WEBINAR

health innovation

BRINGING YOUR INNOVATIONS INTO A HOSPITAL SETTING

November 30, 2021

Presented By:

Kingston Health Sciences Centre
Centre des sciences de la santé de Kingston

Hôpital Hotel Dieu Hospital

KGH Hôpital Général de Kingston General Hospital

3SO

Dunin-Deshpande Queens INNOVATION CENTRE

Innovation Hub at St. Lawrence College

Welcome & objectives

- Learn about:
  - The current health-care environment
  - Innovation priorities identified to date
  - Wicked problems that remain to be solved
  - How to prototype, pilot and/or sell your innovations into a hospital setting
- Hear from you!
  - Your questions & ideas
  - What supports you need
  - How can we stay connected, work together to develop Kingston’s health innovation ecosystem

Innovation through the lens of KHSC strategy

Dr. David Pichora

Kingston Health Sciences Centre

President and Chief Executive Officer

State of the nation in health care

- Innovation through the lens of KHSC strategy
- Current hospital priorities
- Bigger system context:
  - Healthcare’s Quadruple Aim
  - Rapidly integrating health-care system
  - Transition to value-based care

Our Strategic Directions

1.

Ensure quality in every patient experience

2.

Nurture our passion for caring, leading and learning

3.

Improve the health of our community through partnership and innovation

4.

Launch KHSC as a leading centre for research and education

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Current KHSC Priorities

- Clinical operations (*including staffing challenges*)
- Pandemic response & eventual recovery
- Hospital Accreditation (due April 2022)
- Redevelopment (KGH tower)
- Ontario Health Team implementation, system integration
- Regional Health Information System planning & implementation
- New funding strategies to support innovation (eg: robotics)

Healthcare's Quadruple Aim

Based on the IHI Quadruple Aim

Questions

Innovation priorities at Kingston Health and Science Centre

Dr. Elizabeth Eisenhauer

Kingston Health Sciences Centre, Innovation Lead

Emerita professor in the Department of Oncology at Queen's University

Innovation priorities at Kingston Health Science Centre

Discussing today….

- What do I/we mean by **Health Innovation** at KHSC?
- The development of the major themes of the KHSC "Innovation Portfolio"
- Three main themes – progress so far.

Innovation priorities at Kingston Health Science Centre

- Three elements to **Health Innovation**

NEW + **EVIDENCE of BENEFIT** + **ABLE to be ADOPTED**

Innovation priorities at Kingston Health Science Centre

- Three elements to a **Healthcare Innovation**

NEW + **EVIDENCE of BENEFIT** + **ABLE to be ADOPTED**

One or more of:
Process
People
Intervention
Technology
Technique

All of:
Affordable
Scalable
Usable

Development of KHSC Innovation Portfolio

- In 2018 - KHSC creates part time Innovation Lead Position
- The primary purpose of this role is to: "***lead the design of an innovation portfolio at KHSC that will encourage, nurture and celebrate innovation by staff at all levels of the organization***"

Process

- Defined GOALS for KHSC innovation portfolio
- 53 meetings/interviews with leaders, committees, departments at local, regional, provincial, international level to learn, listen
- Draft Discussion Document Fall 2018 which recommended
  - ***Themes*** for Innovation portfolio in both internal (6) & external (1) pillars
  - ***Process*** and ***Criteria*** for priority setting
  - Provided clarity around Research vs. Innovation; QI vs. Innovation

Health Research → Health Care Innovation

Basic Discovery

Novel interventions Clinical trials

***Early* Translation to practice/policy**

New Technologies

Evidence generation

Spread Uptake Adaptation

Partnerships Models of Care delivery Novel business models

Discovery → *Implementation*

Health Care Innovation → Quality Improvement

Early **Translation to practice/policy** **New Technologies**	**Spread** **Uptake** **Adaptation**	**Models of Care delivery** **Novel business models**	**Process improvements for quality outcomes, safety and efficiency**

Transformative → *Incremental*

Innovation Portfolio - Themes

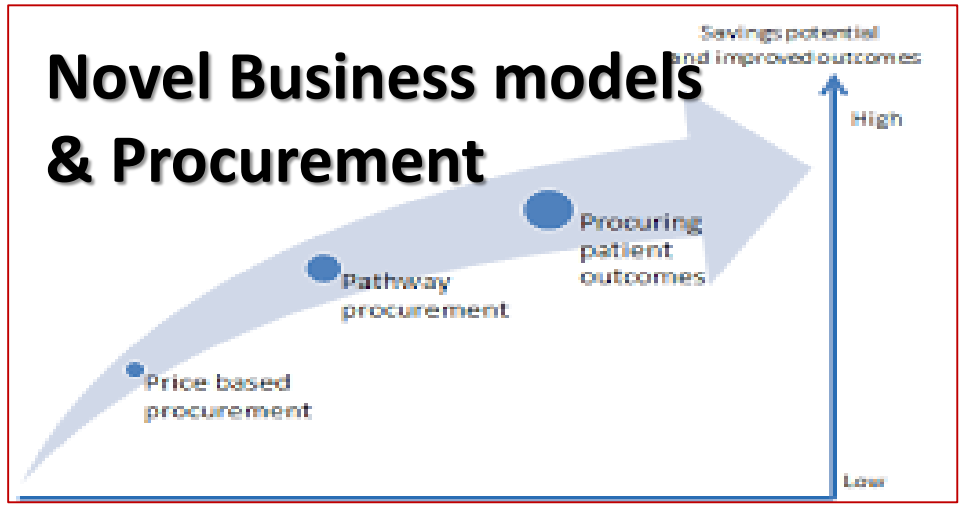
- ***Why call out specific themes?***
  - Identifies
    - Areas of major need/interest
    - Where organizational effort can be placed
    - Where investment could be directed – should it become available
  - Important caveat: no intention to *restrict* innovation to only these areas

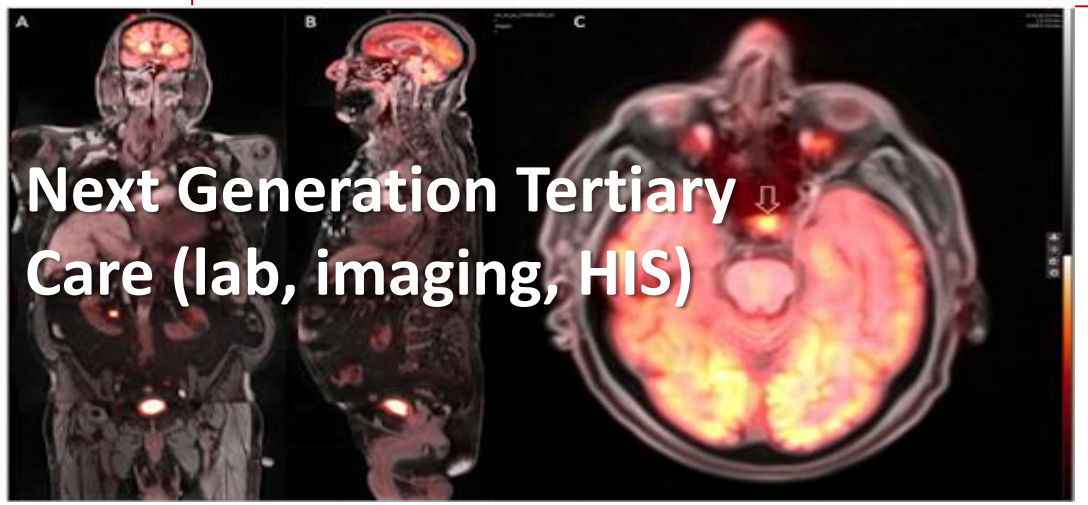
- ***Criteria for identifying themes:***
  - Build on local research strength and population/hospital needs
  - Align with KHSC strategy and Queen's FHS priorities

Five Themes

WHAT we do
HOW we do it
HOW we support it

New Frontiers in Integrated Care –
Eliminate specialty wait times





Three Selected as Initial Focus for Innovation Team

New Frontiers in Integrated Care –

Eliminate specialty wait times

Step 1 – Plan workshops

Workshop	Date	Outcome
Digital Health, Machine Learning and Artificial Intelligence	February 2020	Workshop report available at https://kingstonhsc.ca/innovation Ongoing work/discussions around • Digital care, data analytics, • Collaborations with Centre for Health Innovation • Webinar series
21st Century Interventional Medicine – Minimally Invasive Procedures	March 2020	**CANCELLED (COVID)** – work paused within portfolio BUT continues within KHSC (robotic surgery, interventional radiology etc)
New Frontiers in Integrated Care - Timely Access to Specialty Care	April 2020	**CANCELLED (COVID)** → ***BUT decision taken August 2020 to start Elimination of Wait Times Initiative anyway***

Elimination of Wait Times Initiative

Waiting in need .... Survey of Specialists August 2020

Currently *how many patients do you have on wait list* who are waiting to have a non-urgent appointment booked?

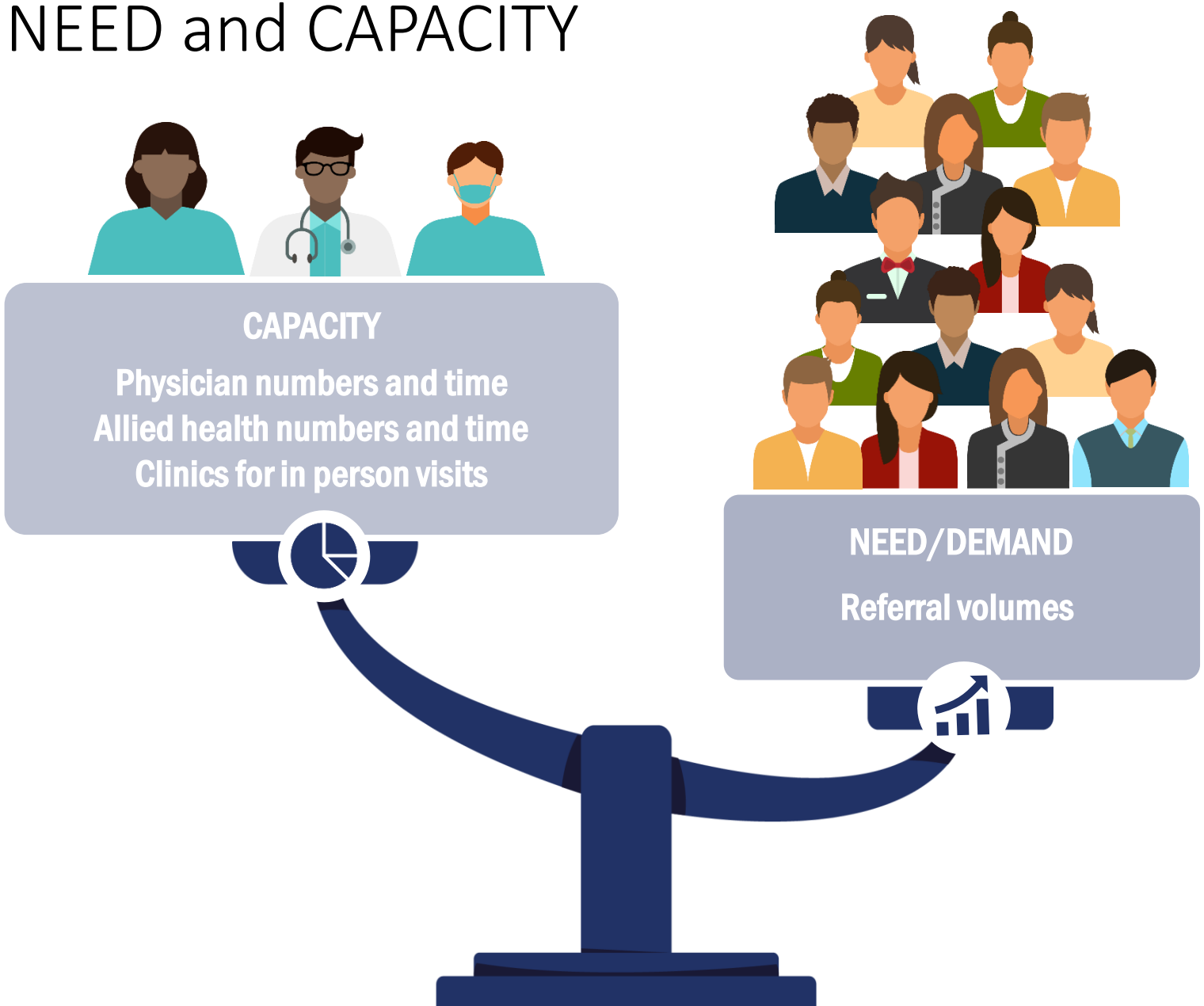
Answer Choices	% Responses
<50	23.81%
50-100	4.76%
100-200	4.76%
200-500	14.29%
>500	19.05%
Unsure	14.29%

***How far into the future* are routine referrals currently being booked?**

Answer Choices	% Responses
<3 months	28.57%
3-6 months	9.52%
6-12 months	23.81%
>12 months	23.81%
Not applicable	14.29%

COVID-19 will only make this worse.

Why are we not achieving this now?
Imbalance of NEED and CAPACITY



Evidence Based Innovations to *move towards* balance

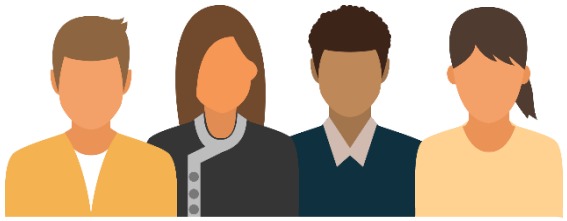
1. Optimize virtual visits

2. Embed Specialty clinics in primary care offices

(3. Increase staffing)

CAPACITY

Physician numbers and time
Allied health numbers and time
Clinics for in person visits



NEED/DEMAND

Referral volumes

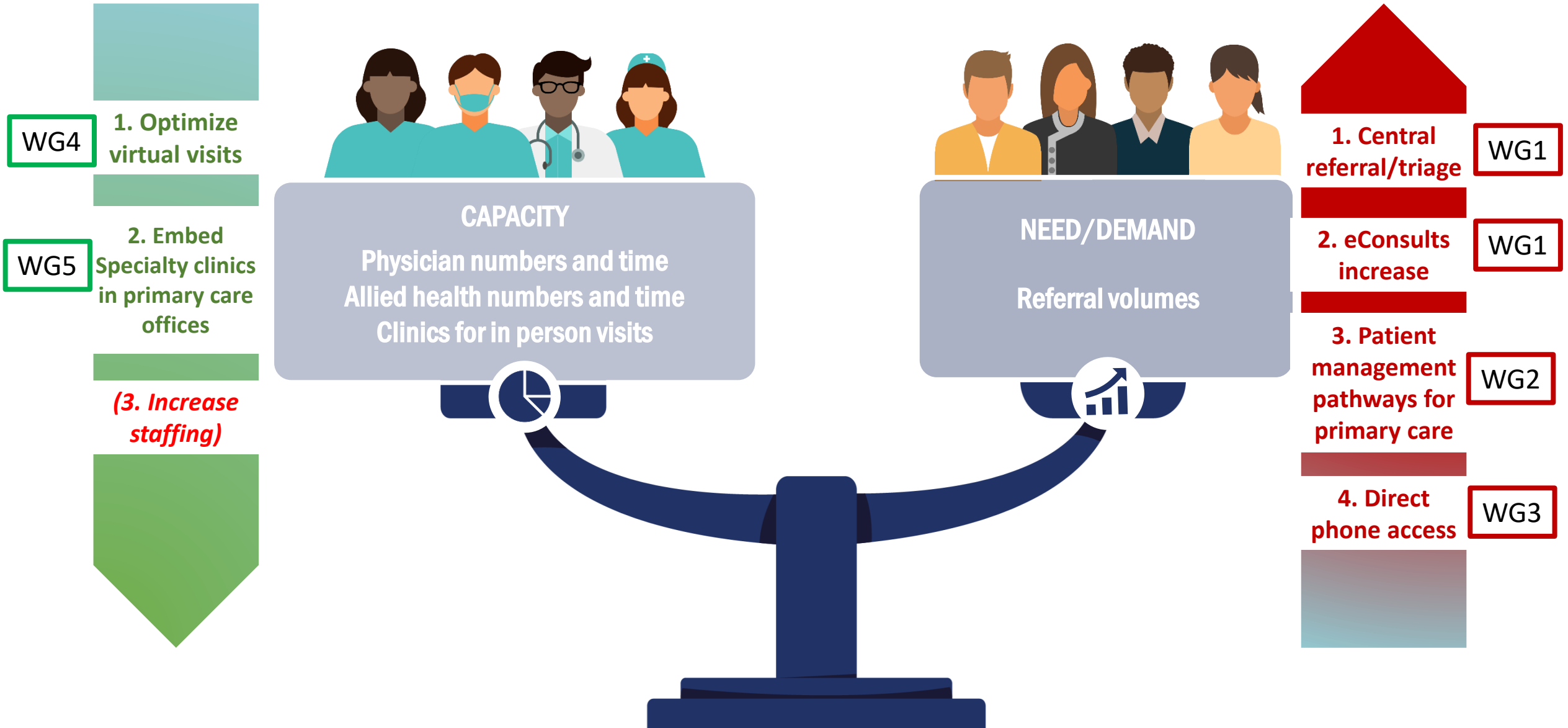
1. Central referral/triage

2. eConsults increase

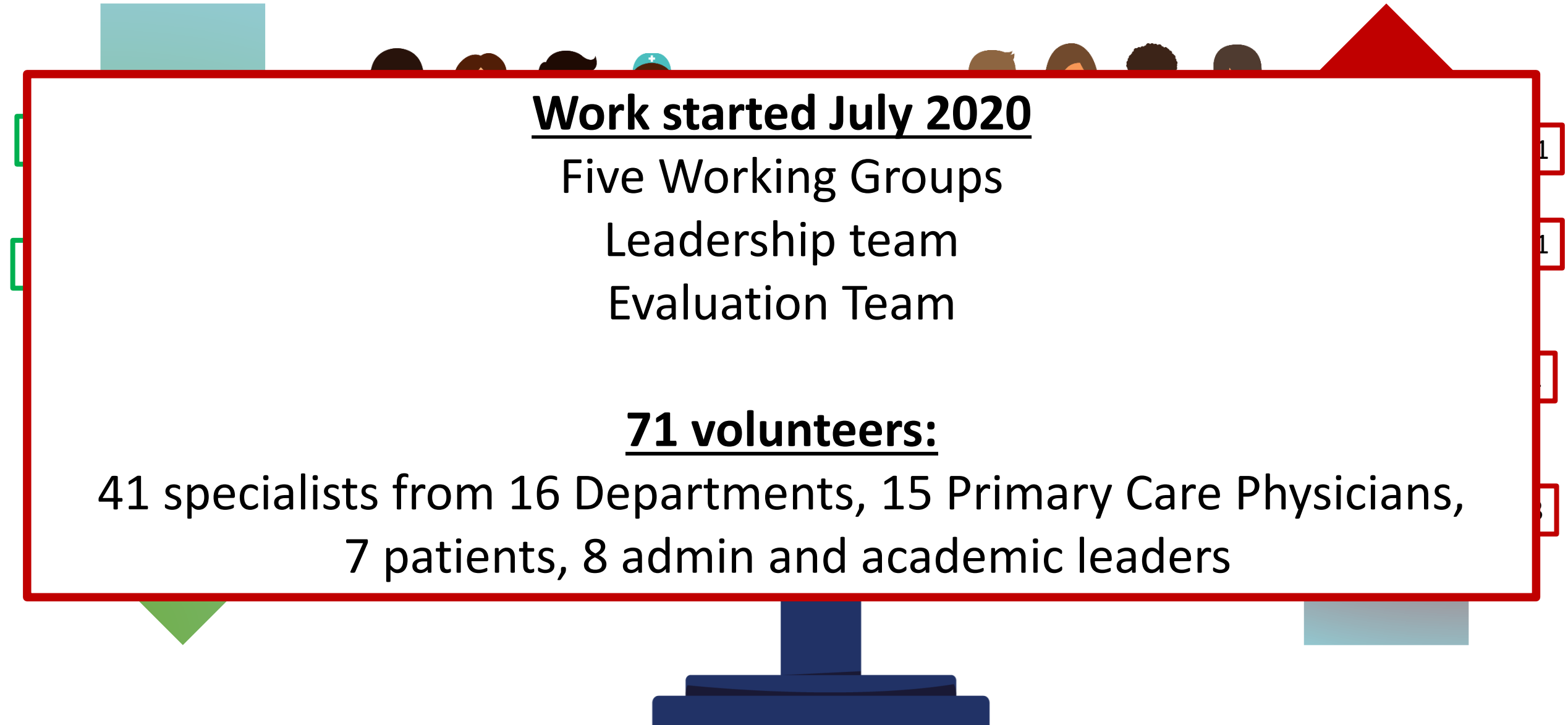
3. Patient management pathways for primary care

4. Direct phone access

How? Working Groups set up to tackle each theme



How? Working Groups set up to tackle each theme



Work started July 2020

Five Working Groups

Leadership team

Evaluation Team

71 volunteers:

41 specialists from 16 Departments, 15 Primary Care Physicians,

7 patients, 8 admin and academic leaders

Progress/Results – Working Group 1

Central intake of referrals using Digital Tools

- **Evidence:**
  - Central referral → patients are referred to a specialist **group (not individual physician)** and assigned next available appointment based on urgency
  - Reduces wait times and enhances equity of access to care.

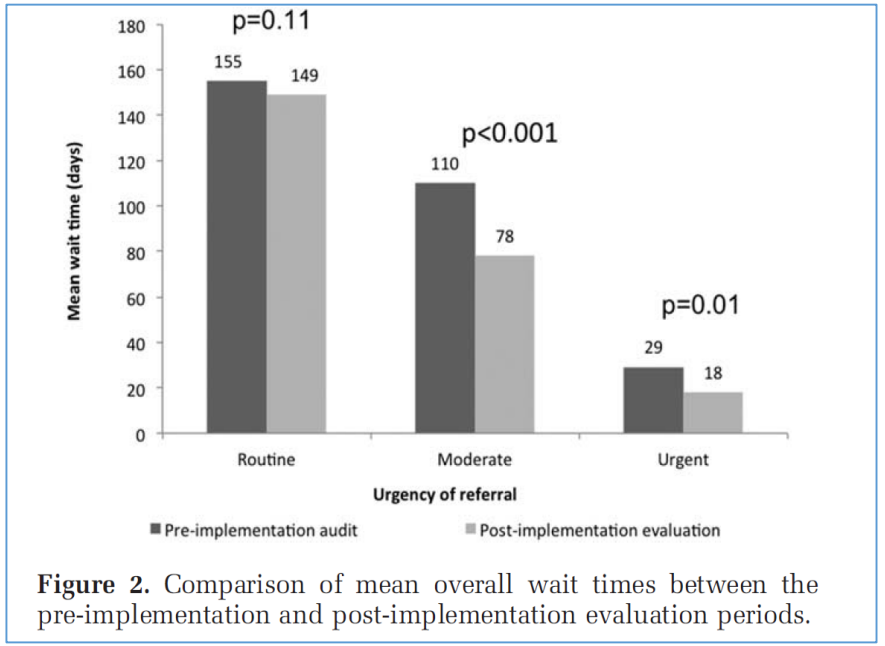


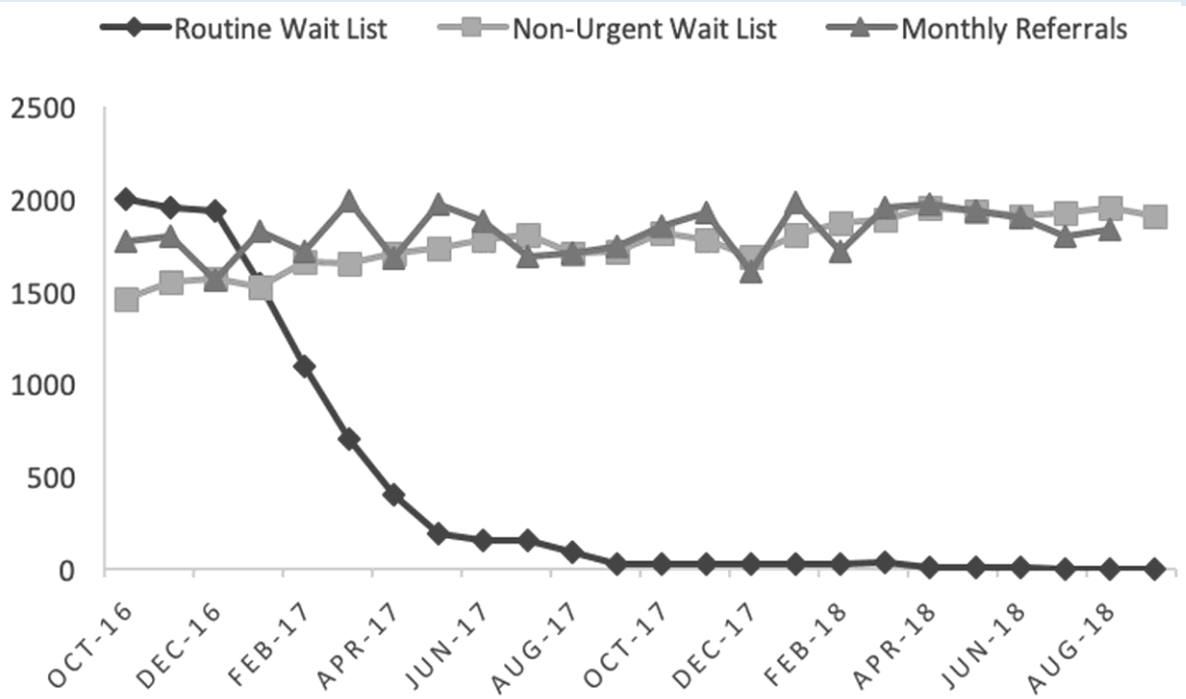
Figure 2. Comparison of mean overall wait times between the pre-implementation and post-implementation evaluation periods.

- **Our work:**
  - Criteria for "ideal" central intake system developed and plan to go **digital**
  - Ministry of Health Funding for eReferral (Ocean) and eRequest (Novari) tools and pilots being set up in 4 specialties
  - **Go live March 2022** – then spread to other specialties AND regionally where feasible

Progress/Results – Working Group 2

Patient Management Pathways for Primary Care

- **Evidence**: Pathways for **primary care providers** to manage patients with common, non-urgent conditions have been shown to dramatically reduce wait lists



- **Our Work:**
- Specialists **and** primary care colleagues working together to develop these.
- NINE pathways so far - 3 launched in 2021 – 6 scheduled for spring 2022
- Evaluation: ongoing but early data show *reduction in referrals*

Progress/Results – Working Group 5
Embedded Specialist clinics in primary care

- **Evidence**:
  - **Psychiatry** specialty clinics embedded within primary care offices in Kingston shown improve access
  - Exciting potential locally for
    - Enhancing capacity (more clinic time)
    - Enhancing education (of primary care, learners and specialists)
    - Building relationships and shared care models
- **Our Work**
  - THREE new specialty clinic pilots launched in spring 2021
    - General Internal Medicine, Pediatrics, Gynecology
  - Evaluation/Workshop Nov 23
    - Patients, Primary care very positive feedback

Summary – KHSC Innovation Portfolio

- Innovation in health care is **vital** to achieve improved outcomes, patient and provider experiences, enhance efficiency
- KHSC Innovation portfolio – developed with Queen's FHS input :
  - Identified major themes around which to cluster time, effort and seek investment
- Much more to do!
  - Hospitals have **NO** dedicated funding **OR** mandate to support innovation work or teams – so most comes off side of desk
- KHSC is just beginning to work on three priority themes
- https://kingstonhsc.ca/innovation

Questions

Which problems in our tertiary hospital setting innovation could help to solve.

Dr. Michael Fitzpatrick

Kingston Health Sciences Centre

Chief of Staff & Executive Vice President Medical and Academic Affairs, Professor of Medicine (Respirology) and of Biomedical & Molecular Sciences at Queen’s University

On the minds of KHSC leaders…

We asked KHSC leaders which problems, in our tertiary hospital setting, innovation could help to solve.

- What are the **top three problems** KHSC is facing
- Which of these are amenable to **innovative solutions**?

Here's what we heard from 23 leaders …

“Top Three Problems” Survey

MOST COMMON – top 3 problems

Topic/Issue	Number mentioning this as one of top 3
Staffing / recruitment / human resources	21
Space / physical infrastructure / overcrowding	15
Improved models of care / access to care:	7
IT / Data systems / technical integration	7
Funding / resources (some overlap of “resource” with space, staffing, IT)	4

resources
community
lack
staff
staffing
space
care
human
health
infrastructure
shortages
physical
resource
support
hospital
priorities
partners
workload
changing
change
resistance
access
system
high
patient
innovation
mental
nursing
tertiary
capacity
data
time
services
leaders
patients
shortage
aging
khsc
priority
planning
engagement
communication
frequency
retaining
radiology
skilled
things
qualified
entering
number
taking
succession
replace
recruitment
levels
overcrowding
promoting
vision
outpatient
students
amalgamation
wait
decrease
expand
region
division
physician
modernized
leadership
channels
antiquated
accreditation
fashion
generation
reality
making
merged
growing
funding
hurdles
constraints
especially
committees
outdated
finalizing
models
recognized
technologists
primary
match
interface
demand
easy
list
lab
scarce
union
anf
fragile
hhr
oht
areas
met
plant
retention
leading
limited
increased
type
passwords
booking
waste
distinctive
providing
equipment
difficulty
administrative
attention
spent
level
don
matrix
usre
group
dynamic
affecting
challenges
long
hdh
directors
delivery
seamo
line
sick
hr
based
bed
front
digital
funded
poor
ability
outflow
appointments
complement
dichotomy
industry
organizations
psychoeducation
volumes
technology
research
payments
work
kingston
hampers
economics
lacks
departments
profile
ground
stigma
inpatient
timely
money
initiatives
transformations
contributing
flexible
control
covid
acheivements
kgh
additional
integration
oufloww
university
transparency
sufficient
underway
restoring
registerd
update
population
technical
severe
subset
systems
reduction
operations
recruiting
policies
equitably
recovery
managers
healthcare
inability
mission
partnerships
inefficiencies
redevelopment
supply
payment
regularly
require
word

“Top Three Problems”
Which are amenable to innovative solutions?

Problem	Potential solutions
Staffing	AI to model and predict staffing shortages
	AI to generate new shift scheduling - match resources with predicted needs
	Simulation to improve & shorten training time or to expand existing skillsets
	Innovative HR strategies:
	Creative role descriptions to address needs
	Change the phenotype of the provider to address specific staff shortages

“Top Three Problems”
Which are amenable to innovative solutions?

Problem	Potential solutions
Space constraints	
New technology:	Expansion of virtual visit technology
	Remote patient monitoring – earlier discharge, care at home
	Electronic referrals, triage, consulting
Non – technology - related	Effective deployment of staff from home
	Hoteling options for providers
	Virtual care delivery spaces separate from in-person clinics

“Top Three Problems”
Which are amenable to innovative solutions?

Problem	Potential solutions
Access to care & Quality of care	
New technology:	**Minimally invasive procedures**
Software, Data Analysis	**Software to improve access to care & continuity of care:** Central scheduling Digital queuing Improved digital interfacing between provider systems Improved case costing Value-based healthcare (Quality outcomes/cost)
Expanded use of medical informatics	Example: NSERC- CREATE - Dr. Mousavi

Questions

Practicalities of procuring and piloting innovations in a hospital setting

Paul McAuley

Chief Executive Officer at Shared Support Services Southeastern Ontario (3SO) and Executive Lead SE Regional Healthcare Information System (HIS)

Practicalities of procuring and piloting innovations in a hospital setting

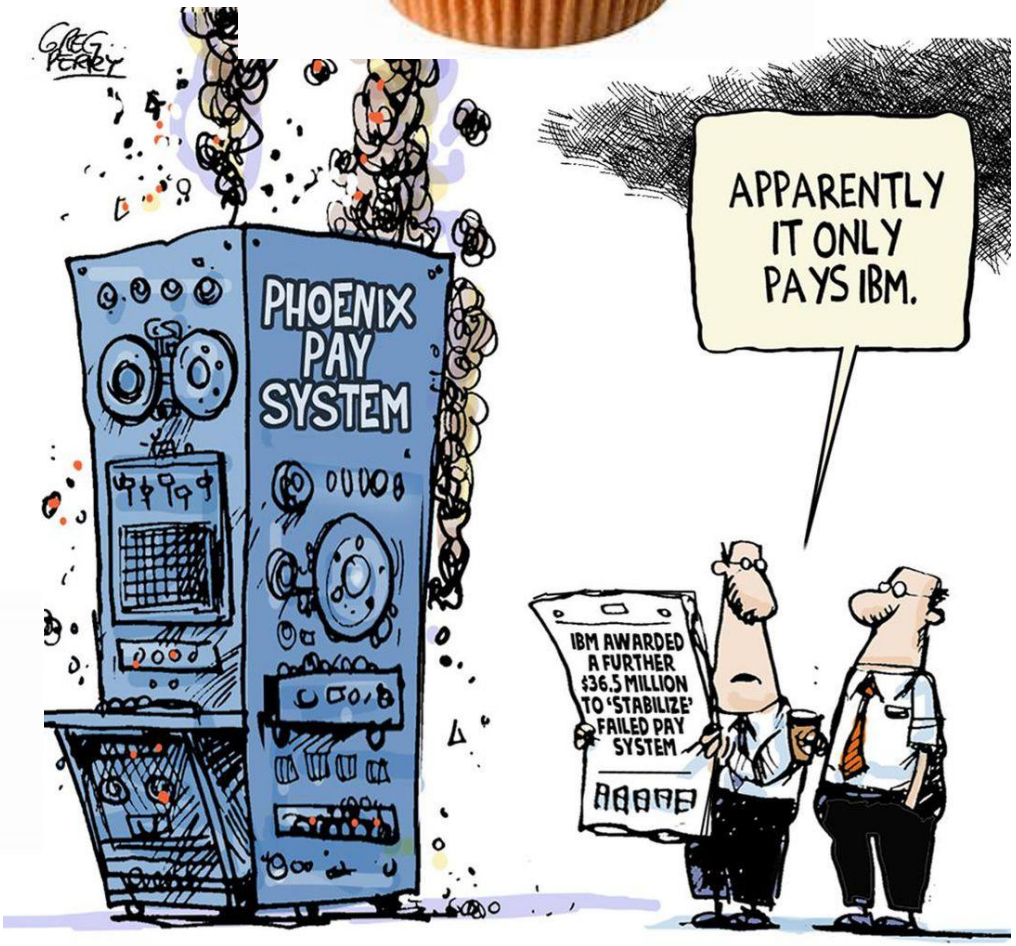
Or Answering some of the questions we often get!

- Why do you make it so hard to sell to healthcare?
  - Or Why can't I just buy what I want?
- My product may cost more, but it saves improves quality. Can you purchase it?
- I have an idea – can we work on it together?
- I have a new product – how do I sell it to healthcare?
- Why won't anyone purchase what I have?
  - But, my product is the only one, unique, the best
- Our company has developed new IT technology\AI\an app – how can you use it?

How did we get here?

CANADIAN
FREE TRADE
AGREEMENT

ACCORD DE
LIBRE-ÉCHANGE
CANADIEN



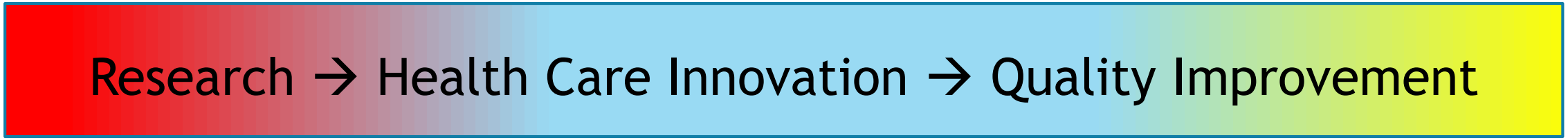
Why does it seem to be so hard to sell to health care?

- Regulations
  - Broader Public Sector Accountability Act
  - Trade agreements (NAFTA, CEETA, Canadian)
  - Implications to hospitals for not following
- Maximize the **value** received from the use of public funds
- Ensure fair, open and transparent process with equal access to all
- 5 Key principles
  - Accountability, Transparency, Value for Money, Quality Service Delivery, Process Standardization
- How do we do this **and** support innovation?

Is procurement all about price?

- Traditional Procurement – lowest price
  - Relatively easy to evaluate and select “lowest cost bid”
- Current - value based procurement
  - Harder to select – need to define value (Quadruple aim)
  - Can take longer to create a contract – do you need to prove value
  - Can still be handled through typical RFX process
- Innovative Procurement
  - Define need, let market identify solution
  - Includes alternate procurement steps (Competitive Dialogue, Innovative Partnerships, …)
    - Requires investment from vendors with no guarantee of market
  - Can be resource intense – health care cannot do all procurement through this

How an Idea becomes a Product



Data Request *

Research Approval

Pilot Projects** Agreements

Competitive Dialogue

Innovation Partnership**\ Procurement

Formal Procurement Required

Provincial\Regional RFP

Local RFP

Limited Tendering Approval

No Commitment to Purchase

Resource Investment

Decision to Purchase

Resource Intensive

Standard Process

* Data may not be available or not shareable due to privacy or business concerns

** Pilots\Partnerships involving intellectual property creation or revenue sharing will require legal review

What do I do if I have a new product or service?

- Ensure you meet federal or provincial requirements
  - Health Canada approval
- If product not competing on price
  - Clearly be able to articulate value
  - Ensure value means something to hospital
  - Perverse system where local cost savings or increased volumes may not result in overall savings for a hospital
  - Consider how product or service will scale – you need to plan to compete nationally\internationally
- Piloting may be possible
  - No guarantee of purchase
  - Hospital may not be able to support resources
- Think about national\international markets

Why isn’t KHSC purchasing my product\service?

- The majority of hospital procurement is through Group Purchasing Organizations (GPOs) and shared with other hospitals
  - Provincially, partner with Mohawk Medbuy Corporation*
  - Locally – 6 hospitals through 3SO
- Most items are under multi-year contracts
  - Purchasing off-contract may be limited
  - Creates issues with managing
- Generally, you will need to participate in some form of competitive procurement

*** MMC has Innovation Program for established products**

But my product is unique – why do you to go through this bureaucracy?

- Procurement rules permit “Limited Tendering” only under defined circumstances – e.g.
  - Procurement process only results in one qualified vendor
  - Solutions where only one vendor can provide (e.g. system maintenance or parts following procurement)
  - Time issues due to unforeseen (not unplanned) circumstances
  - Some intellectual property provisions
- Limitations do not include
  - Location (i.e. local vendor)
  - Timing issues due to lack of planning
  - Previous relationship\research\pilot

Our company has developed new IT technology\AI\an app – how can you use it

- IT\systems procurement follows the same rules as other items
- Province starting to create Vendor of Record lists
- Requirement to integrate with, interface to or act in synergy with key hospital systems
  - SAP for Business and Human Resources functions
  - Eventually Cerner for health records information
    - 6 hospitals in southeastern Ontario have just commenced implementation of a shared Cerner system
- Privacy and Security risks for technology will be a concern

Procurement Wrap-up\Advice

- Health care procurement is highly regulated and can be seen as a deterrent to innovation
- Focus on value you can bring and how that solves a real problem
- Understand that resources will be needed prior to procurement and investment of resources may not result in procurement
  - Hospital has limited resources to support
- Think Provincial\Nationally\Internationally
- Feel free to call – we'll try to help
  - Just understand that we didn't make the rules ☺

Question period

- What ideas does this inspire about opportunities that:
  - Leverage our strengths,
  - Align with KHSC's reality and innovation priorities,
  - Ensure we're addressing real problems in the hospital and health-care setting.
- What resources do we have/what support do we need to assist entrepreneurs and businesses to get nascent innovations ready for pilot/procurement into the hospitals?
- Are there ideas we can develop that will address hospital challenges, but be implemented outside of hospital in community?
- What is the best way for businesses and entrepreneurs to connect with the hospital to keep abreast of opportunities for innovation?

What we've heard

- The current health-care environment
  - Pandemic response, rapid system transformation, digital health, hospital redevelopment
- Innovation priorities
  - 21st century interventional medicine, new frontiers in integrated care, next generation tertiary care, digital health, machine learning, artificial intelligence, novel business models & procurement
- Wicked problems
  - Pandemic recovery, surgical wait list, staffing shortages, etc.
- How to prototype, pilot and/or sell your innovations into a hospital setting
  - Focus on value. Solve real problems.

There’s lots of support in YGK!

Queen’s University
Partnerships and Innovation

Dunin-Deshpande Queen’s INNOVATION CENTRE

KINGSTON ECONOMIC Development Corporation

HI YGK health innovation

Innovation Hub at St. Lawrence College

Queen’s UNIVERSITY | FACULTY OF HEALTH SCIENCES

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