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**The Future of Care Today**

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# Healthcare's Digital Future Creating a Better Tomorrow

**H+**  
HUMBER RIVER  
HOSPITAL

The Future of Care Today



## Vision

Exceptional care

Healthier community



## Mission

Working together to  
deliver innovative and  
compassionate  
healthcare in our  
community



## Values

Compassion

Professionalism

Respect

# HRH Strategic Plan



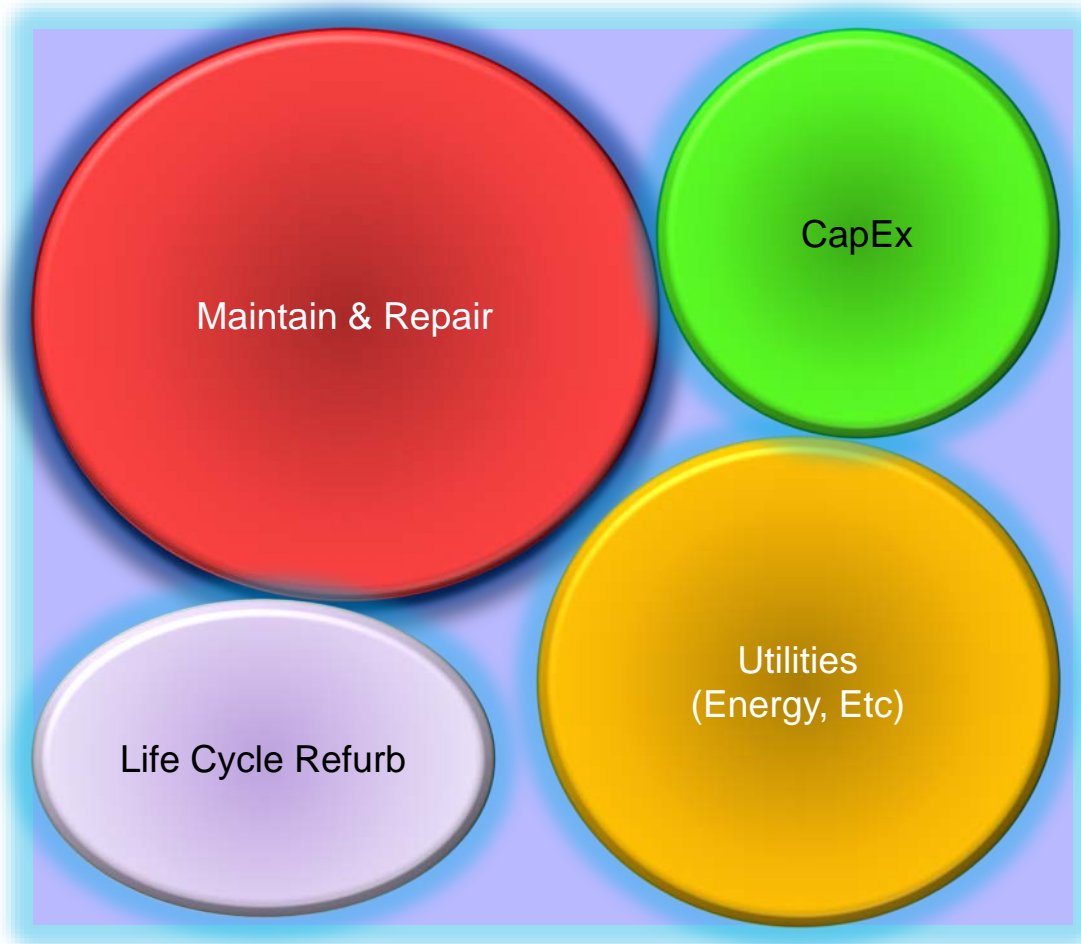
# About Humber River Hospital

- North West Toronto, Ontario
- Central LHIN
- Catchment Area of 850,000
- Diverse high-needs community
- Providing service on three sites
- Three outdated facilities within ten-mile radius
- New facility opened October 18, 2015
- 690 Physicians
- 2,900 Clinical staff
- 1,100 Ancillary staff
- 1,109 Volunteers



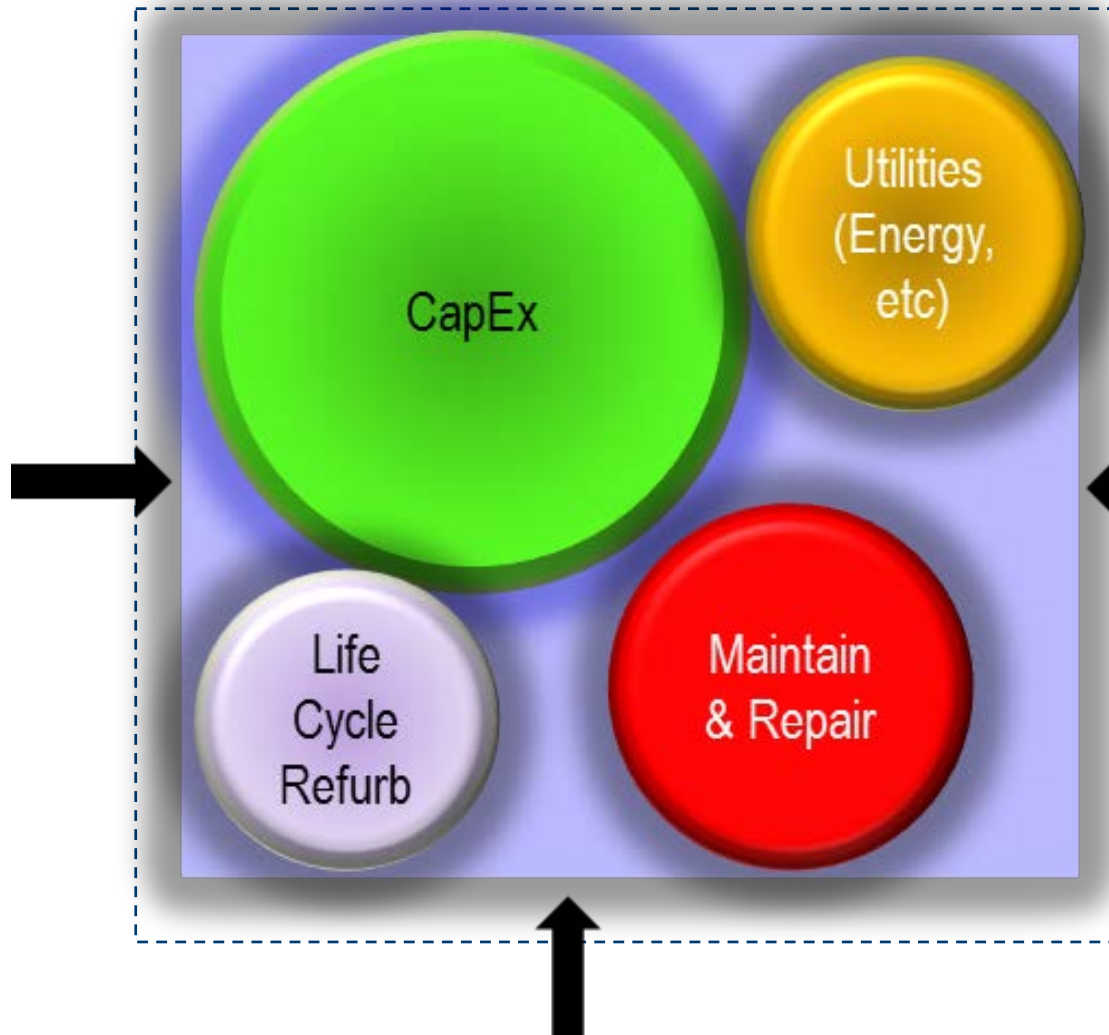


## Value Proposition in Traditional Build



- All aspects of Facility costs should be considered
- Decisions in one cost category will impact the others
- Driving down construction costs can have an adverse impact on long term costs


## Value Proposition in DBFM



- Long term “Whole of Life” costs instead of first cost construction
- Good decisions during design process consider Value for Money and best investment approach
- Results in lower whole-of-life facility cost (the “box” is smaller)
- Provides outcomes that are guaranteed
- Financing returns are vehicle for Sponsor to enforce the guarantees



## CHALLENGE

A photograph of a female doctor with dark hair, wearing a white lab coat and a stethoscope, smiling warmly at an elderly patient with short, wavy grey hair who is seated in a wheelchair. The background is a bright, out-of-focus hospital setting.

**Deliver enhanced care in a larger facility with more beds and increased patient visits with same operating budget... while creating staff engagement and high patient satisfaction**



# Humber River Hospital

## Wilson Site – Opened October 2015



**656 BEDS**

**Single patient rooms**



# Humber River Hospital

Wilson Site – Opened October 2015

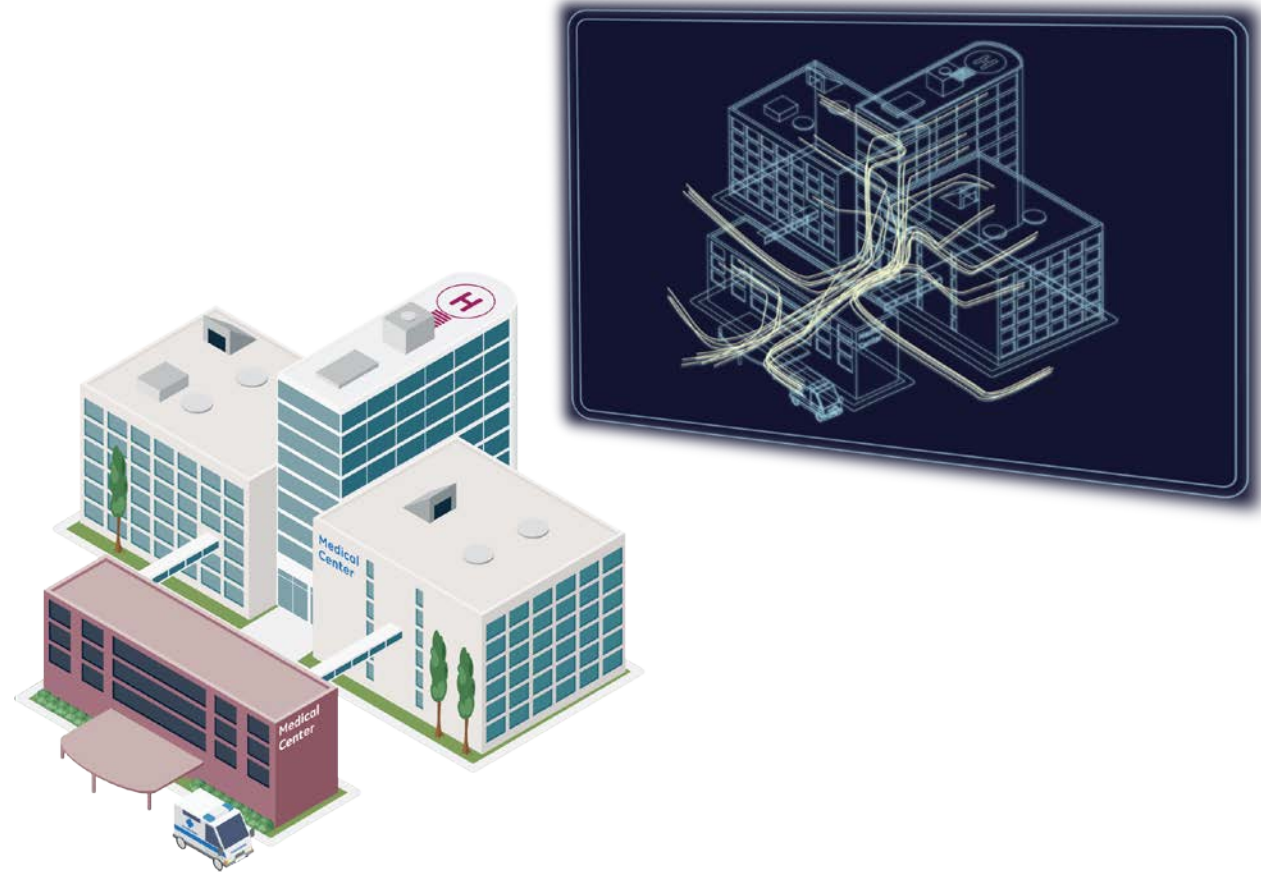


**656 BEDS**

**Bariatric Compliant Design**

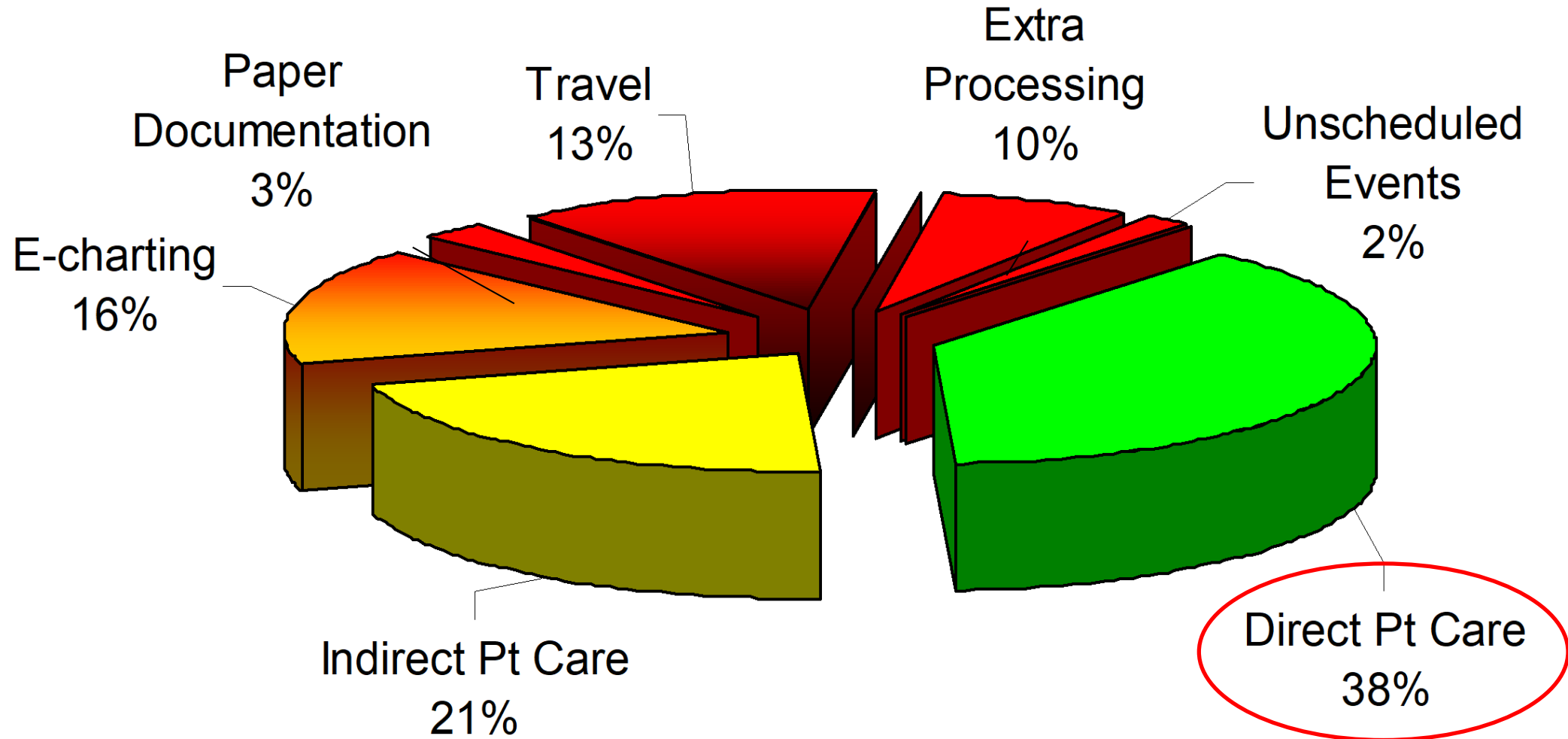
# H+

## Test Future State Flow with Digital Twin



# Current Process & Technology

Too little time with the patient . . .





# Travel Distance = 'Sneaker Time'

## Building Area

**Legacy Site:**  
**86,000** SM

**New Hospital**  
**169,863** SM

## 12-Hour Shift

**5.4** km

**11.6** km





# Many Ideas for how to respond to the data....



*Andy Day from GE Healthcare, one of the world's leading lean process design firms, with Humber staff.*



426 Ideas in response to Work Flow Mapping



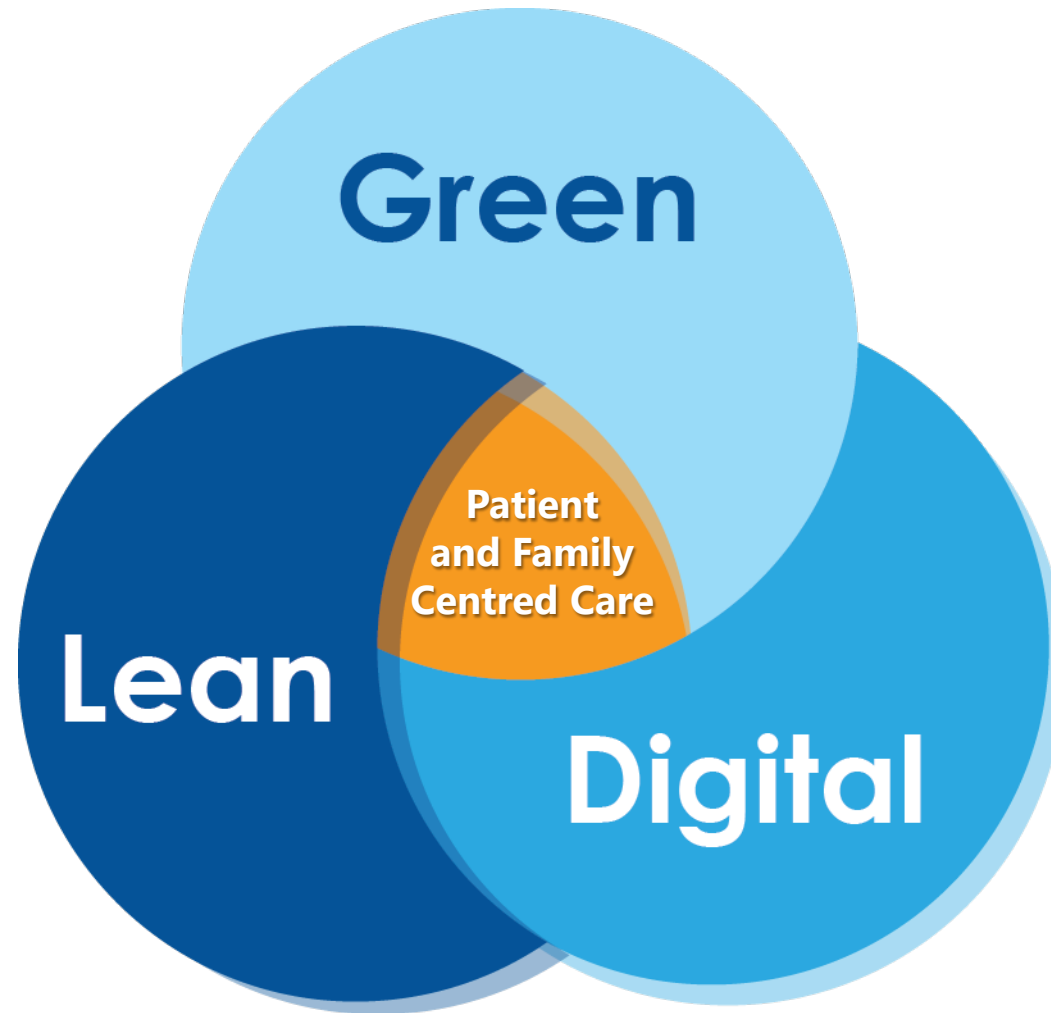
**Sneakers and Post-it notes!**

# At the same time, new opportunities are emerging

- Patients are more connected to knowledge and are more demanding consumers
- The world of IoT is creating useful devices
- Virtual care is emerging as effective and practical
- Artificial intelligence is arriving



# Built for High Reliability



# Conceptual Architecture



# HRH Digital Vision



> Digital Information



> Mobile Connected



> Patient Empowerment



> System Automation

# Key Architecture Objectives

- **Information is readily available** by many simultaneously, contributing to collaboration and sharing of knowledge
- **Information is actionable** contributing to workflow automation and better decision making
- **All systems are IP based:** charting, biomed, diagnostics, robotics, building, etc.

## ➤ Digital Information



## ➤ Mobile and Connected



## ➤ Mission Critical



## ➤ Interoperability



# Key Architecture Objectives



- People can:
  - Access and create relevant information anytime, anywhere!
  - Communicate and collaborate with other people instantly, conveniently and respectfully!
- Systems connect with people to drive performance, quality and safety



> Interoperability

# Key Architecture Objectives



- All systems must be operational 100% of the time
- Information must be available for at least 7 years
- People must be able to deliver care 100% of the time



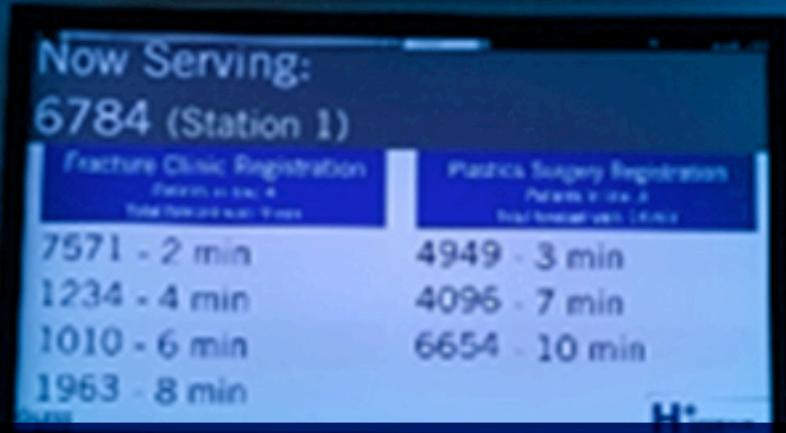
> Mission Critical

# Key Architecture Objectives



- > Systems must work together in order to deliver a more effective business outcome
- > Systems must allow for the exchange of information to:
  - > Drive action
  - > Inform people
- > Interoperability

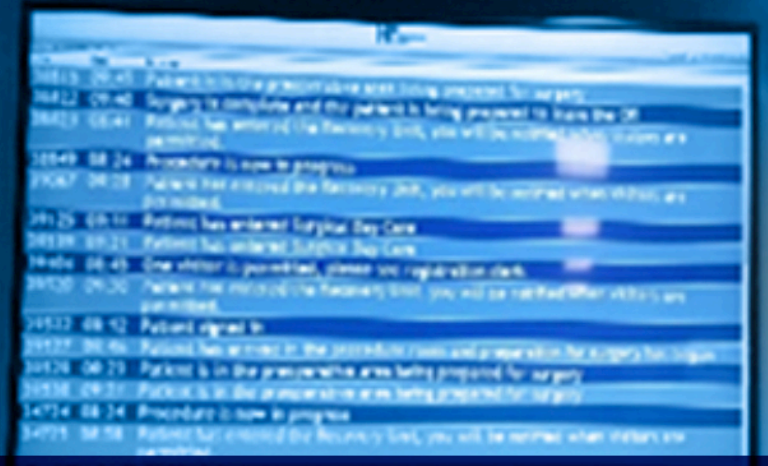
# Interoperability Devices in Use Every Day



> Virtual Queuing



> Integrated Bedside Terminal



> Patient Flow in Surgery Steris RealView



> Room Sign Monitor



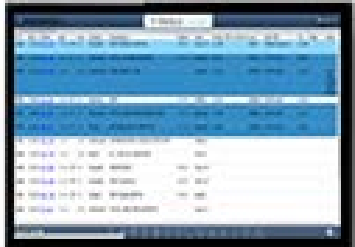
> Notification Manager



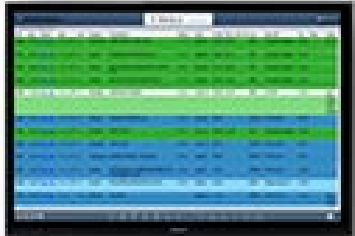
> Porter - EVS Application

# Perioperative Workflow Management Software

## Real Time Communication of Important Events



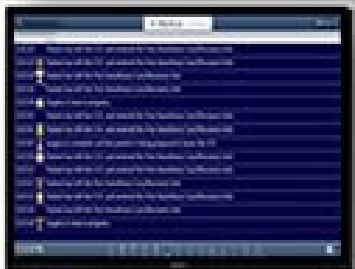
OR Management and Control Desk Updates



Physician Schedule, Auto Notifications



Patient Family Updates



[Messages](#) **PeriopSteris@hrh.ca** [Details](#)

(Subject:Family Message Update for Cas...) Update: Procedure is now in progress  
Update At: 04-Feb-2016 11:11:11

The information transmit

Yesterday 1:41 PM

(Subject:Family Message Update for Cas...) Update: Patient has entered the Recovery Unit, you will be notified when visitors are permitted

[Messages](#) **PeriopSteris@hrh.ca** [Details](#)

(Subject:Family Message Update for Cas...) Update: One visitor is permitted, please see registration clerk.  
Update At: 04-Feb-2016 16:49:

(Subject:Family Message Update for Cas...) Update: Patient is resting comfortably in SDC. Family can come in to visit patient  
Update At:

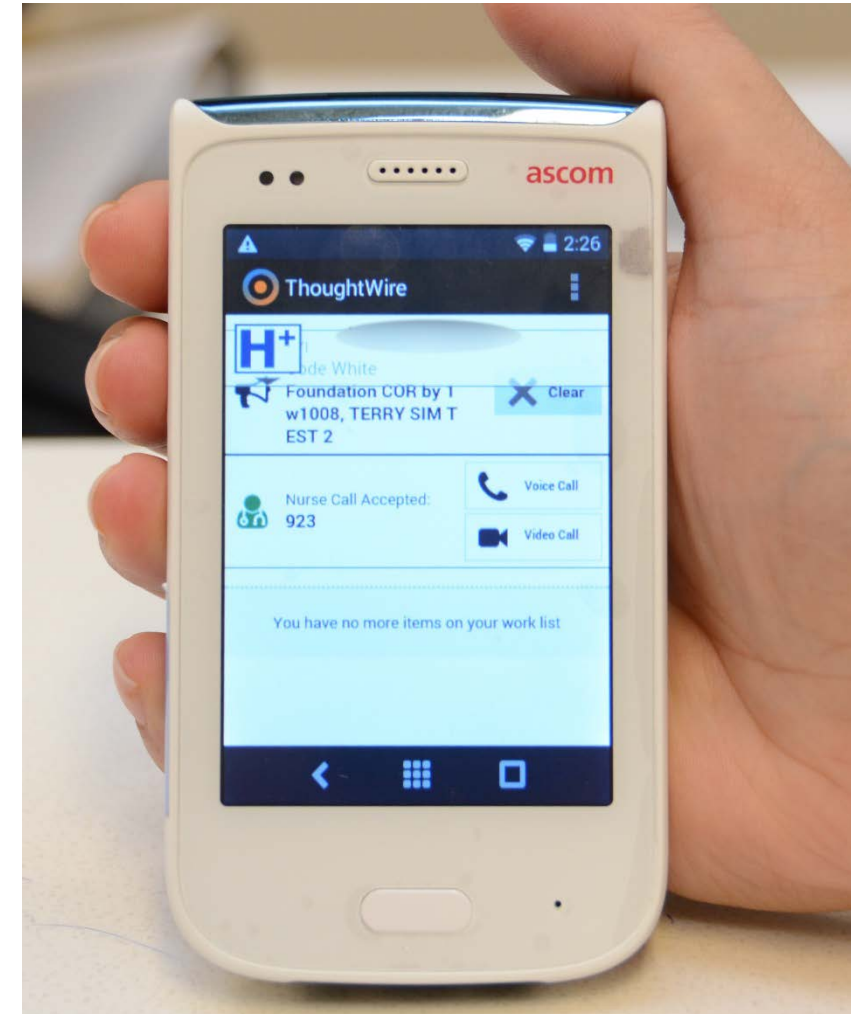
Yesterday 7:02 PM

(Subject:Family Message Update for Cas...) Update: Patient has left the Surgical Services area  
Update At: 04-Feb-2016 19:00:30

# Being Connected – **Systems to People**

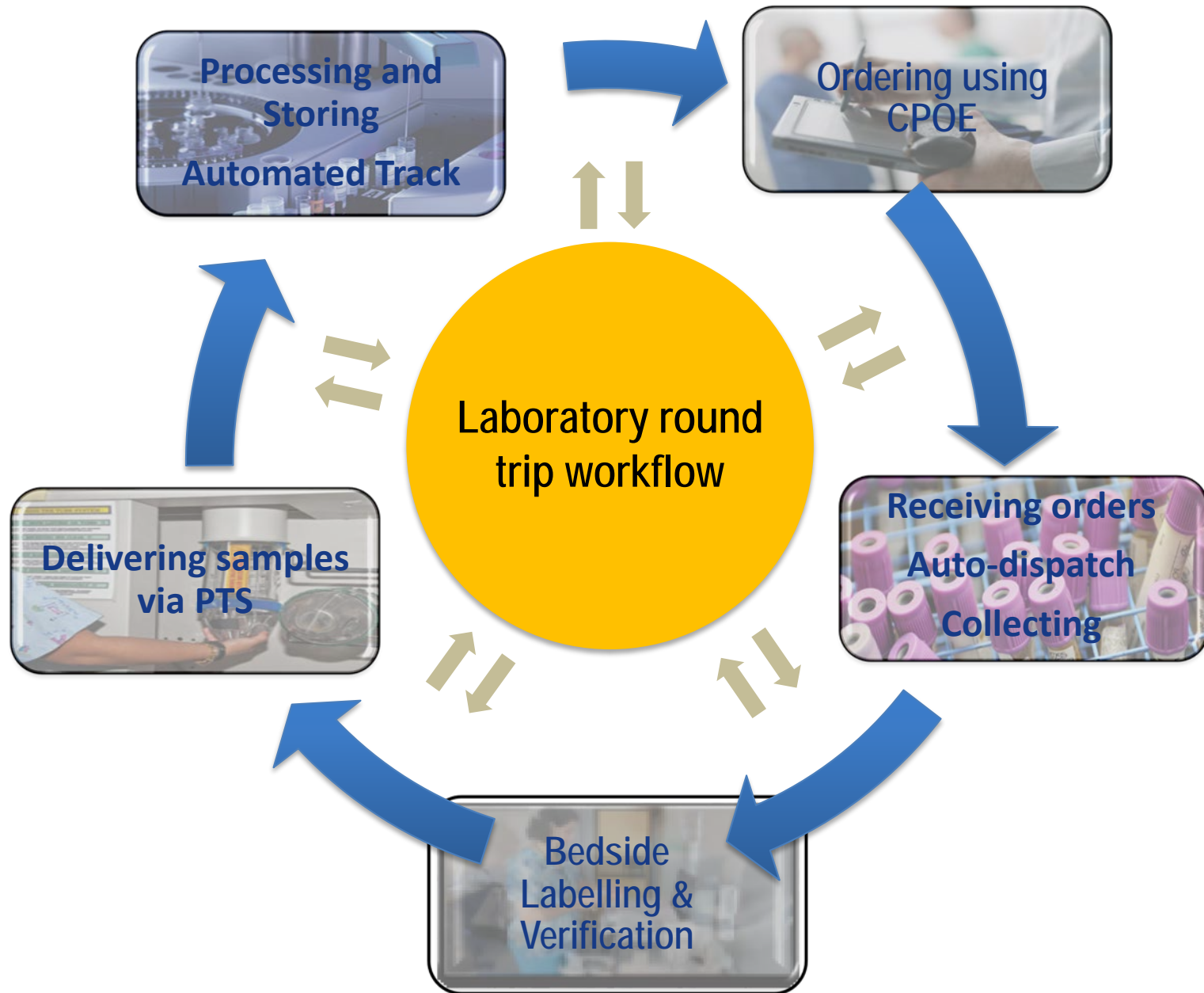
- **Connects patients with people**
  - Nurse assist
- **Connects systems with people**
  - Critical lab results
  - Rhythm Strips
  - Code blue/pink/white
  - Building system alarms
  - Special Purposes Alarms

Fridges / Freezers	Medical Gases	Dialysis RO
Isolation and Negative Pressure Rooms	Wandering Patients	Infant Abduction
Assets	Low Battery	



# Automated Guided Vehicles to Support Supply Chain Automation





# Laboratory Automation



# Laboratory Automation





# Pharmacy Automation





## Real Time Locating System

We have deployed an RTLS that supports:

- Tracking of patients for:
  - Patient Wandering
  - Infant Abduction
  - ED Tracking
  - OR Management
- Code White or Duress
- Communicating who is in a patient room
- Tracking of staff for various productivity gains
- Tracking of assets to simplify searching

The RTLS provides:

- 100% coverage
- Location to the nearest room



# Results . . .

## Old Inpatient Unit

34 Bed Unit

11,100 SF

1 Nurse to 5 Patients Staffing Ratio

326.5 SF / Bed

## New Inpatient Unit

32 Bed Unit

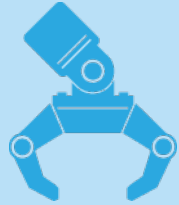
28,000 SF

1 Nurse to 5 Patients Staffing Ratio

875.0 SF / Bed

With a result of a **168%** increase in SF/Bed with no increase in nursing staff

# FTE Transport of Products – Reduction

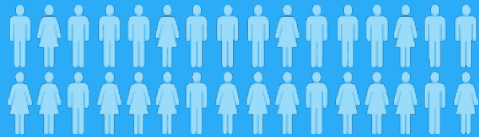


**84.2% Automation**



**164.8 km/day**

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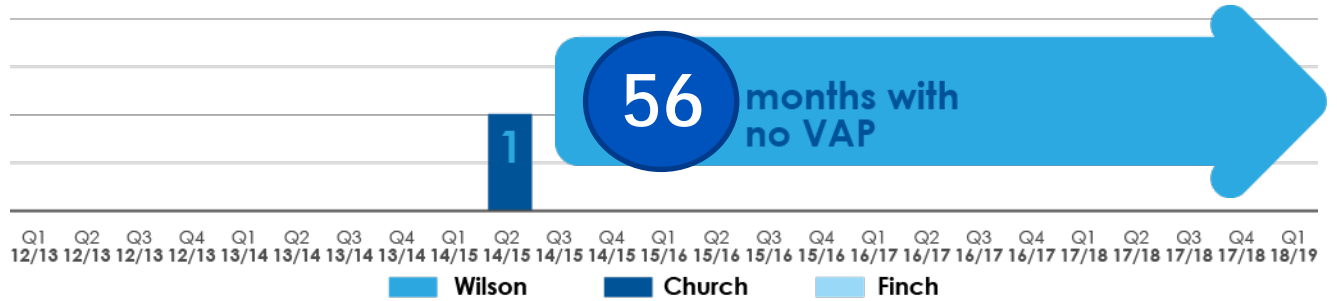
**24.6 FTE**

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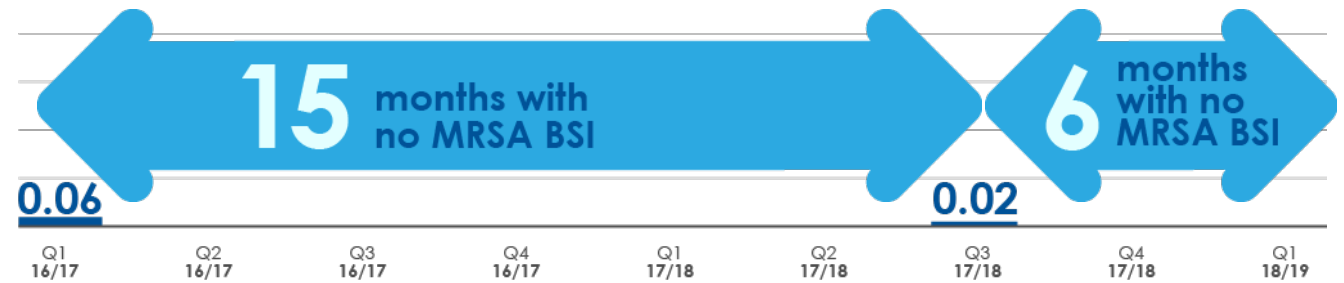
**\$2,500,000 Annual Savings**

# What Are We Most Proud of?

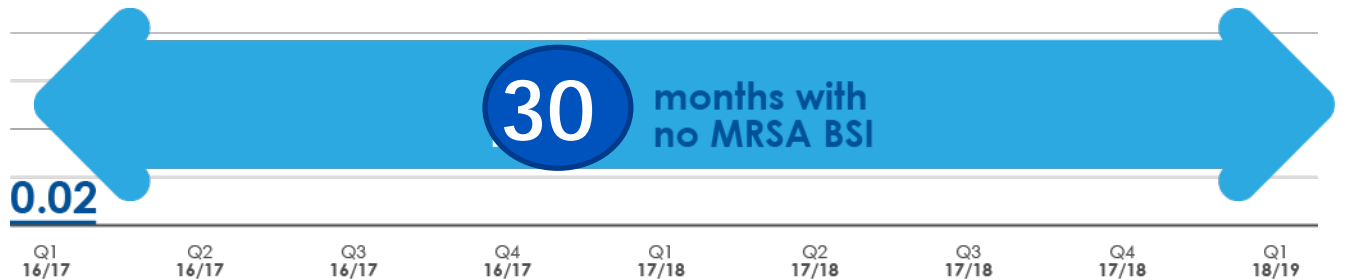
HRH Ventilator-Associated Pneumonia Rate Critical Care Units per 1000 ventilator days  
2012 – YTD. Target – “0”



HRH Hospital-Acquired MRSA Bacteremia per 1000 patient days  
Q1 2016/17 – YTD



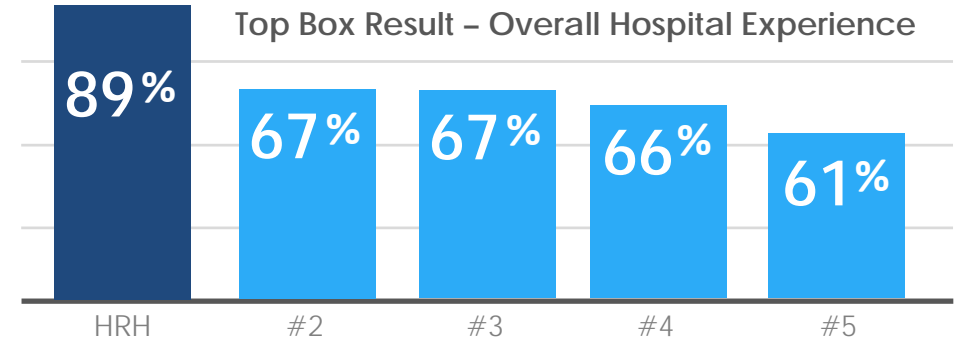
HRH Hospital-Acquired VRE Bacteremia Rate per 1000 patient days  
Q1 2016/17 – YTD. Target – “0”



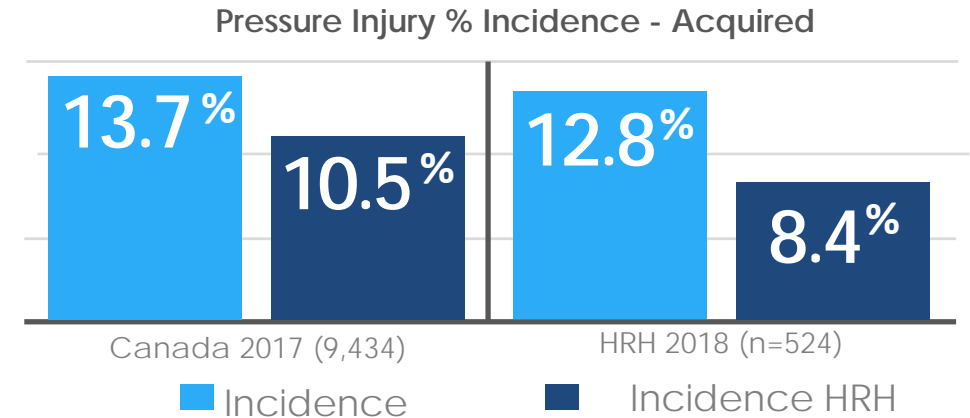
# Humber River Hospital Results



Best hospital experience  
CLHIN



HRH % incidence of Pressure Injury is lower than Canadian % incidence

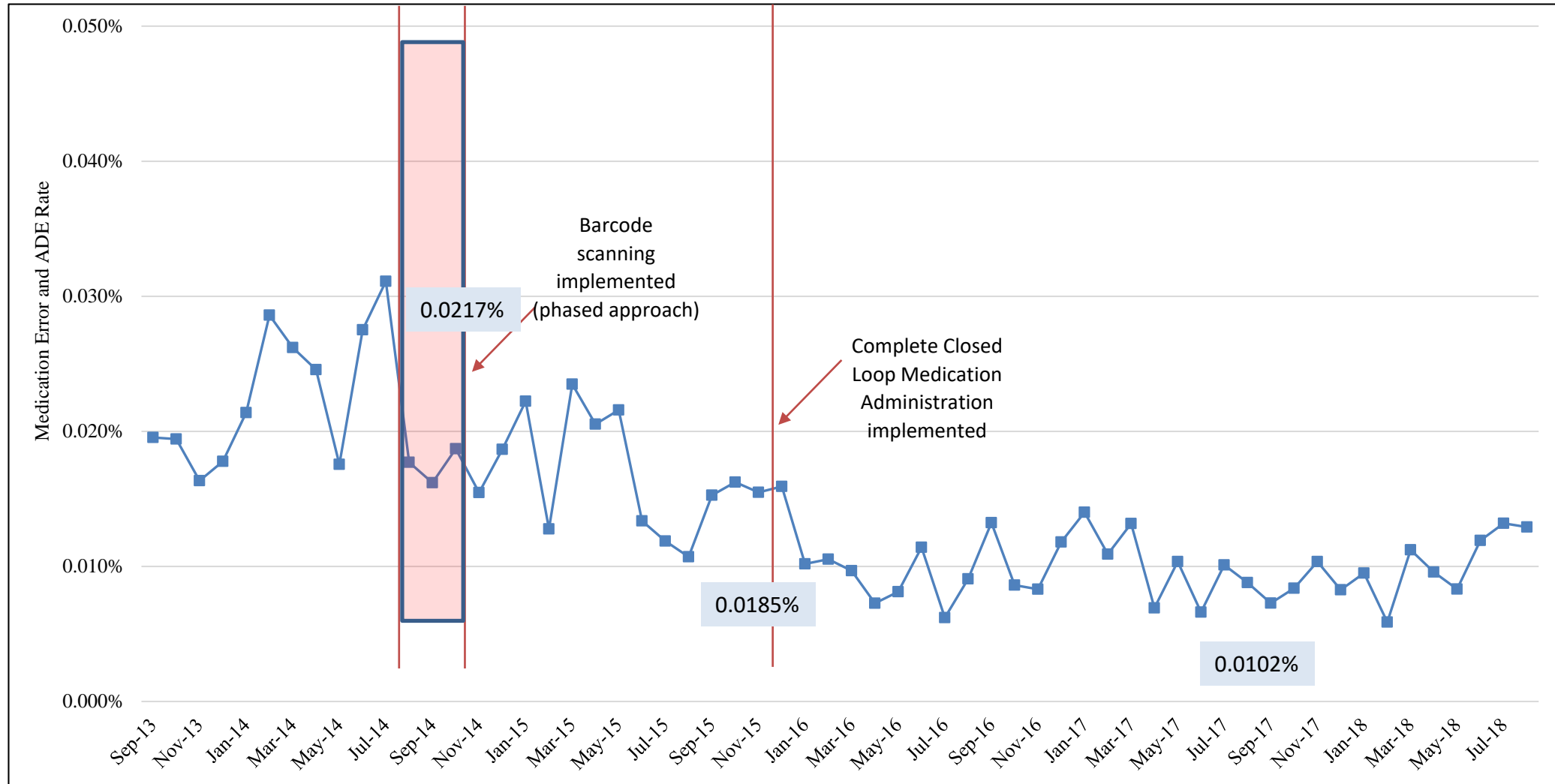


**3.3M** Doses of medication administered in 17/18

Medication error rate was **0.007%**

Comparison rate of 2.5% - 3.5% in the literature

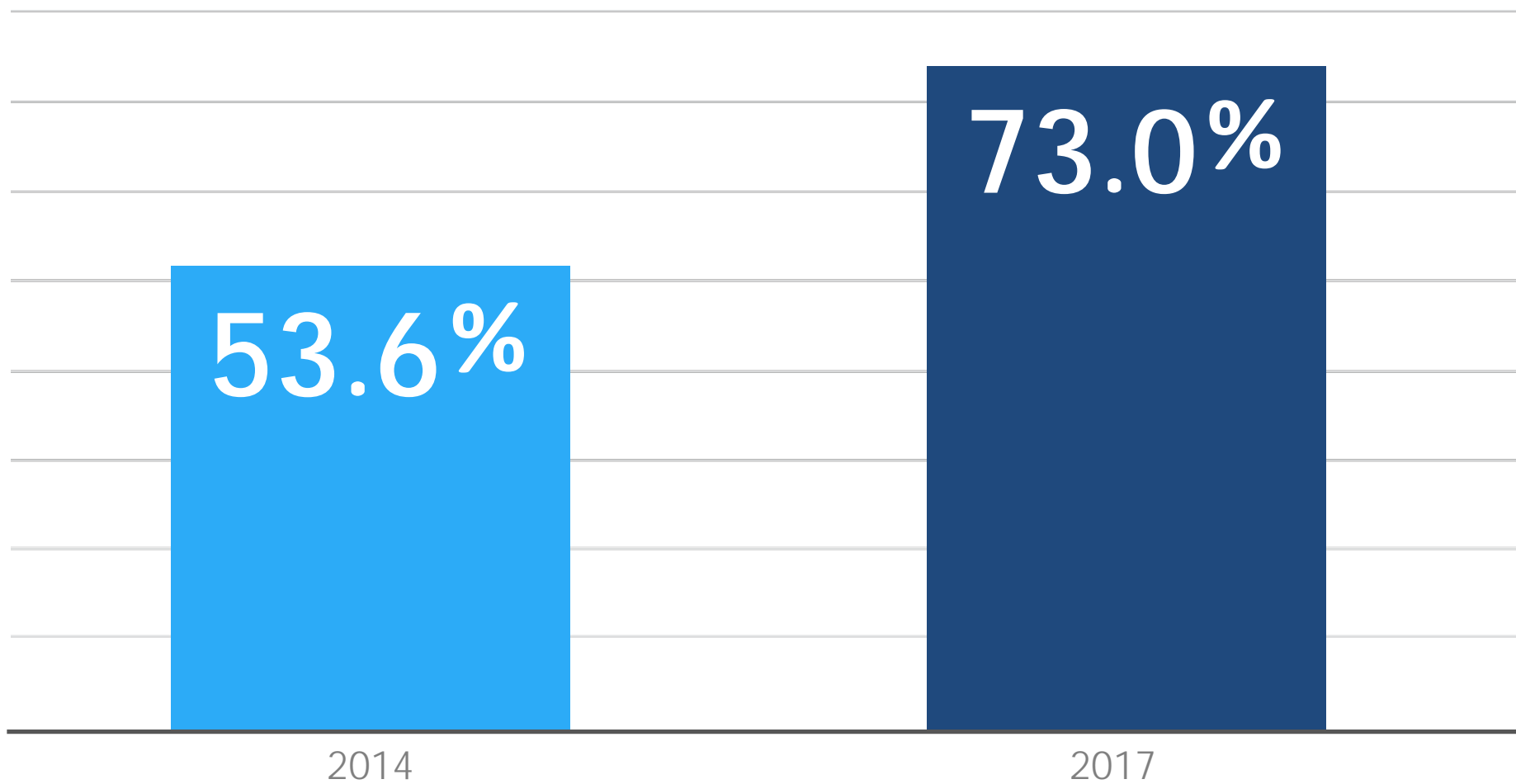
# Research Results



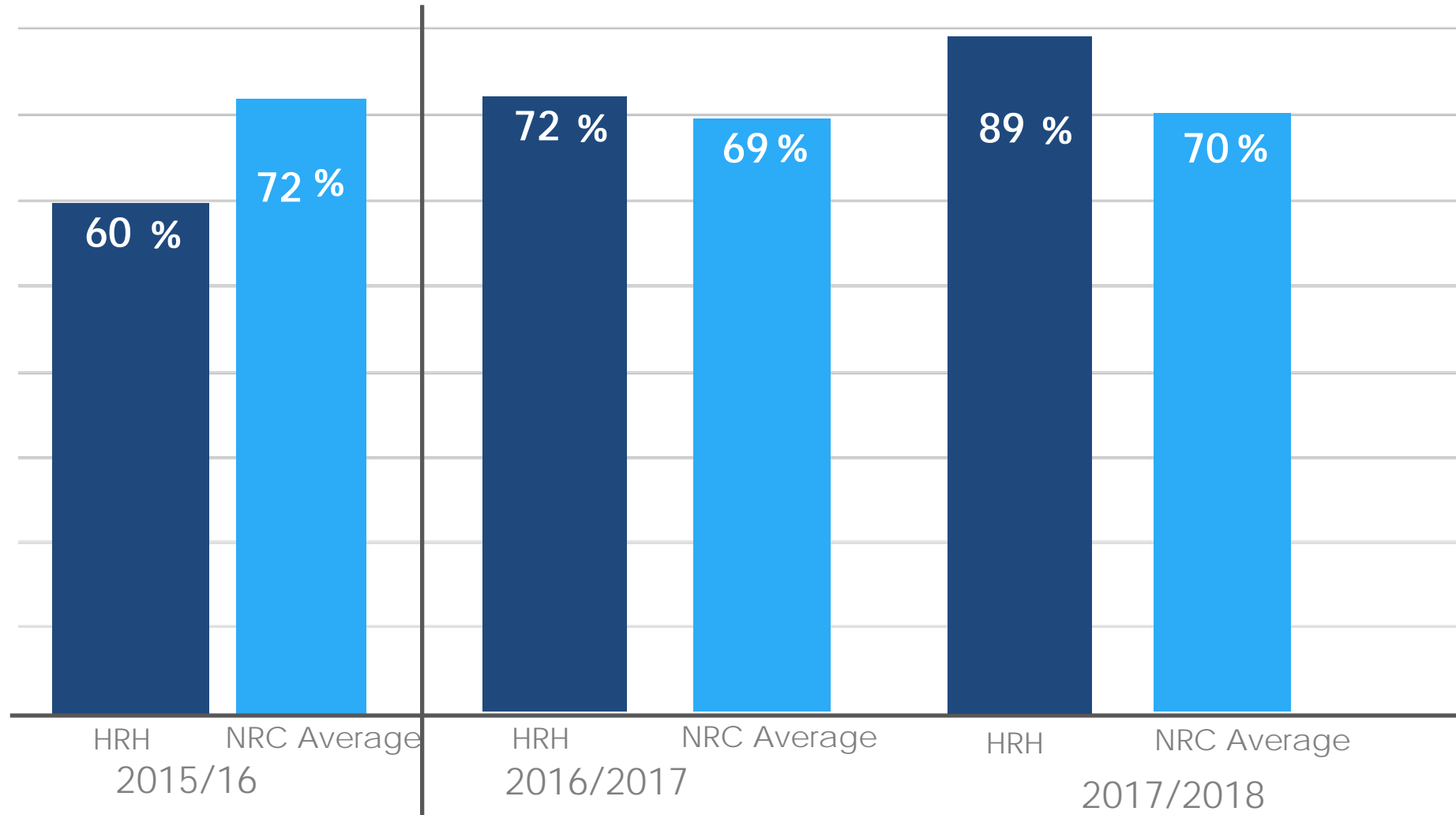
# HRH Outcomes

- 2017/18 – 3.3 million doses of medications administered, and a 0.007% error rate
- Innovative Leading Practice for a “Closed Loop Medication System” by the Health Standards Organization (HSO)
- Innovative Leading Practice for a “Using Robotic Admixture to Improve Patient Safety and Reduce Wait Times” by the Health Standards Organization (HSO)
- Innovative Leading Practice for a “Barcode Verification for Medication Preparation and Traceability Using In-house Developed System ” by the Health Standards Organization (HSO)

# Humber River Hospital Employee Engagement



# Humber River Hospital Patient Satisfaction 2015/16 – 2018/19





# Initial Award – Prior to Appeal

**99.9% compliance with  
2800 standards**

**100% compliance  
with 30 ROPs**



# Energy Saving Initiatives



Building orientation

Dynamic Glass

Intelligent design for the HVAC systems to use redundancy and outside air as an energy advantage

Intelligent lighting design and control system

100% fresh air with temperature control by building automation system for occupancy, season and time of day.

World class energy and water savings in a building that offers better comfort, infection control and flexibility

# Results . . .

## Energy

### Cost

\$223,124,436

over 30 years

\$7,437,481

Average cost / year

### Savings

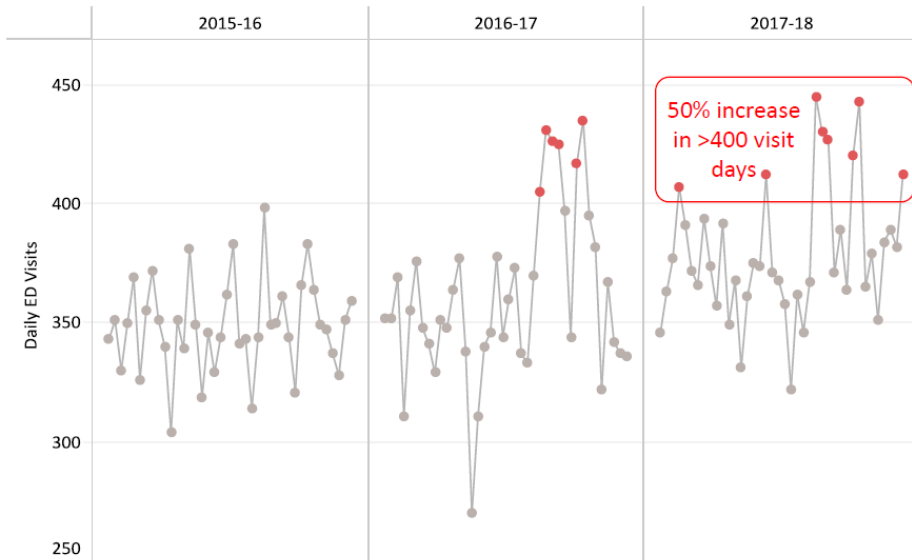
\$89,149,077

41.8%  
over 30 years

Reduction  
\$2,974,992

Average savings / year

Humber River Hospital | Daily ED Visits December 1st to January 9th



Medicine projected to be 44 beds underwater by 2020 if trends continue

Program	Physical Beds Available	2016 "Beds Used"	Target (2016) Occ.	Y4 Beds Needed	Y4 Beds Needed w/ Improvement	Y4 Beds Needed w/ Improv. & Surg Smoothing
Medicine	331	331	93%	375 (-44)	335 (-4)	335 (-4)
Surgery	128	110	90%	125 (+3)	116 (+12)	109 (+19)
ICU	48	42	85%	48 (0)	45 (+3)	45 (+3)
Mental Health	64	58	91%	63 (+1)	62 (+2)	62 (+2)
Mother & Child (excl. NICU)	64	48	85%	54 (+10)	54 (+10)	54 (+10)
Rehab	21	19	90%	23 (-2)	22 (-1)	22 (-1)



# The Canadian Health System

## QUALITY OF CARE: Readmissions



1 in 11 patients is readmitted within a month of leaving hospital

Readmissions to hospital cost more than



\$1.8 billion a year in Canada

Risk of returning to hospital



20% HIGHER in poorest neighbourhoods than in richest neighbourhoods

## QUALITY OF CARE : Harm



Harm experienced in 1 of every 18 hospitalizations

## SPENDING: Cost of Care Per Person

Total health spending (public + private) in Canada



\$209 BILLION in 2013

Age-Adjusted Public Spending per Person



\$148 BILLION a year

The average spending on someone age 80 and older is nearly



9x what it is for someone between the ages of 1 and 64

## SPENDING: Cost of a Standard Hospital Stay

Hospital care costs about



\$62 billion a year in Canada... making it the largest category of health spending

Breakdown of the biggest costs of hospital stays



Range of the cost of a standard hospital stay between teaching hospitals



depending on the hospital's specialty

Annual HC spend/person USA = \$10,345 CAN = \$6,299

# H+

# The Canadian Health System

66%

of reported medical errors identified ineffective communication as root cause

Ineffective communication has remained among

**Top 3** root causes of sentinel events

Estimated

**More than 25%**

of hospital readmissions could be avoided with better communication among healthcare teams and between providers and patients

**Over 25%**

of malpractice cases involving surgery were caused by a lack of thorough communication in some aspect of patient care

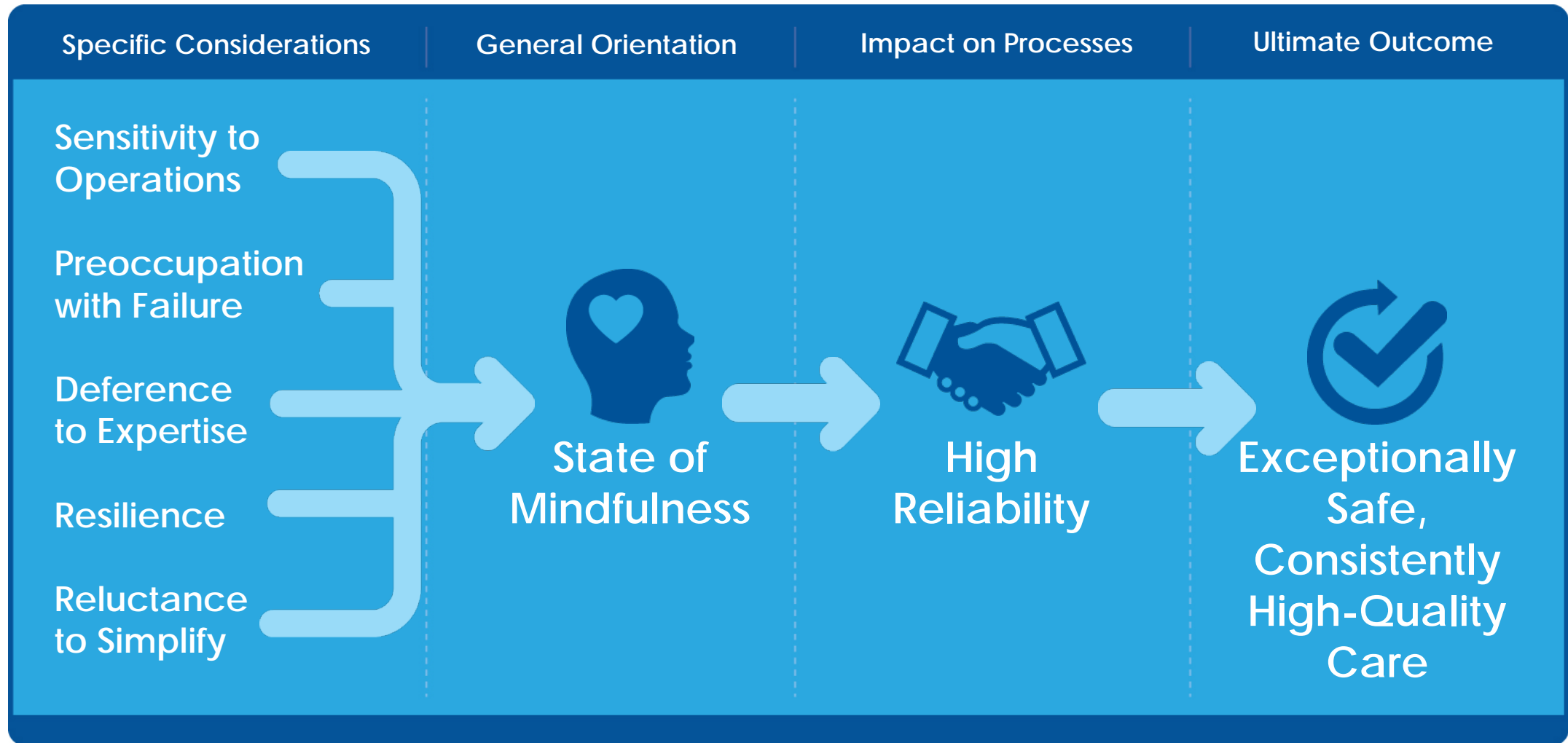
**At the same time....new opportunities are emerging**

- Patients are more connected to knowledge and are more demanding consumers
- The world of IoT is creating useful devices
- Virtual care is emerging as effective & practical
- Artificial intelligence is arriving



# High Reliability Care Ultimate Outcome...

Exceptionally Safe, Consistently High-Quality Care



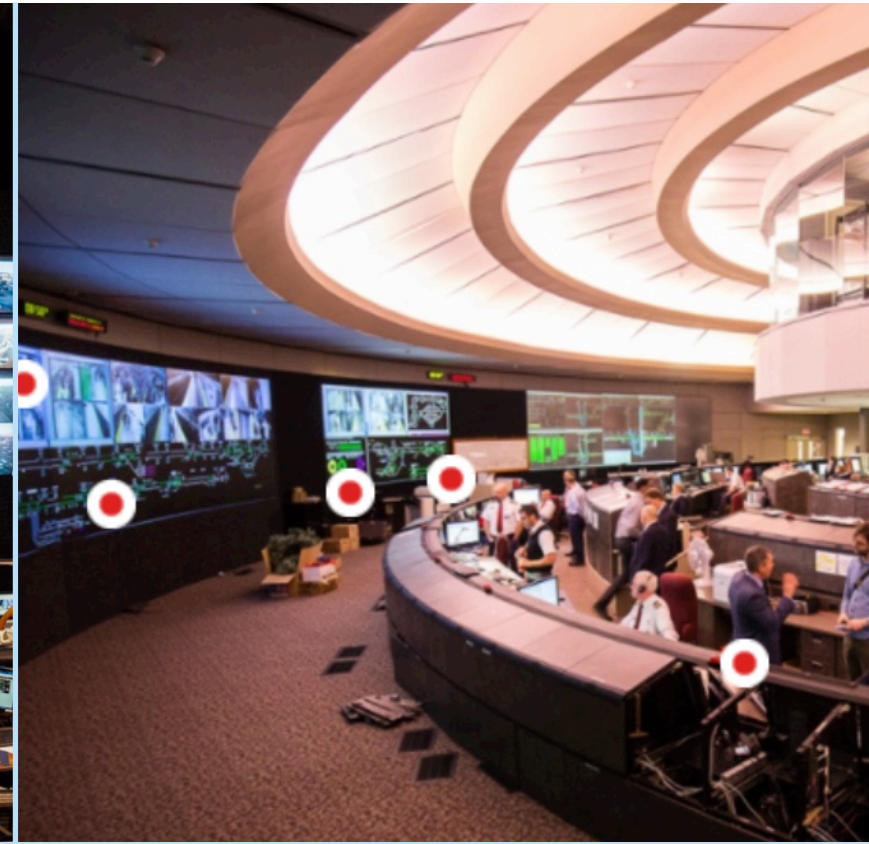
# Command Centres are common in other industries



NASA's New Mission Control - 2014



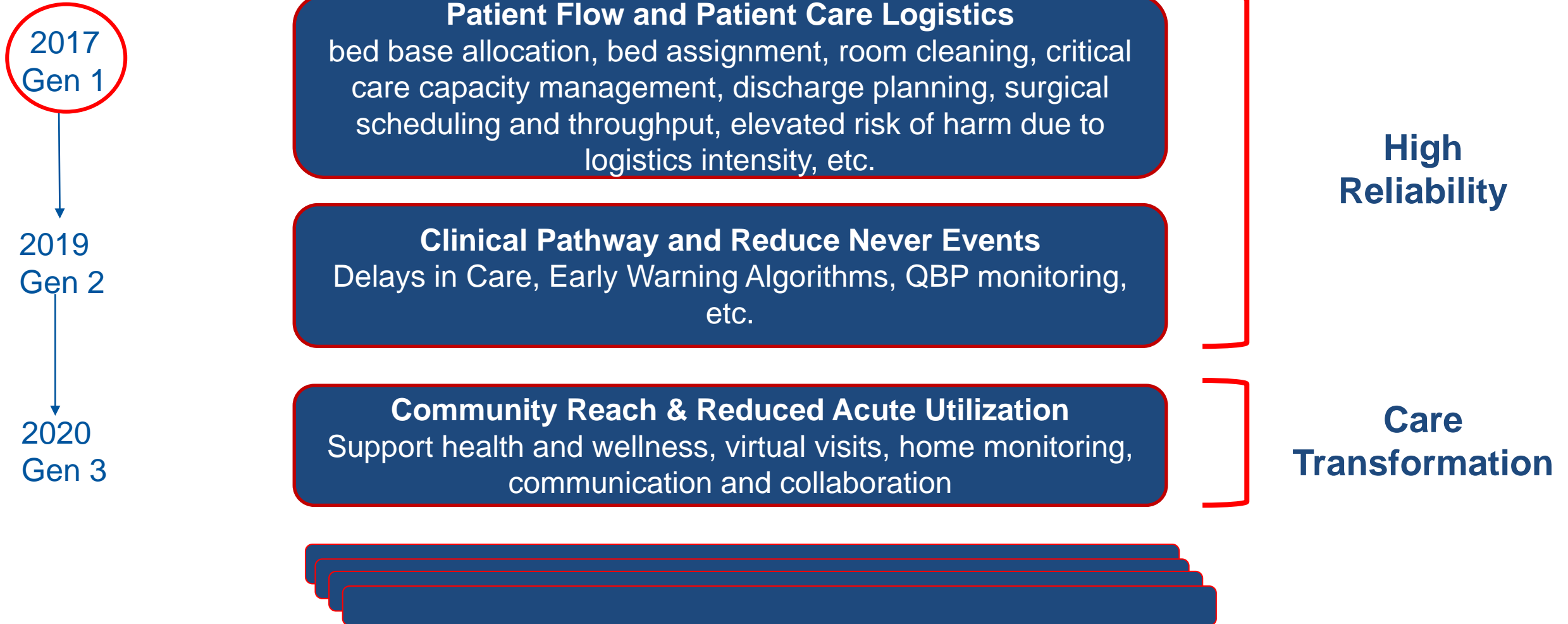
Rio de Janeiro City Command Center



Toronto Transit Commission Nerve Centre

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# Humber's multi-generational plan



# Command Centre – Mission Control Concept

## Centralized Decision-Makers

- › Centre of gravity for hospital ops
- › Right information to the right people
- › Quick, efficient decision-making

## Real-Time Intelligence

- › Real-time actionable intelligence
- › Custom analytics from existing systems
- › Predictive algorithms

## Action-Oriented

- › Every data point drives action
- › Serves as hub for op mechs
- › Centre for learning and continuous development



Provides a second-level support to care-givers: orchestrate, synchronize, expedite and de-risk in real time



Provides predictive, at-a-glance intelligence



Ensures sustainable process change

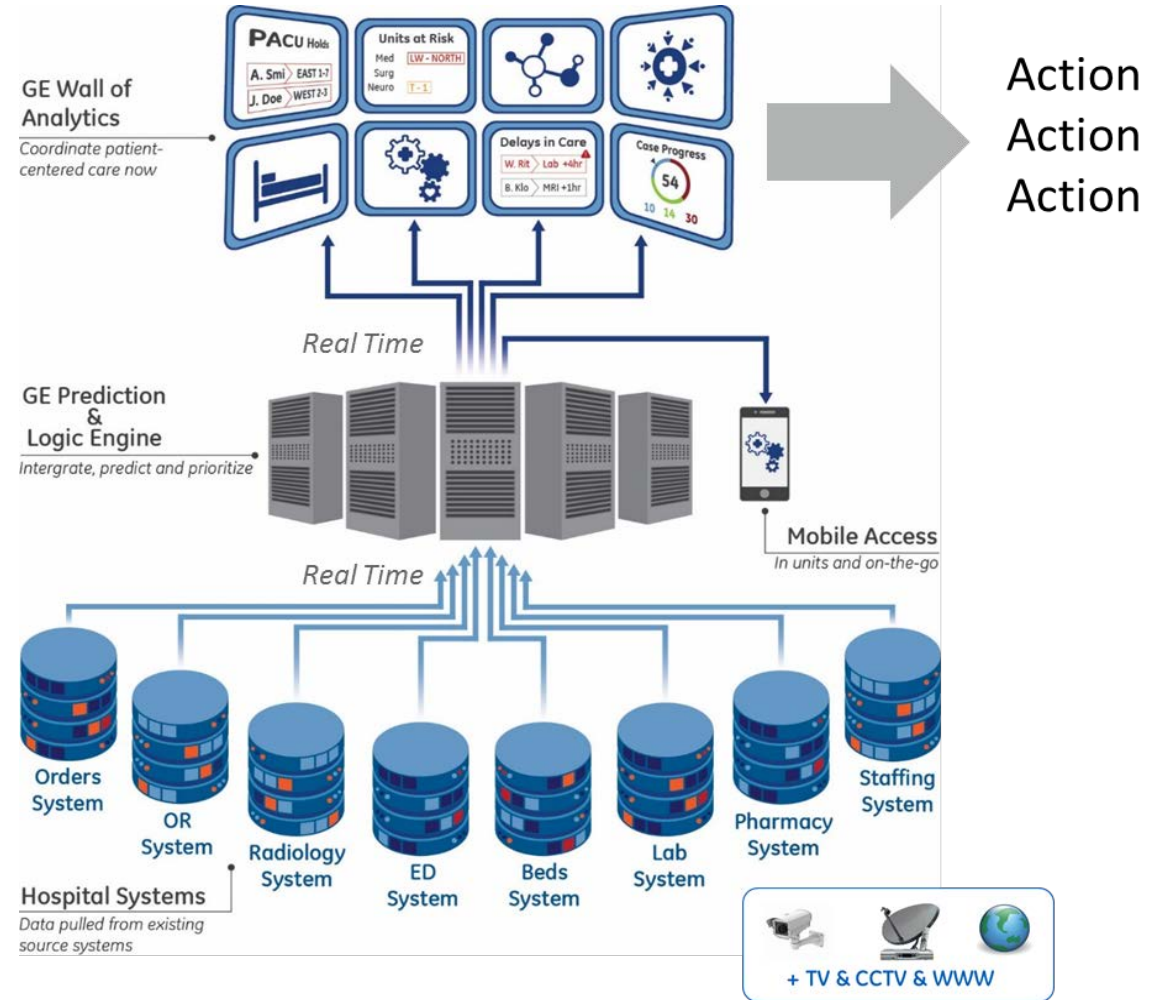
# Command Centre

Data from any source system viewed on the Wall, mobile devices, desktop

Real-time and predictive analytics powered by simulation, prediction, AI

Insights trigger defined procedures

Tiles and the Wall of Analytics™ are designed, specified, built, activated, monitored and maintained.





# Emergency Department Patient Flow

**Pressure Score** 168 **Total Boarding** 9

**O Zone**  
Census: 44, In Bay: 28, PIA Wait: 17, Occ: 60%  
CTAS: 0, 15, 24, 4, 1

**Sub Acute** Boarding: 3  
Census: 26, In Bay: 22  
PIA Wait: 11, Occ: 89%

**Acute** Boarding: 3  
Census: 8, In Bay: 8  
PIA Wait: 0, Occ: 57%

**IPU** 5 / 4 | 1 waiting  
CSD in Biller: 10 / 15 | > 18:00

**PHYSICIAN TASK PRIORITY**

PHYSICIAN	LOAD INTENSITY	UNIT	ED
Sagman	13 West	126	18
Maggiaro	10 East	119	14
Park	05 A&T	49	7
Rosenberg	04 NICU	42	6
Flacco	05 C & A	35	5

**PHYSICIAN TASK PRIORITY**

PHYSICIAN	LOAD INTENSITY	UNIT	ED
Sagman	13 West	126	18
Maggiaro	10 East	119	14
Park	05 A&T	49	7
Rosenberg	04 NICU	42	6
Flacco	05 C & A	35	5

**FORECAST - OCCUPANCY**

	OCC	Capacity	24 HRS	48 HRS	72 HRS	96 HRS
Med	102%	314	98	96	97	98
Surg	92%	104	62	62	62	63
Paeds	57%	28	11	11	11	18
Psych	102%	60	97	97	95	98
ICU	98%	40	95	90	95	103

**ED INBOUND**

Post Track	O Zone	Sub Acute
KASHA 48m	YDEL 1h 4m	JENA 1h 4m
FCAR 34m	RBRO 55m	ILRUB 59m
DJER 26m	AJER 46m	
AJMP 20m	AJMH 46m	
OWYE 8m	HBOV 43m	
BTHE 7m	EMER 40m	
LMAR 3m	VPOZ 39m	
	DPER 22m	

**ED BOARDERS**

BOARDING	PATIENT	LOC	BED	STATUS
17h 14m	LJOH AC002932/20	AC3	TELE	
15h 32m	HZEL AC002936/20	OZ	CARD	0708A
15h 0m	S.KHA AC002938/20	OZ	MED	0926A
13h 19m	RMON AC002943/20	SA3	MED	0915A
7h 30m	RTHO AC002979/20	SA	CARD	0704A
4h 54m	T.NGU AC002989/20	AC	MED	0914B
3h 57m	S.BAL AC002994/20	SA20	MED	
2h 15m	M.ALE AC002997/20	SA12	MED	0928B
1m	LRIG AC002999/20	AC11	MED	



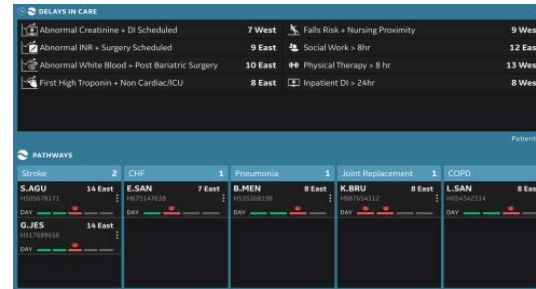
# Command Centre

## Support Services



Accelerating bed cleans by prioritizing jobs and predicting capacity pressures

## Delays in Care



Increasing efficiency and safety by avoiding delays in clinical care activities

## Medical Imaging



Reducing inpatient imaging wait times by maximizing throughput

## Census Forecast

	CENSUS	CAPACITY	LAST FORECAST: 30-11-2017 10:00														
			24 HR	48 HR	72 HR	96 HR	120 HR	144 HR	168 HR	192 HR	216 HR	240 HR	264 HR	288 HR			
Med	327 ↑	314	328	311	330	322	300	325	311	324	306	321	308	327	310	323	310
Surg	79 ↑	100	80	84	82	88	83	87	85	81	86	83	87	80	86	82	85
M&C	13 ↑	24	15	17	17	21	19	21	19	20	19	20	19	25	18	23	17
Paeds	8 ↑	12	9	11	10	12	8	12	11	12	10	13	11	9	11	11	10
Psych	44 ↑	58	42	50	43	53	43	54	48	51	48	53	55	50	56	55	47
ICU	59 ↓	40	38	42	40	42	40	39	42	37	40	36	41	35	40	38	35
Rehab	18 ↑	18	17	18	16	17	16	17	18	18	18	18	18	18	17	18	18

Planning for and avoiding high inpatient bed occupancy situations

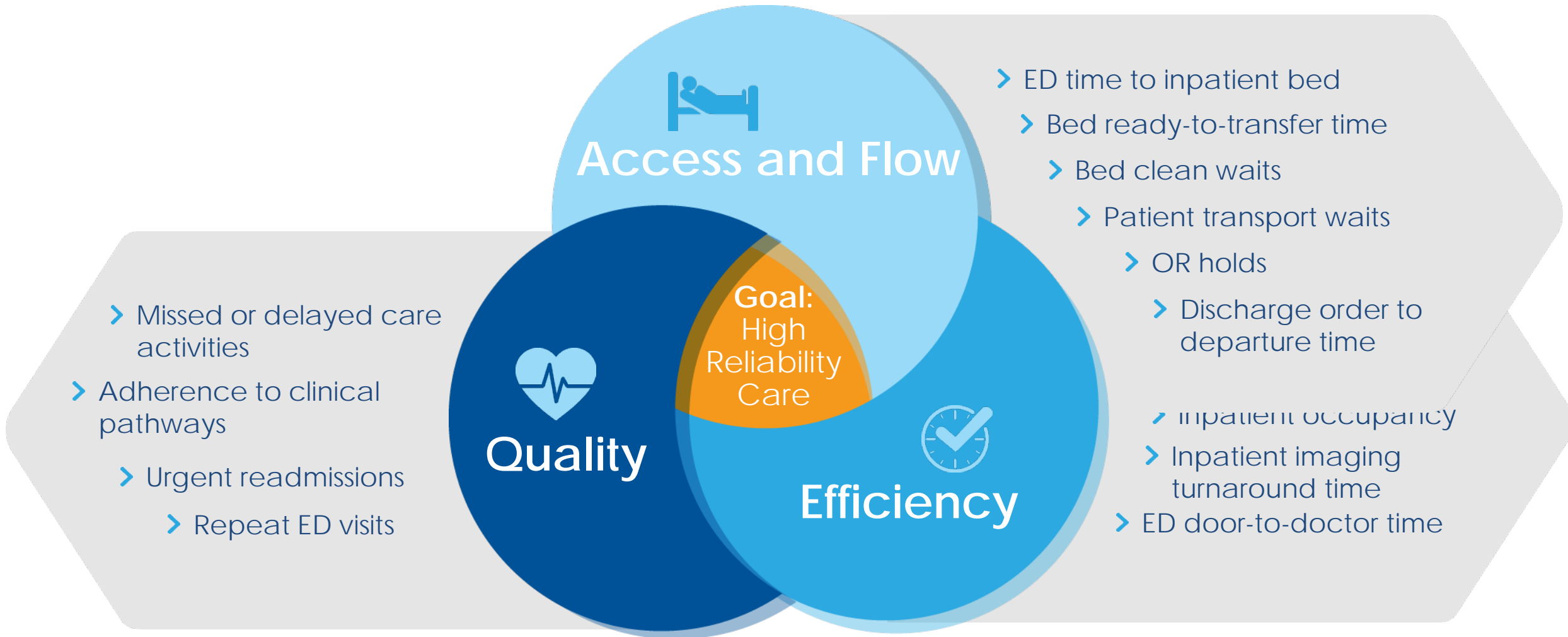
Drive to Sustainable High Reliability Care

Create 40 beds of equivalent capacity significantly improve quality & efficiency



Contribute **\$11M/year** of margin

# Command Centre: Targeted Impact and Metrics



HRH Confidential & Proprietary

# Humber River Hospital Command Centre

## Impact & Improvements

Baseline - Jan to Jun 2017 | Endline - January 2018



# Humber's multi-generational plan

2017  
Gen 1



2019  
Gen 2



2020  
Gen 3

## Patient Flow and Patient Care Logistics

bed base allocation, bed assignment, room cleaning, critical care capacity management, discharge planning, surgical scheduling and throughput, elevated risk of harm due to logistics intensity, etc.

## Clinical Pathway and Reduce Never Events

Delays in Care, Early Warning Algorithms, QBP monitoring, etc.

## Community Reach & Reduced Acute Utilization

Support health and wellness, virtual visits, home monitoring, communication and collaboration

**High  
Reliability**

**Care  
Transformation**

## Harmful Event

An unintended outcome of care that may be prevented with evidence-informed practices and that is identified and treated in the same hospital stay.



Source: Measuring Patient Harm in Canadian Hospitals (CPSI/CIHI)

**Patient harm in Canadian hospitals? It does happen.**  
 Hospitals are generally safe, but sometimes harmful events happen that affect patients. Many of these events are preventable.

How often does it happen?



In 2014–2015,

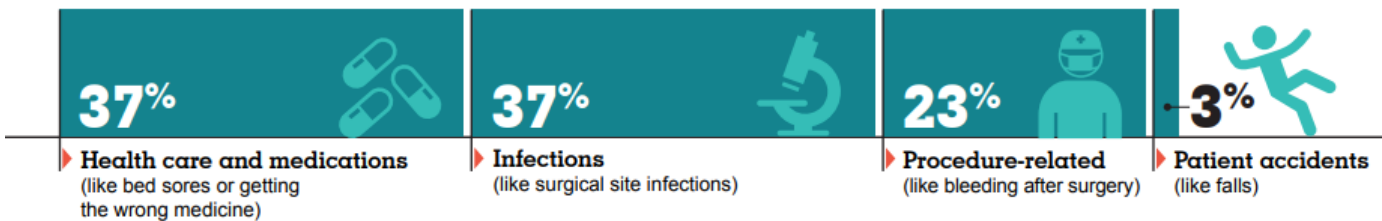
**1** in **18**

hospital stays

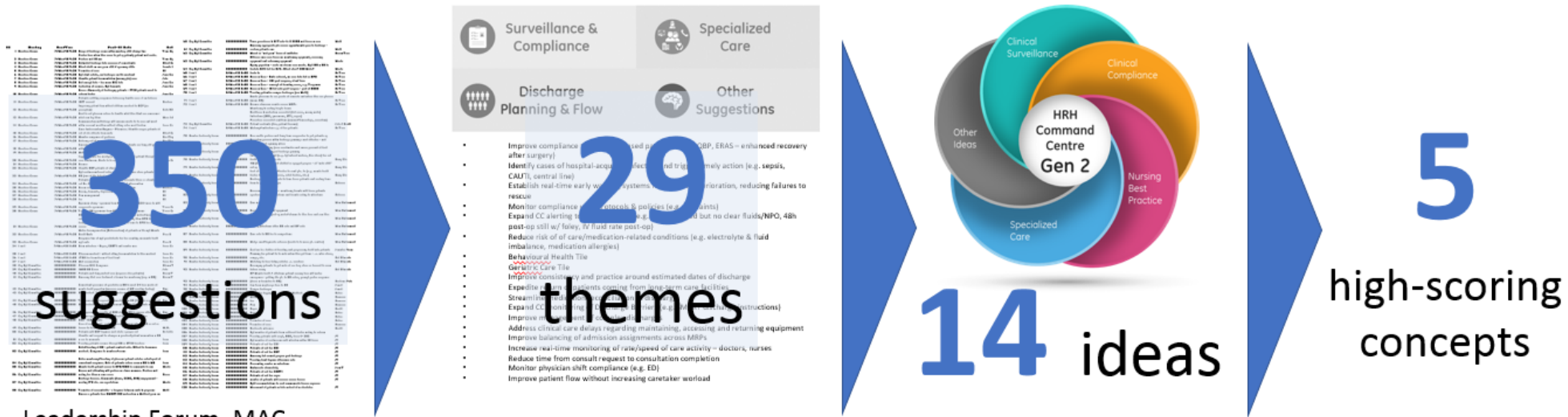
in Canada involved at least 1 harmful event (138,000 out of 2.5 million hospital stays).

What kinds of harmful events happen?

There are 4 categories of harmful events — 2014–2015 breakdown.



## Humber Command Centre Generation 2



Leadership Forum, MAC,  
Capacity Optimization,  
Directors Council,  
Pharmacy team meeting,  
CC team meeting,  
Meetings with 10+  
domain experts

**Triage &  
Affinitizing**

**Filtering for  
Actionable  
Criteria**

Relevance  
Impact  
Feasibility

**Scoring for  
Shortlist**



# 1. Perinatal Tile



**PERINATAL CARE** ⚙️

### OBSTETRICAL FLOW

PATIENT CENSUS	BOOKED TODAY	OTAS	LABOUR STAGE
2 3 3 1	0 1 2 6 3	6 4 2	
<small>Ind C/S Home Hosp</small>	<small>1 2 3 4 5</small>	<small>I II III</small>	

ALERT	PATIENT	OTAS	LOCATION	TIME
Assessment	R.MCA AC011108/18	4	TRIAGE	1h12m
Time to Phys	T.SMI AC011219/18	3	409BU	43m
Re-Assessment	S.KRI AC011021/18	2	413BU	28m

### OBSTETRICAL RISKS

ALERT	PATIENT	LOCATION
	S.PET AC010188/18	404BU
	A.LOM AC011104/18	408BU
	S.MAC AC011104/18	407BU

### NEONATAL EARLY WARNING

PATIENT CENSUS	BY LEVEL	OVERALL
9 2 1 1 1	5 11 7	
<small>Normal 1 Amber 2+ Amber 1 Red 2+ Red</small>	<small>BU MBU NICU</small>	

ALERTS	PATIENT	LOCATION	TIME
	L.BAR AC013049/18	423MB-NB1	1h15m
	P.LIN AC012847/18	420MB-NB1	33m
	J.RED AC013912/18	421MB-NB1	27m

### NEONATAL RISKS

ALERT	PATIENT	LOCATION
	J.SAM AC011048/18	0407MB-NB1
	F.VIC AC011879/18	0418MB-NB1
	L.POR AC012279/18	0417MB-NB1

## Features:

1. Main View
2. Obstetrical Flow Section
  - 2.1 Patient Census by Delivery Type
  - 2.2 Patient Census by OTAS Level
  - 2.3 Patient Census by Labour Stage
  - 2.4 OTAS Assessment Alert: Nursing
  - 2.5 OTAS Assessment Alert: Physician
3. Obstetrical Risks Section
  - 3.1 Fetal Heart Rate Alert
  - 3.2 Pregnancy Induced Hypertension Alert
  - 3.3 Shoulder Dystocia Risk Alert
  - 3.4 Post Partum Hemorrhage Risk Alert
  - 3.5 Early Warning (MEOWS) Alert
  - 3.6 No Antenatal Record Alert
4. Neonatal Early Warning Section
  - 4.1 Patient Census by NEWTT Level
  - 4.2 Patient Census by Location
  - 4.3 NEWTT Alerts
5. Neonatal Risks Section
  - 5.1 Cord Bilirubin Alert
  - 5.2 Total Serum Bilirubin Alert
  - 5.3 Glucose Level Alert
  - 5.4 Assisted Delivery Alert
  - 5.5 RSV Screening Alert
  - 5.6 Weight Loss Alert



# 2. Clinical Deterioration Tile



**DETERIORATION** ⓘ ⚙️

MONITORING 2		SEVERITY 2		RATE OF DECLINE 2	
J.JON H013821	824A DR. JOY	B.POL H012092	1107A DR. DOE	R.TUS H011921	845A DR. SMITH
<b>SCORE: 5</b>		<b>SCORE: 11</b>		<b>SCORE: 6 (▲ 3)</b>	
<b>LAST ASSESSMENT:</b>	🚨 5h20m	<b>HR</b> <b>BP</b> <b>RR</b> <b>SpO<sub>2</sub></b> <b>Labs</b>		<b>BP</b> <b>SpO<sub>2</sub></b> <b>Labs</b>	
A.BER H014181	915A DR. BENSON	F.FRA H015771	509A DR. JONES	L.MACH017175	1218A DR. LEE
<b>SCORE: 8</b>		<b>SCORE: 9</b>		<b>SCORE: 3</b>	
<b>LAST ASSESSMENT:</b>	2h12m	<b>HR</b> <b>BP</b> <b>Resp</b> <b>Labs</b>		<b>RR ▲</b> <b>Labs</b>	

**CURRENT CENSUS**

CCRT		MED (NEWS2)			SURG (NEWS2)			PAEDS (BPEWS)		
5	18	19	11	4	8	5	2	2	1	0
Acute	Follow-Up	SP	5-6	7+	SP	5-6	7+	5-6	7-8	7+

**EXCLUDES ICU AND PALLIATIVE**

1. **Monitoring Alerts**
  - 2.1 NEWS2 Monitoring Delays
  - 2.2 BPEWS Monitoring Delays
2. **Severity Alerts**
  - 3.1 NEWS2 Severity Alerts
  - 3.2 BPEWS Severity Alerts
  - 3.3 Lab Result Alerts
3. **Rate of Decline Alerts**
  - 4.1 NEWS2 Decline Alert: Change
  - 4.2 BPEWS Decline Alerts: Change
  - 4.3 Lab Result Decline Alerts: Change
  - 4.4 BPEWS Decline Alerts: Threshold
  - 4.5 Lab Result Decline Alerts: Threshold
4. **Escalation Indicators**
  - 5.1 Nurse Indicator
  - 5.2 Physician Indicator
  - 5.3 CCRT Indicator
5. **Census Summary**
  - 6.1 CCRT Caseload
  - 6.2 Med NEWS2 Census
  - 6.3 Surg NEWS2 Census
  - 6.4 Paed BPEWS Census

## 3. Risk of Harm Tile



Infection Risks



Clinical Care Risks



Rare Clinical Events



Behavioural Health



# 3. Risk of Harm Tile



RISK OF HARM								
Clinical Care Risks			Infection Risks			Other Risks		
<b>Falls Risk Reassessment Delay</b> 2d 12h 21m	G.NOR 771882	915A	<b>Sepsis Risk + No Assessment</b> 3h 15m	D.STR 757865	708A	<b>Critical Labs + No Treatment Order</b> 4h 15m	T.HOR 729141	922A
<b>Press Inj Risk Reassessment Delay</b> 1d 18h 9m	F.MAC 792846	844A	<b>Sepsis + Antibiotics Delay</b> 1h 26m	D.BAN 694812	831A	<b>CIWA Score + No Treatment</b> 3h 16m	S.LOR 844123	934A
<b>Pai Reassessment Delay</b> 1d 8h 19m	G.FRA 66819	1011A				<b>Critical Labs + No Treatment Start</b> 2h 35m	J.PAR 910274	840A
<b>CAM Reassessment Delay</b> 1d 1h 22m	L.BAR 71829	1121A				<b>Critical Labs + No Re-Testing</b> 1h 15m	R.FIG 910274	821A

## 12 features:

- Views
  - Main View
  - Interactive View
- Alerts:
  - Critical Labs & No Treatment Order
  - Critical Labs & Treatment Administered
  - Critical Labs & No Re-Test
  - Sepsis Recognition Delay
  - Sepsis Treatment Delay
  - Falls Risk Assessment Delay
  - Pressure Injuries Assessment
  - Pain Assessment
  - CAM Assessment
  - Alcohol Withdrawal /Treatment



A SENIORSCARE
⚙️

**PATIENT ALERTS** 6

A.MAR H013018 LOS: 2d 6h 914A DR. SANG	K.NOV H013112 LOS: 3d 12h 847A DR. LEE
L.FER H014841 LOS: 2d 2h 1117A DR. SANJAY	D.MAC H013941 LOS: 6d 4h 931A DR. SAM
D.DRI H013816 LOS: 1d 4h 721A DR. JOSEPH	R.PAD H012441 LOS: 1d 6h 1331A DR. FRANK

**ASSESS & RESTORE SENIORS CENSUS**

HEART  
12

MED  
47

SURG  
14

PSYCH  
6

ED  
2

### 14 features:

- Views
  - Main View
  - Interactive View
- Alerts:
  - Mobility Baseline Assessment Delay
  - Patient not Mobilized
  - Mobility Level Declining & No Assessment
  - Post Fall Assessment Delay
  - HEART eligible & No Referral Order
  - CAM Positive Patient & No Delirium Order
  - GI Assessment Delay
  - Nutrition Intake Assessment Delay
  - High Risk Medications Alert
- Census Indicators
  - HEART
  - Med/Surg/Psych
  - ED

# Humber's multi-generational plan

2017  
Gen 1



2019  
Gen 2



2020  
Gen 3

## Patient Flow and Patient Care Logistics

bed base allocation, bed assignment, room cleaning, critical care capacity management, discharge planning, surgical scheduling and throughput, elevated risk of harm due to logistics intensity, etc.

## Clinical Pathway and Reduce Never Events

Delays in Care, Early Warning Algorithms, QBP monitoring, etc.

## Community Reach & Reduced Acute Utilization

Support health and wellness, virtual visits, home monitoring, communication and collaboration

**High  
Reliability**

**Care  
Transformation**

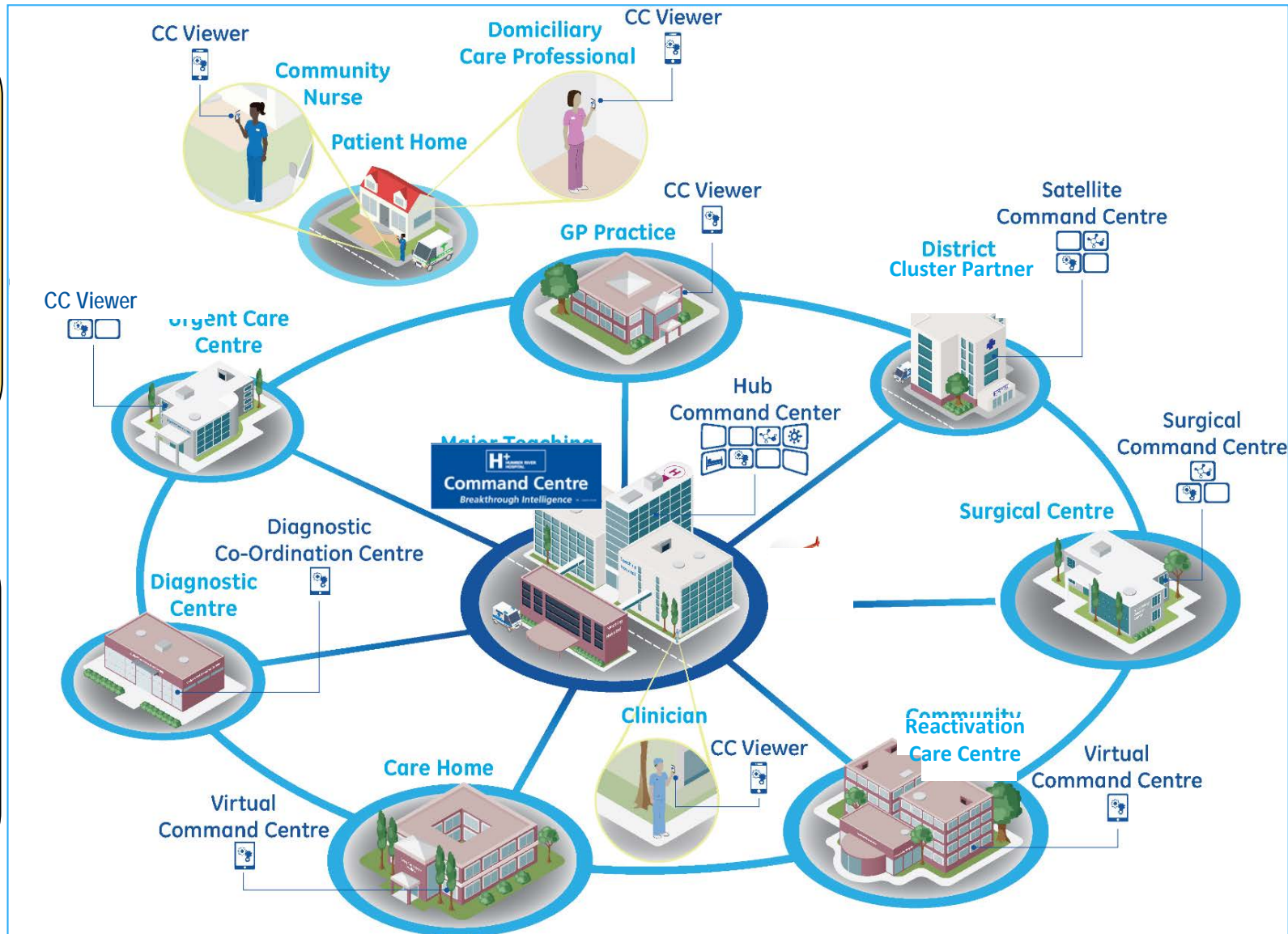
# Hub of a Care Community - Coordination and Empowerment

## Community Reach

- Support and empower patients to support their own health and wellness
- Monitor patient cohorts
- Expand access to chronic disease management tools and education

## Patient Access

- Increase capacity of specialists
- Enable communication and collaboration within the Constellation of Care®



## Efficiency

- Decrease ED visits
- Decrease readmission rates by providing care at home and in the community
- Improve efficiency of care planning and management

## Improved Outcomes

- Reduce utilization of acute care
- Maximize opportunities to intervene earlier and adjust patient care plan as necessary

# Exceptional Care.... Healthier Community



Canadian Journal of Nursing Leadership

# Nursing Leadership

Leadership in Nursing Management, Practice, Education & Research

## SPECIAL ISSUE – NURSING IN A DIGITAL HOSPITAL

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Politics • Policy • Theory • Innovation

