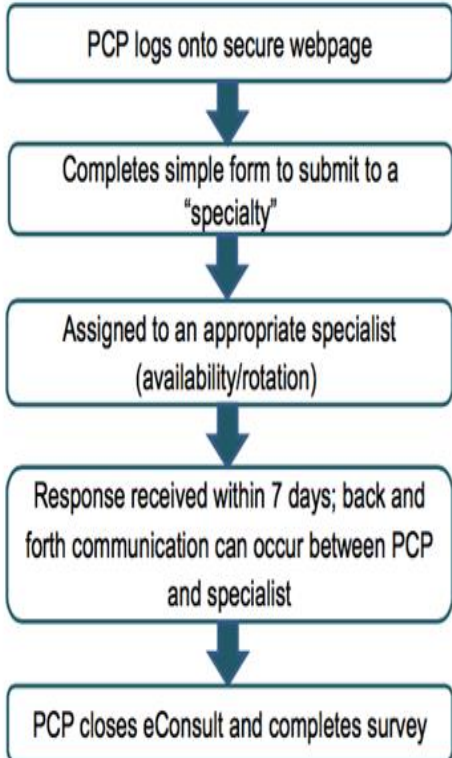
# Asynchronous Consults – The BASE eConsult Manitoba platform



# What is BASE eConsult Manitoba

- Asynchronous electronic consultation service
- Modeled after Building Access to Specialists through Electronic Consultation (BASE™)
  - Started in 2010 by Drs. Clare Liddy and Erin Keely, in Champlain region of Ottawa
  - Secure web-based tool
  - PCP submits a question via a web-based portal
  - Can attach any additional information (e.g. test results, images)
  - The specialist receives an email notification prompting them to access the case via a secure site login.
  - Questioned to be answered within 1 week
  - Average response time of 2-3 days

# How Does eConsult Work?



**Create an eC**

NOTE: The system will log you out after 30 minutes of inactivity - you can save your work.

**Step 1 - Primary Care Practitioner Information**

PCP Test

Primary Care Practitioner Name

123 xyz road      pcville      ON

Street Address      City/Municipality

6135551111      6135551110      null

Telephone      Facsimile

**Step 2 - Specialty**

Please choose from the general list of Specialties:

Please select the most appropriate option:

Target Specialty (automatically derived):

Please note that information about scope of some specialties is available in the [Specialties Directory](#).

**Step 3 - Patient Information**

Date of birth  /  /       Select...      Gender       Given Name

(dd/mm/yyyy)

Would you like to attach electronic files containing pertinent information to assist the consultant with better assessment of this case?

Please upload your attachment(s) here and use the text field provided. (e.g.: Electronic Medical Record documents, image attachments in a common format such as pdf, jpg, etc.).

Click here to attach a file     Click here to attach a file     Click here to attach a file

\*Note about Patient Consent and eConsult: The CHPA has determined that patient consent is implied in an eConsult, as this interaction remains within the Circle of Care. For more information, please review the [CHPA Assessment of eConsult](#).

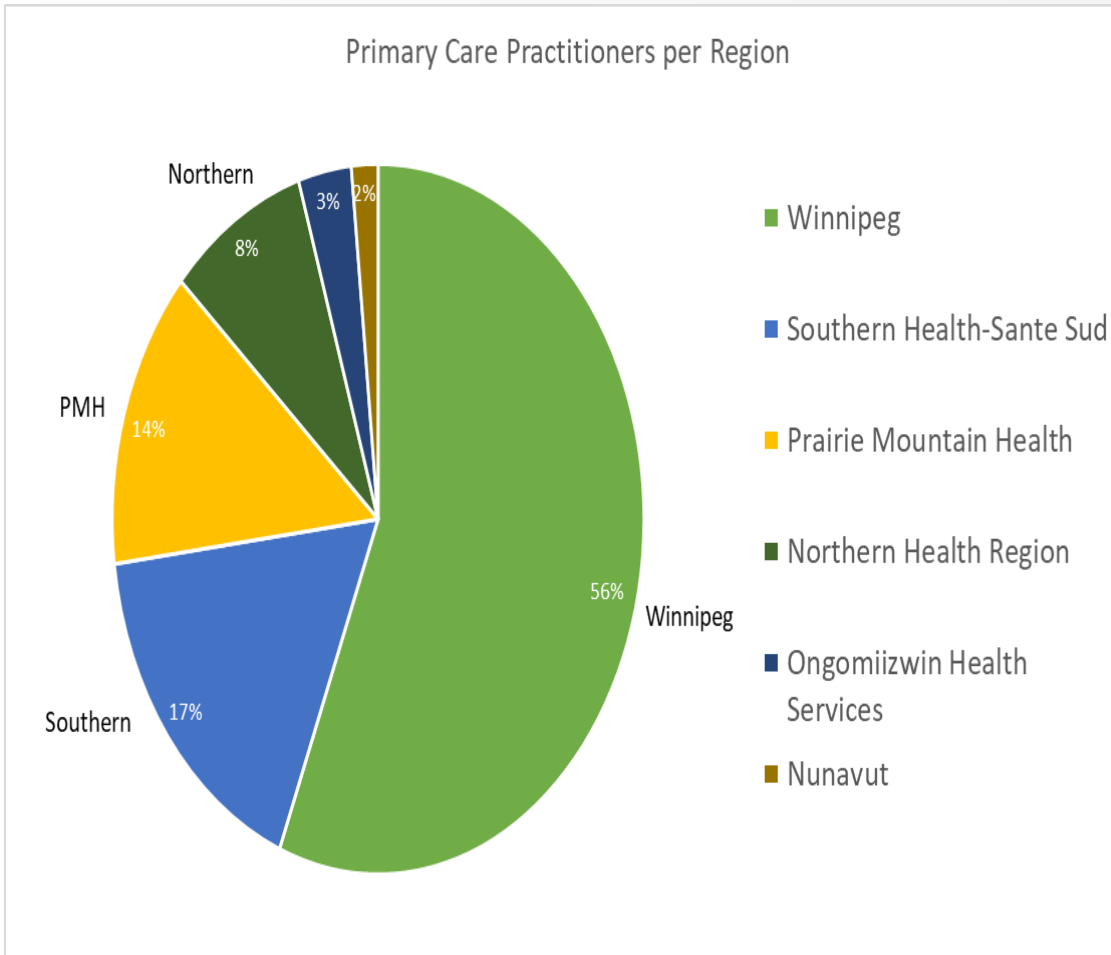
**Step 4 - Background/History and Consultation Request**

You may provide information concerning the patient in the space provided below (i.e. allergies, nutrition, social history), if this has not been provided in the attachment(s) already.

Please type request in the space provided below

# Total PCPs to date= 247

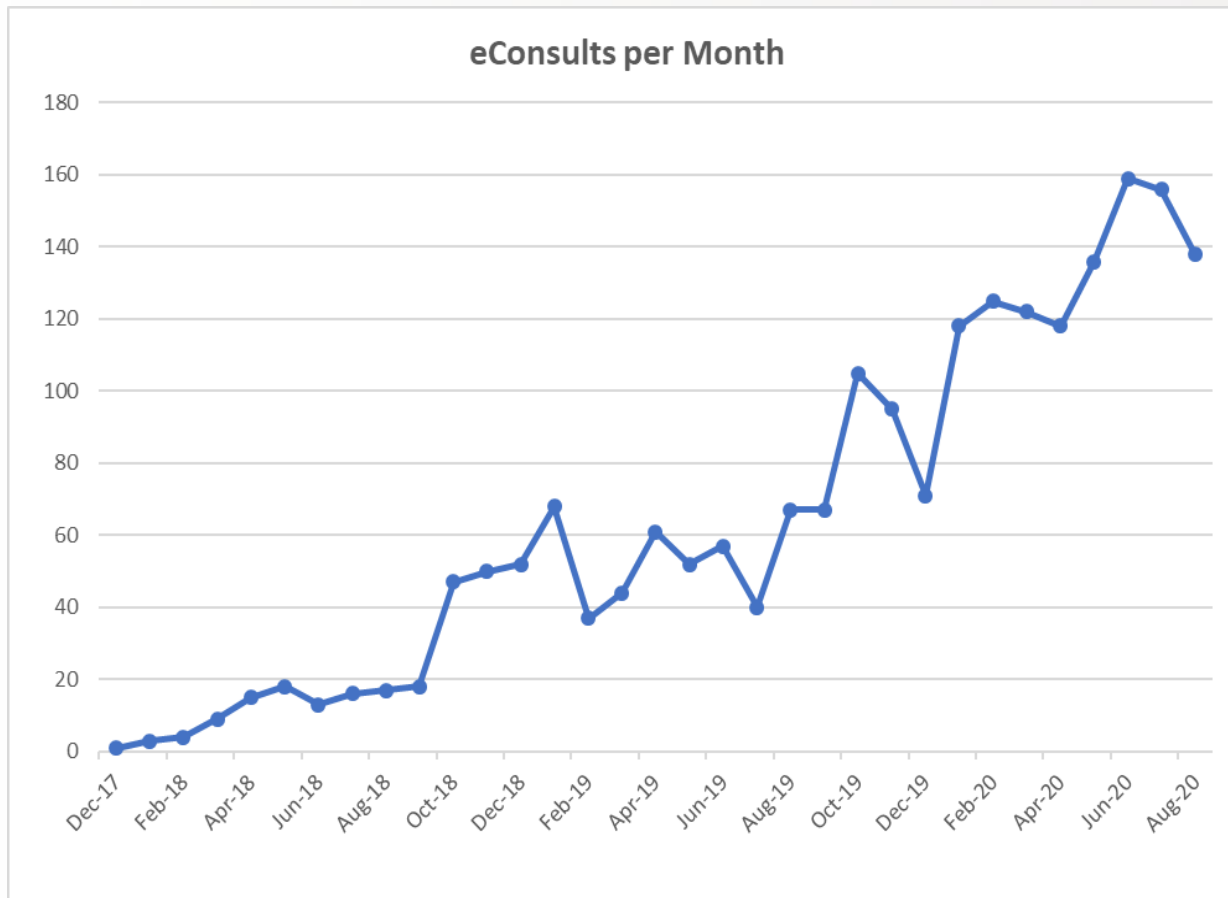
Updated: September 1 2020





# Total eConsults=2224

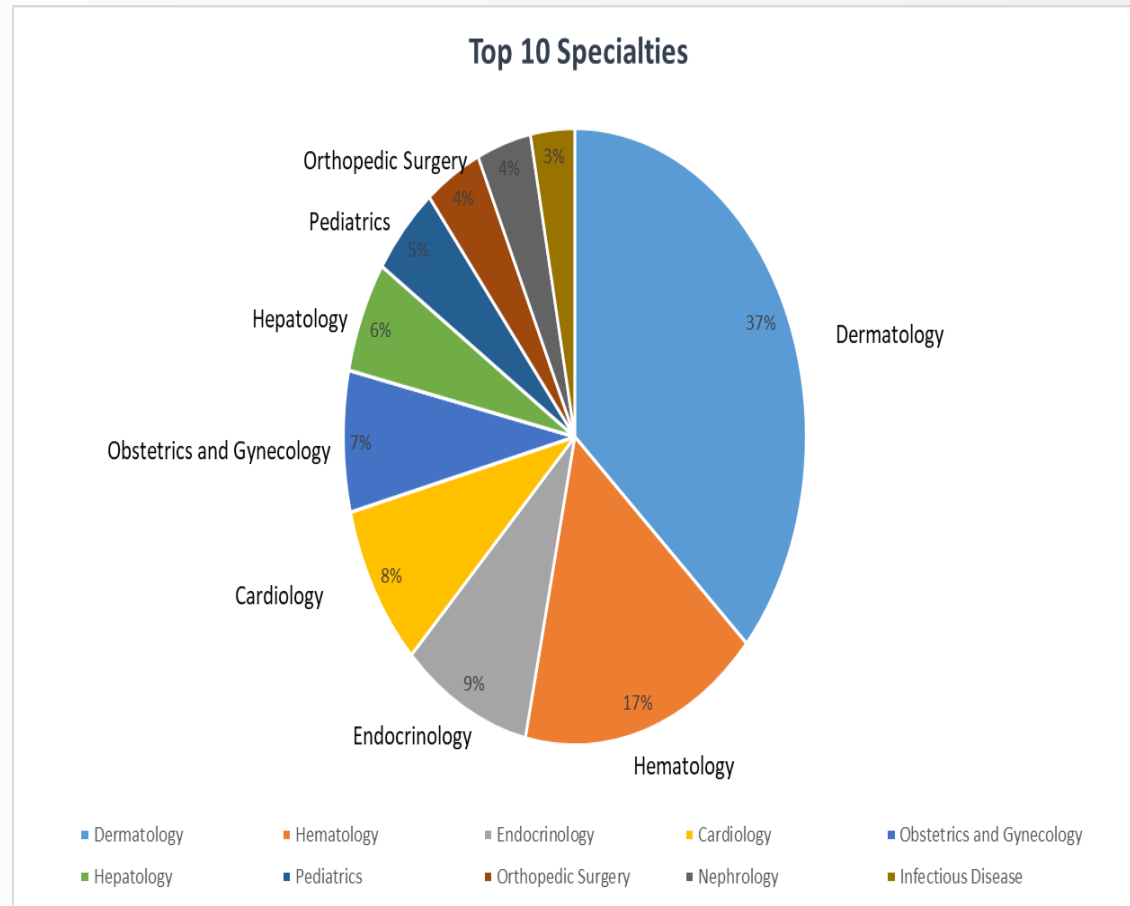
Updated: September 1 2020



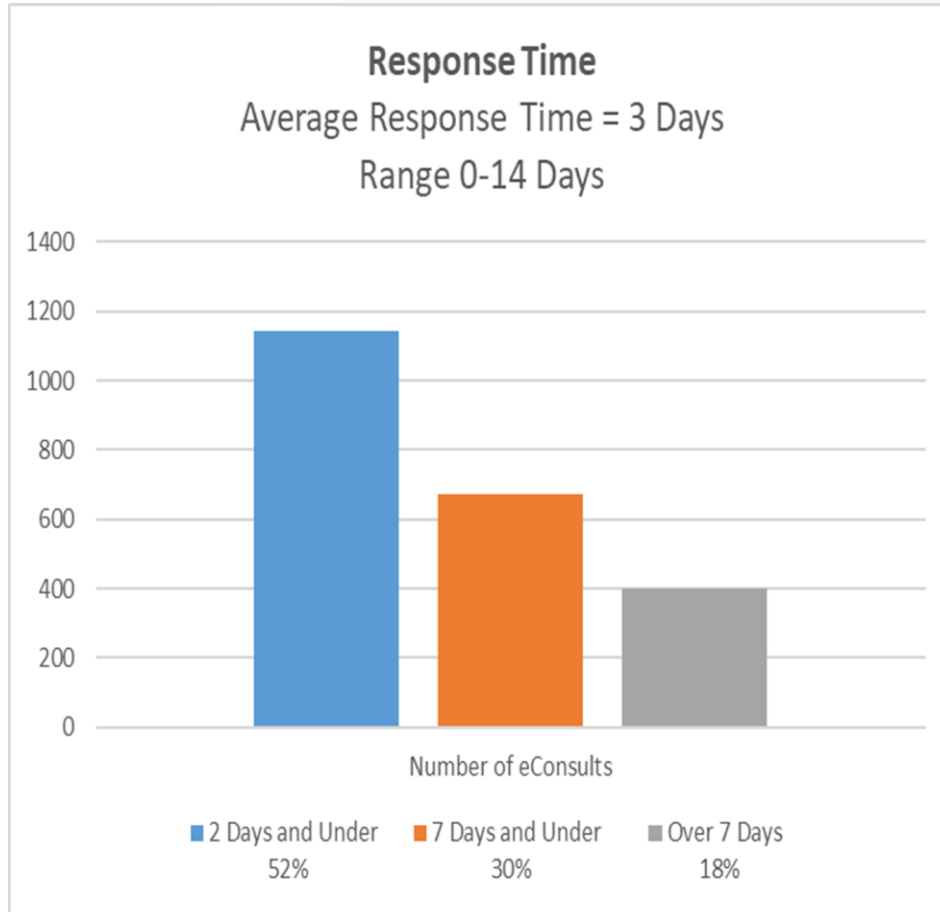
# Total Number of Specialties=48

## Total Specialties for Nunavut=8

Updated: September 1 2020



# eConsult Response Times

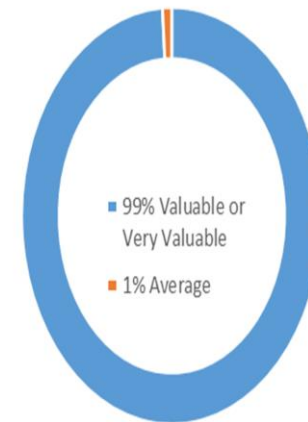


**eConsults are tracked and monitored by the research team. eConsults not answered within 7 days are investigated.**

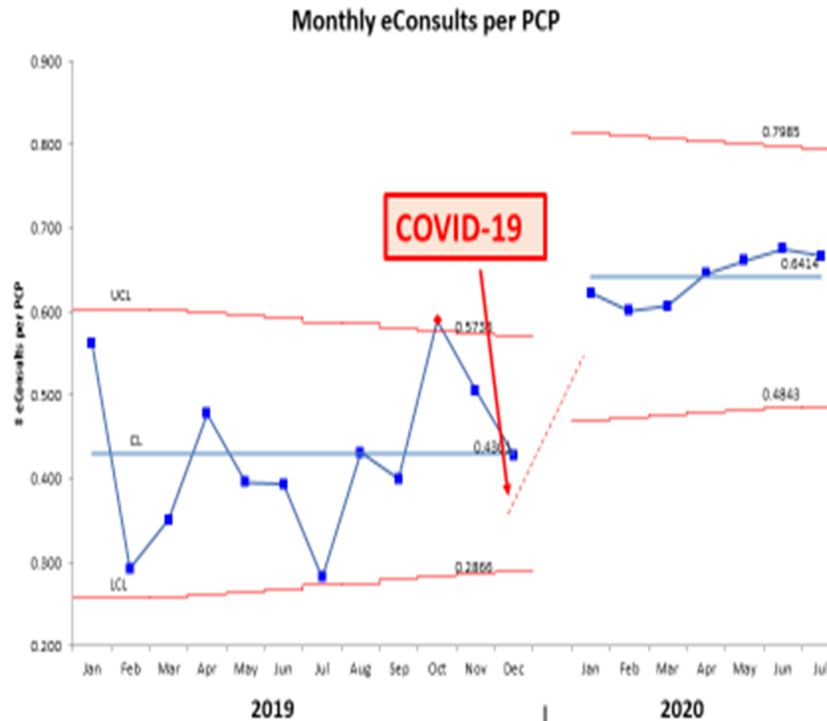
# Value?

- In 50% of the cases, a referral was originally contemplated but now avoided.
- In this way asynchronous consultation is both cost effective and important for physical distancing precautions

eConsult Responses According to PCP



# Changes since COVID-19



Coinciding with early concerns about the impact of COVID-19, there was a sudden and significant increase in the # of eConsults per PCP. From an almost stable Control Chart (uChart) in 2019 (blue dots), we jump to a new, also stable uChart, representing a stable and sustained 50% increase in the # of monthly eConsults. Also, the variability is much reduced. BASE eConsult is used more consistently.

# Primary Care Provider Survey Results

Q1.- Which of the following best describes the outcome of this eConsult for your patient:	number	%
I was able to confirm a course of action that I originally had in mind	141	32.87
I got good advice for a new or additional course of action that I will be implementing	272	63.40
I got good advice for a new or additional course of action that I am not able to implement	5	1.17
None of the above (please comment)	11	2.56

Reassurance

Q2.- As a result of this eConsult, would you say that:	number	%
Referral was originally contemplated but now avoided at this stage.	225	52.45
Referral was originally contemplated and is still needed.	96	22.38
Referral was not originally contemplated and is still not needed.	84	19.58
Referral was not originally contemplated, but eConsult resulted in a referral being initiated	8	1.86
Other (please explain)	16	3.73

Avoidance

Reassurance

Safety

# Improved Experience for Patients

*Just a click away: exploring patients' perspectives on receiving care through the Champlain BASE™ eConsult service*

Justin Joschko, Clare Liddy, Isabella Moroz, Marnie Reiche, Lois Crowe, Amir Afkham, Erin Keely. *Family Practice*, Volume 35, Issue 1, February 2018, Pages 93–98

- Patients expressed acceptance for eConsult as a model for improving access to specialist care, had largely positive experiences with it as a model of care delivery, and supported its use in their future care.

# Educational Value

Q3. How helpful and/or educational was this response in guiding your ongoing evaluation or management of the patient?

**91% of PCPs choose 4 or 5** (As of Mar 1 2020)

	December 2017 - April 2019					April 2019 – October 2019				
	Minimal				Very valuable	Minimal				Very valuable
Grade	1	2	3	4	5	1	2	3	4	5
Number	4	1	23	159	242	6	5	27	154	205
%	0.9	0.2	5.4	37.0	56.4	1.5	1.3	6.8	38.8	51.6



# Cardiology eConsults

- Separated into Arrhythmia and General
  - Arrhythmia: Diagnosis 20%, Management 30%, Treatment 50%
  - General: Diagnosis 30%, Management 50%, Treatment 20%
- Based on about ~20 consults per service
- Multiple interesting mitigating factors complicating clinical care

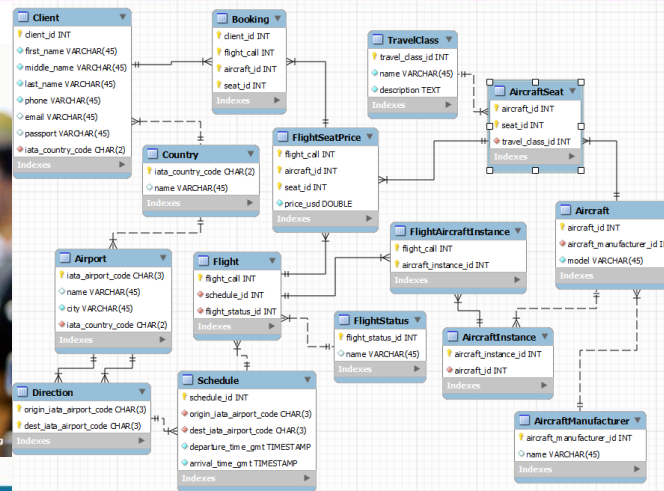
# More about the Cardiology eConsults

- Arrhythmia Topics;
  - Symptomatic bradycardia, tachy-brady syndrome, Afib, Short/Prolonged QTc, PSVT, syncope/falls, complete heart blocks, bigeminy
- “General” Topics
  - Mitral valve regurgitation/prolapse, Mechanical Aortic valve, Ischaemic heart disease (risk/atypical sx), Aortic aneurysm, Post-stent management, HOCM

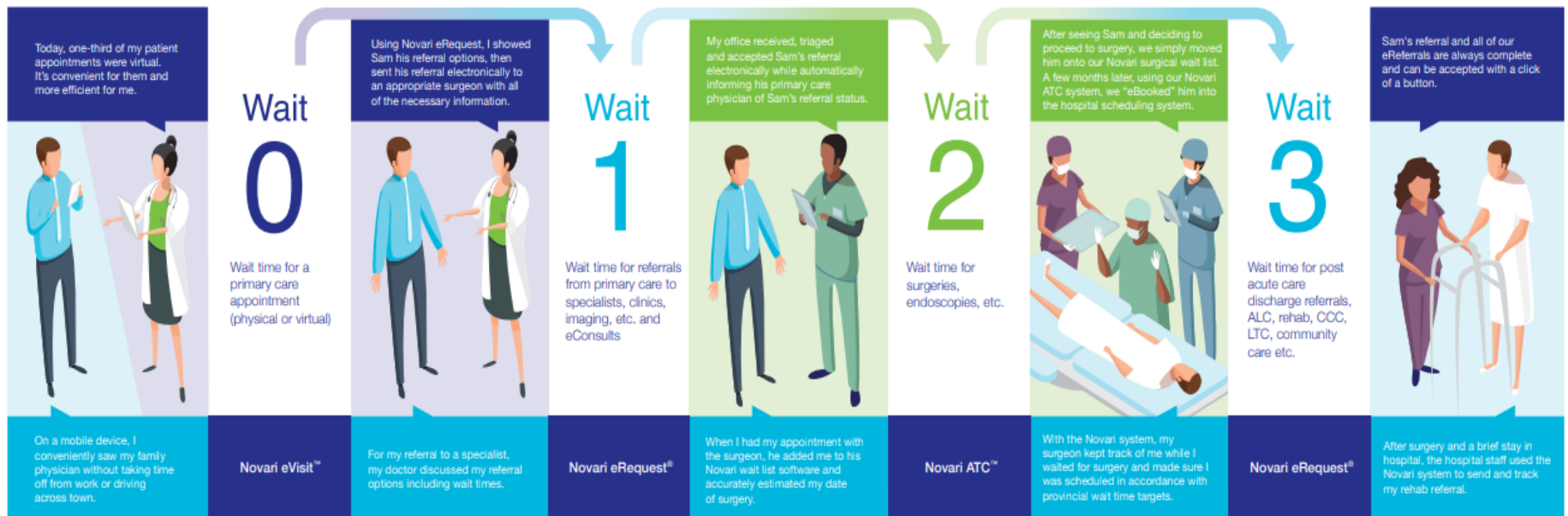
# Acknowledgements



# Improved Care Coordination



# Digitally managed referral process...



# Digitally managed wait lists



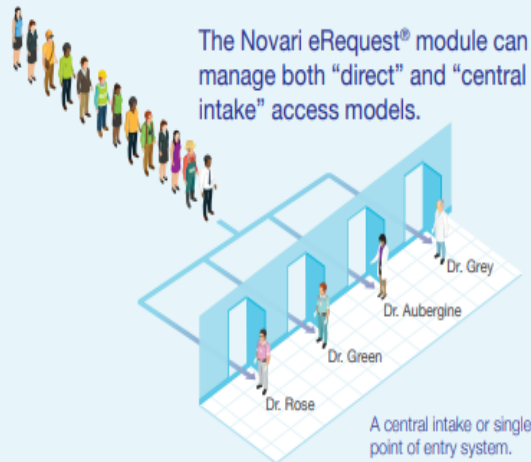
28% Reduction  
in Wait Times



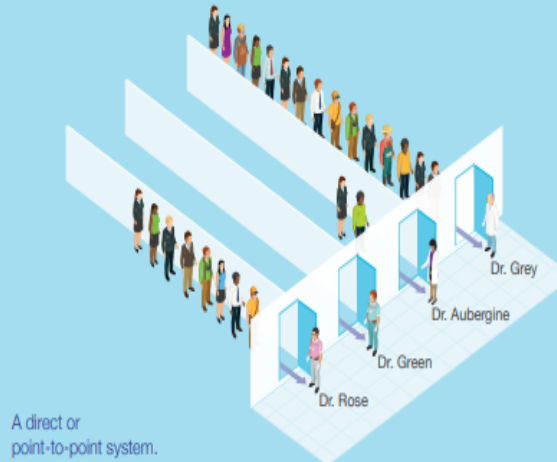
70% of medical  
errors are due to  
communication failures  
between providers.

7 Million Patient  
Cases Processed

Made in  
Canada



or



50+ Successful  
Implementations

Privacy  
Compliant

Only 120 Days  
to Implement

Microsoft Azure

# In Conclusion

- The legacy referral/consultation does not reflect high quality patient centred care.
- Including appropriate information is helpful to improve the referral/consultation process
- Using the BASE eConsult Manitoba platform is one way to improve access to specialist expertise for Cardiology questions (and 46 other specialties)
  - Email Kelly Brown [kbrown@ninecircles.ca](mailto:kbrown@ninecircles.ca) for more information
- Increased use of synchronous virtual care and digitally managed referrals may help improve the quality of the referral process