CSIM Annual Meeting 2023

October 13, Québec City

Breakfast Plenary

Redesigning the Clinical Teaching Unit: A Vision for the Present

Zac Feilchenfeld, University of Toronto

Mark Goldszmidt, Western University

Leslie Martin, McMaster University

Rosalie-Sélène Meunier, Université de Montréal

Jennifer Ringrose, University of Alberta

Erin Spicer, Western University

Brandon Tang, University of Toronto

Learning Objectives

- Reflect on the purpose, mission, and organization of Internal Medicine Clinical Teaching Units (CTUs) in one's own setting and to compare and contrast with CTUs in other settings across Canada.
- Apply lessons learned from different approaches taken to adapt CTUs to modern clinical-educational contexts.
- Develop ideas for approaches to current and future challenges affecting CTUs and similar clinical-educational structures in their own institutions.

Conflict Disclosures

• Zac Feilchenfeld, University of Toronto:	No conflicts to declare
• Mark Goldszmidt, Western University:	No conflicts to declare
• Leslie Martin, McMaster University:	No conflicts to declare
• Rosalie-Sélène Meunier, Université de Montréal:	No conflicts to declare
• Jennifer Ringrose, University of Alberta:	Shareholder and CMO of mmHg Inc a digital health company
• Erin Spicer, Western University:	Research salary support from London Health Science Centre (LHSC) Academic Realignment Fund.
• Brandon Tang, University of Toronto:	Royalties from medical publisher Brush Education for the book “Vancouver Notes for Internal Medicine”; current and past grant funding from the RCPSC, PSI Foundation, Mount Sinai Hospital (Toronto), UofT DOM

Land Acknowledgment

We’re coming together here in Québec City from institutions across the country that are located on lands and territories that were long inhabited by people who maintained the land and had relationships with the land that long pre-dated the arrival of settlers from Europe. Many communities moved over the land, were responsible for it, and lived in evolving societies interacting with other peoples across the continent. Their societies were disrupted and in some cases utterly destroyed by the arrival of settlers. Today, this land and the land on which all of our home institutions exist remain homes to many First Nations, Inuit, Métis and Indigenous communities and people.

This meeting is taking place in lands that have been the Nionwentsïo territory of the Huron-Wendat people, the Ndakina territory of the Wabanaki people, the Nitassinan territory of the Innu people and the Wolastokuk territory of the Wolastoqey people.

Most of us are settlers here. We must work towards truth, justice, and reconciliation in our relationship to the lands where we and our ancestors settled and in relation to those for whom this land was home before the land was stolen.

Introduction and Outline

Evidence Review

- Brandon Tang

CTU Current Practices

- Mark Goldszmidt and Erin Spicer

Case Examples

- University of Toronto - Zac Feilchenfeld
- University of Alberta - Jennifer Ringrose
- McMaster University - Leslie Martin
- Université de Montréal - Rosalie-Sélène Meunier

Conclusion and Questions

Evidence Review

Dr. Brandon Tang

Staff Physician, Division of General Internal Medicine, St. Michael's Hospital, University of Toronto

TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

Where there’s smoke …

Resident Doctors of Canada

Médecins résidents du Canada

Association Médicale Canadienne | Canadian Medical Association

Royal College of Physicians and Surgeons of Canada

Collège royal des médecins et chirurgiens du Canada

17.5%

Depression

Residents

53%

Burnout

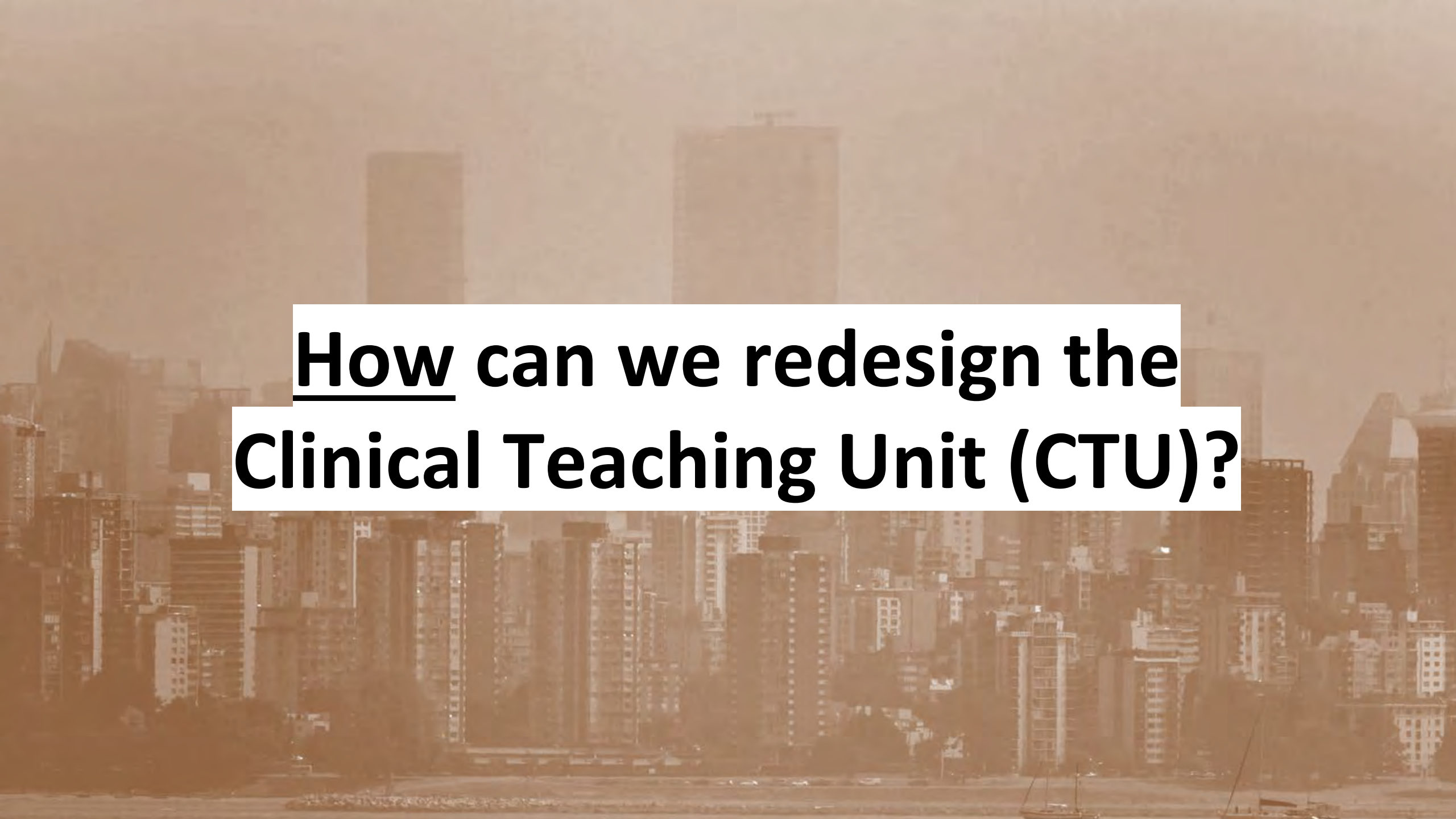
Physicians and learners

Accreditation: Intent to withdraw

IM programs

RDoC 2020 National Residency Survey

CMA 2021 National Physician Health Survey



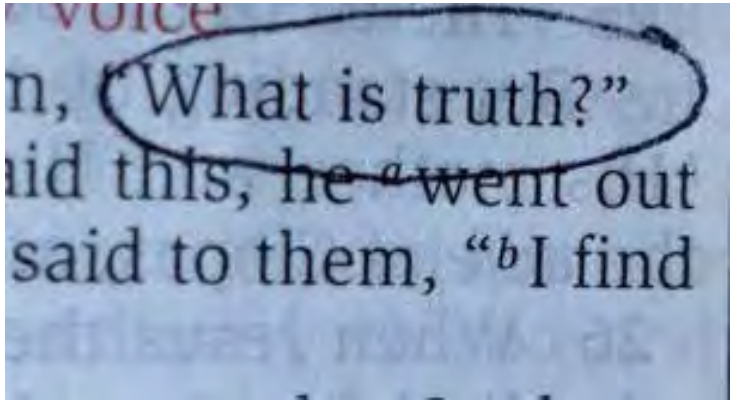
How can we redesign the Clinical Teaching Unit (CTU)?

A systematic review of evidence-based practices for clinical education and health care delivery in the clinical teaching unit

Brandon Tang MD MSc, Ryan Sandarage BSc, Jocelyn Chai MD, Kristin Anne Dawson MD, Katrina Rose Dutkiewicz MD, Stephan Saad MD, Vanessa Kitchin MI, Rose Hatala MD MSc, Iain McCormick MD, Barry Kassen MD

■ Cite as: *CMAJ* 2022 February 14;194:E186-94. doi: 10.1503/cmaj.202400

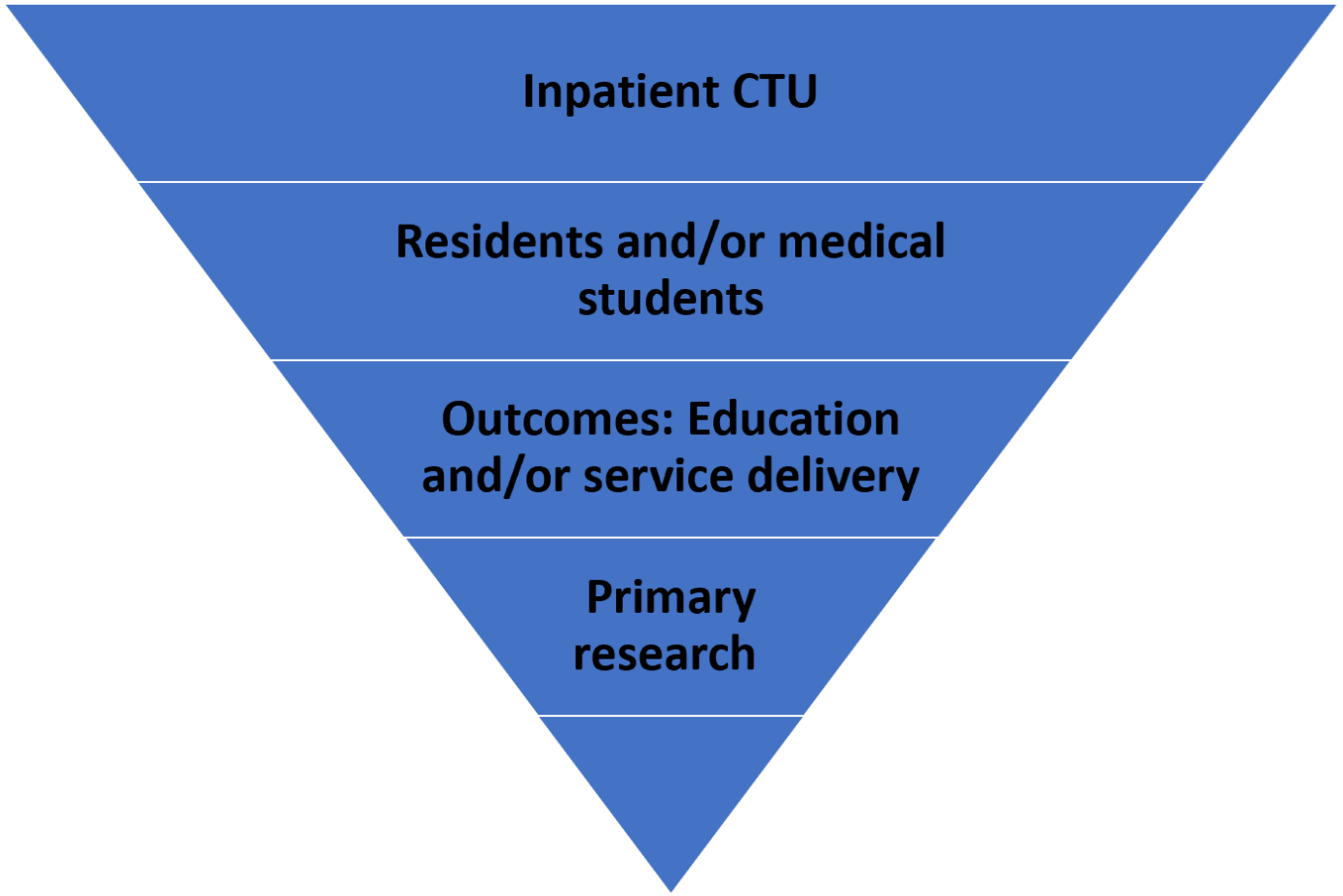
cmaj
CANADIAN MEDICAL ASSOCIATION JOURNAL



"Evidence-Based Education"

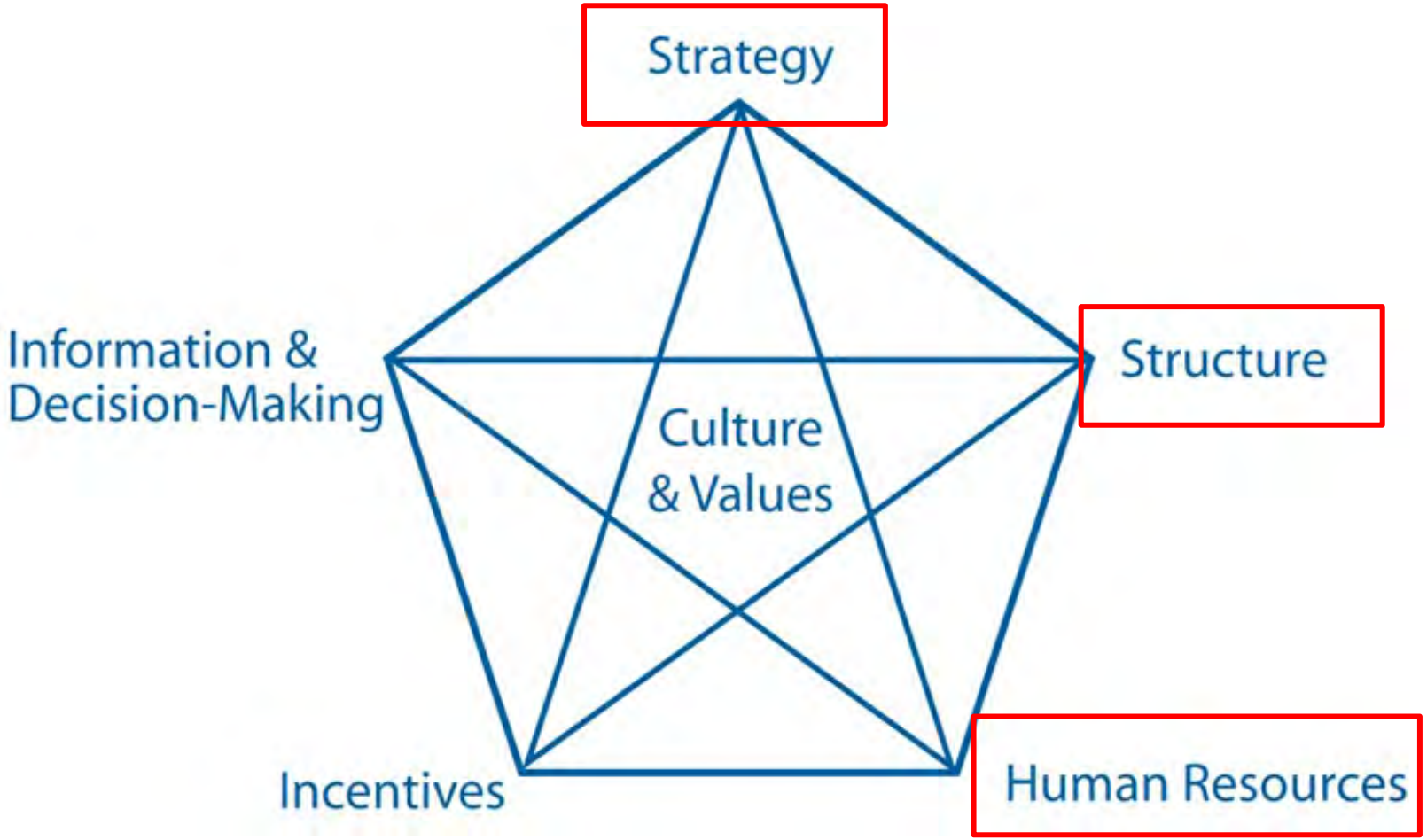
Which principles of CTU design contribute to improved outcomes in clinical education and health service delivery?

Inclusion Criteria



PRISMA Guidelines

We viewed the CTU as an interdependent health system using the **Star Model**



Golden & Martin (2004)

Characteristics of included studies (Table 1)

87%

North America

Varied designs

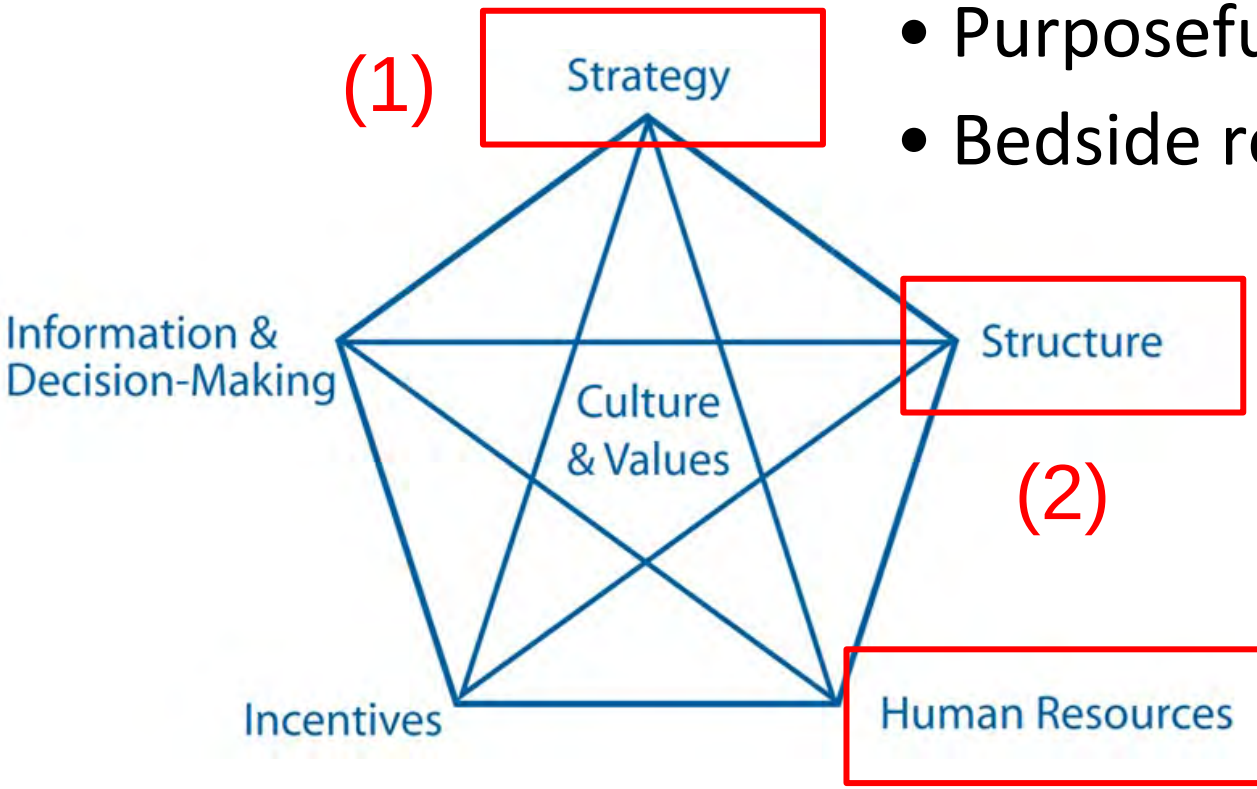
29% Surveys

16% Trials

14% Qualitative

Narrative Synthesis

Most findings clustered in three categories

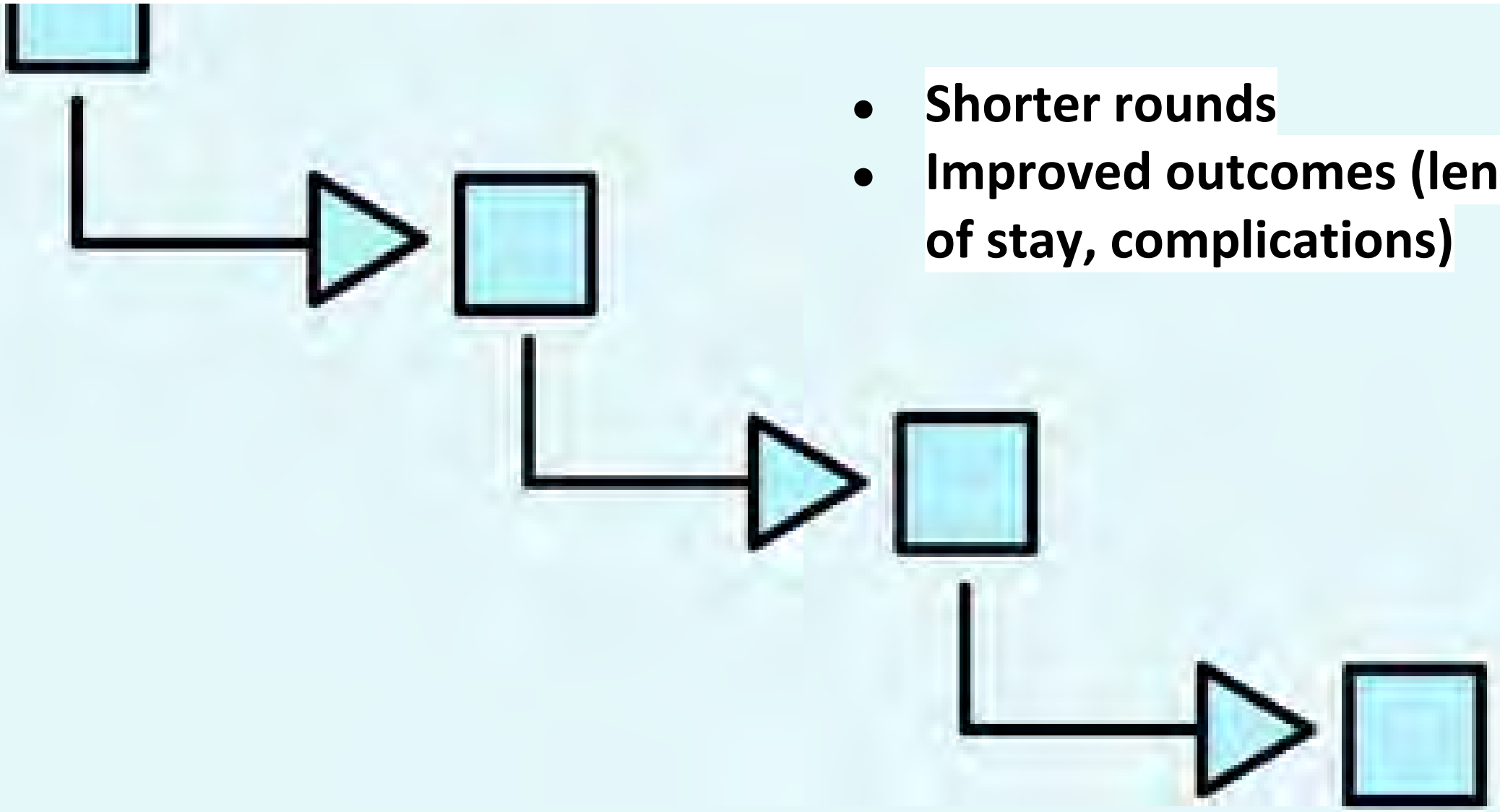


- Purposeful rounding
- Bedside rounding

- Interprofessional rounds
- Geographic wards

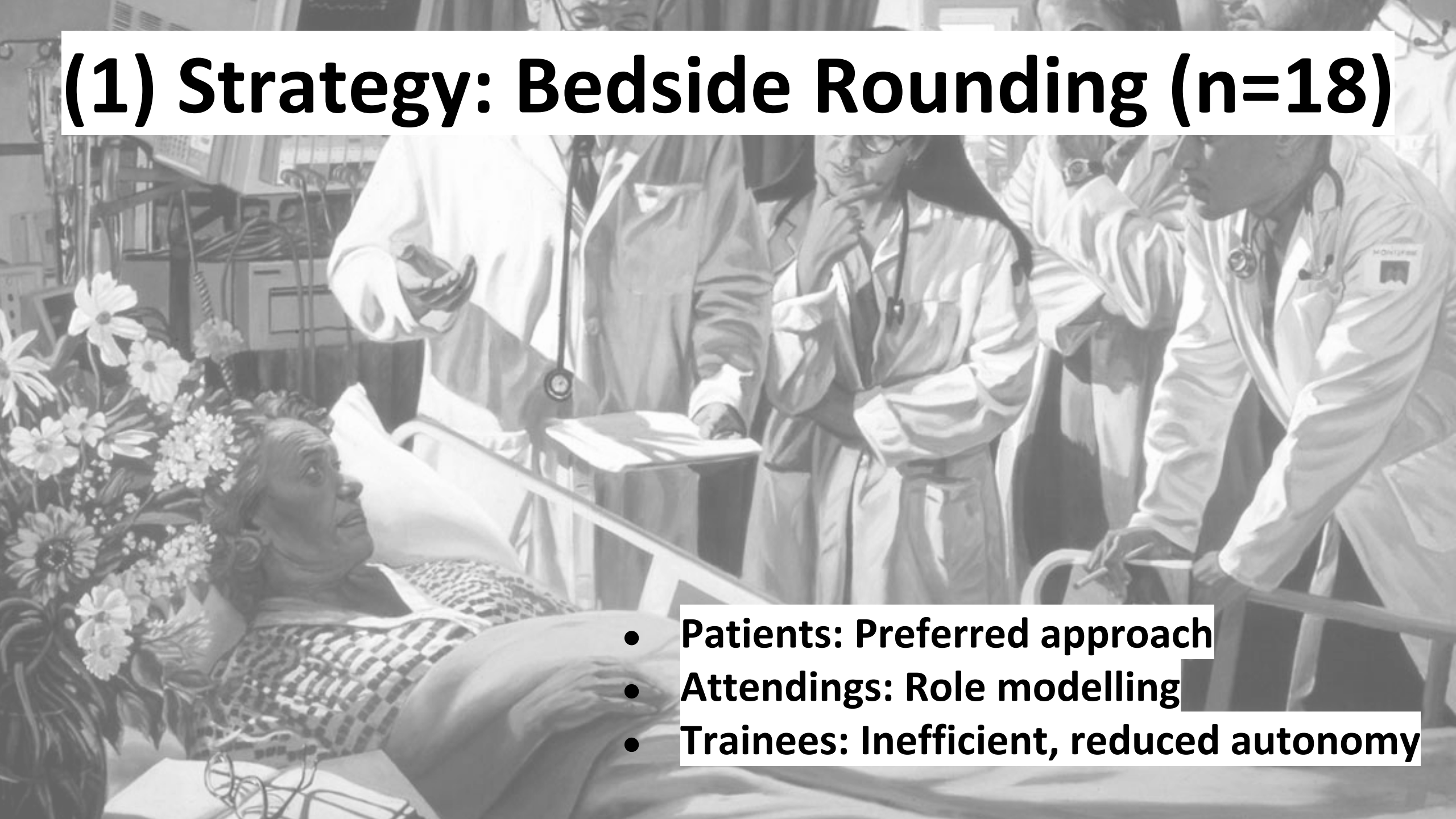
- Team size

(1) Strategy: Purposeful Rounding (n=6)



- Shorter rounds
- Improved outcomes (length of stay, complications)

(1) Strategy: Bedside Rounding (n=18)

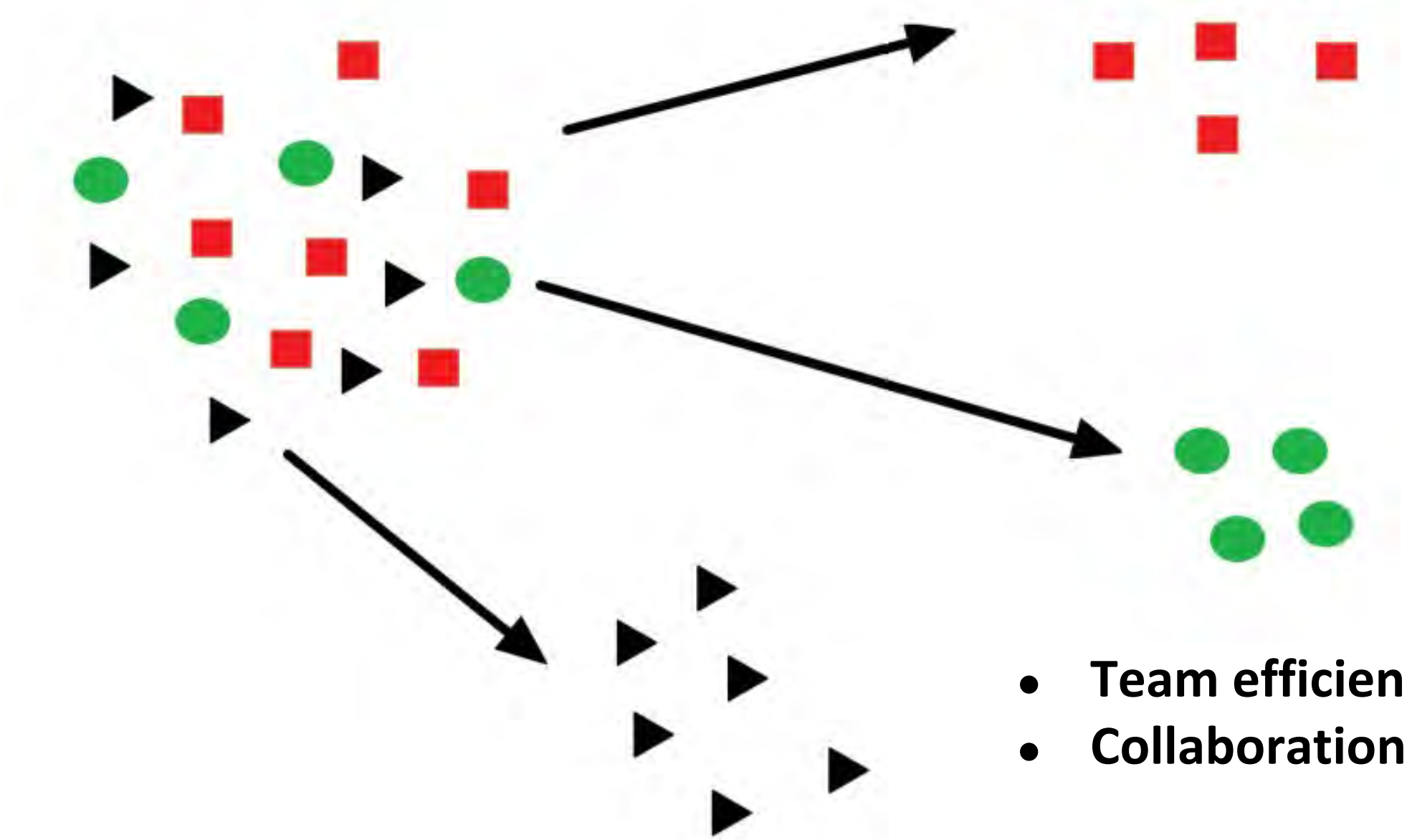


- Patients: Preferred approach
- Attendings: Role modelling
- Trainees: Inefficient, reduced autonomy

(2) Structure: Interprofessional Rounds (n=16)

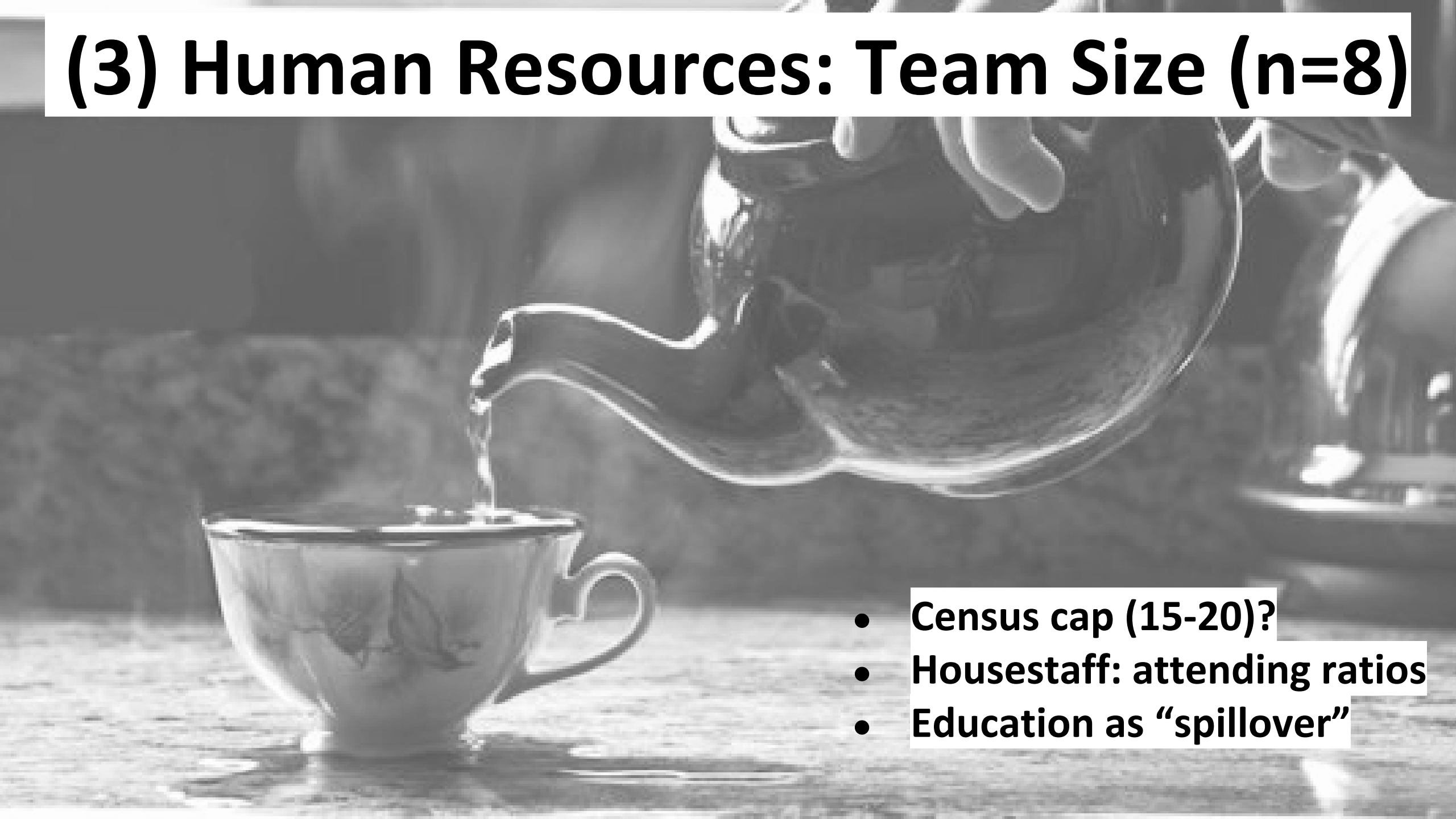
- Collaboration
- Communication
- Discharge planning

(2) Structure: Geographic Wards (n=4)



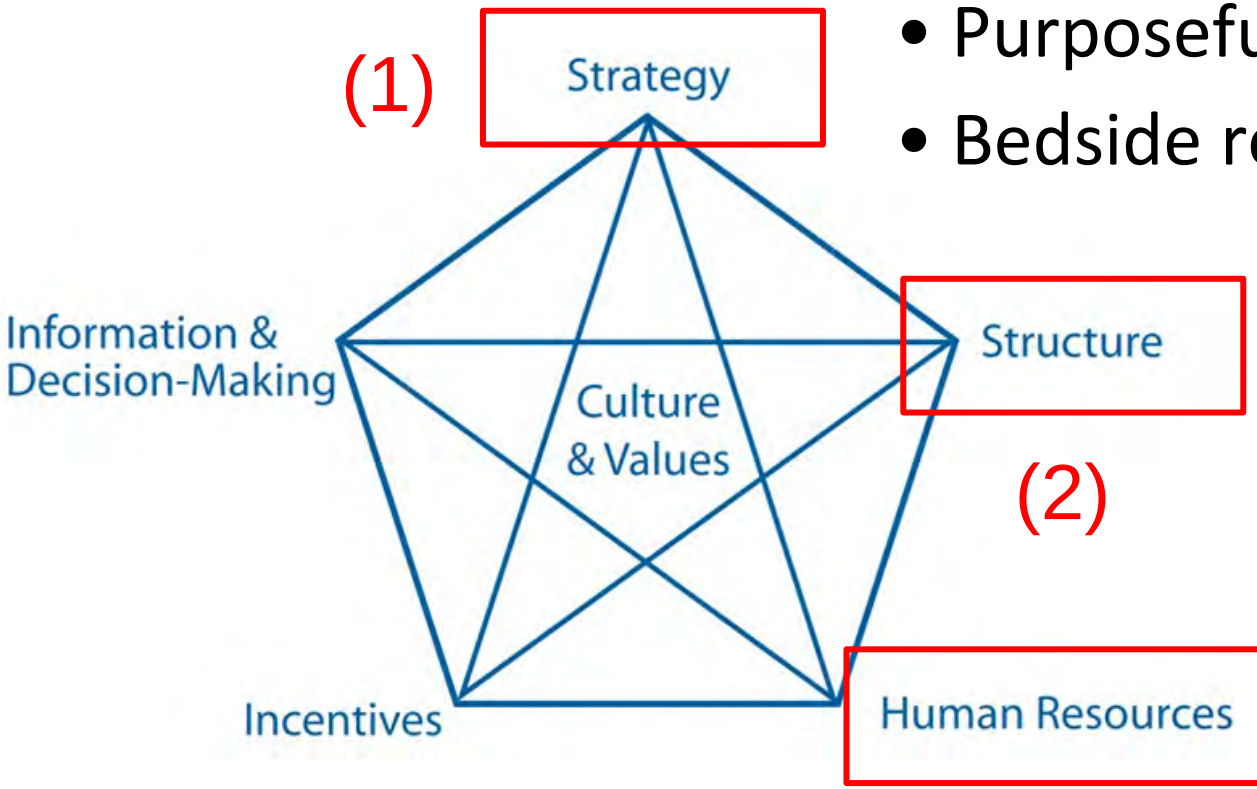
- Team efficiency
- Collaboration

(3) Human Resources: Team Size (n=8)



- Census cap (15-20)?
- Housestaff: attending ratios
- Education as “spillover”

Most findings clustered in three categories



- Purposeful rounding
- Bedside rounding

- Interprofessional rounds
- Geographic wards

- Team size

PLUS

DELTA

- Conceptual lens (Star model)
- “Evidence” as a starting point

- Specific, but not sensitive
  - “False negatives”
- There is NOT one “truth”
  - Each institution has its own reality

CTU Current Practices

Dr. Mark Goldszmidt

Site Chief, Acute Care Medicine, Division of General Internal Medicine, London Health Sciences Centre, Western University

Dr. Erin Spicer

Staff Physician, Acute Care Medicine, Division of General Internal Medicine, London Health Sciences Centre, Western University

Schulich MEDICINE & DENTISTRY

Western Centre for Education Research & Innovation

CTU Current Practices, Challenges and Tensions Study

Mark Goldszmidt and Erin Spicer (Schulich School of Medicine & Dentistry)

Other members of the research team

- Kristen Bishop (Schulich School of Medicine & Dentistry)
- Aishwarya Kulkarni (Schulich School of Medicine & Dentistry)
- John Ratelle (Mayo Clinic)
- Gretchen Colbenson (Mayo Clinic)
- Janet Record (Johns Hopkins)

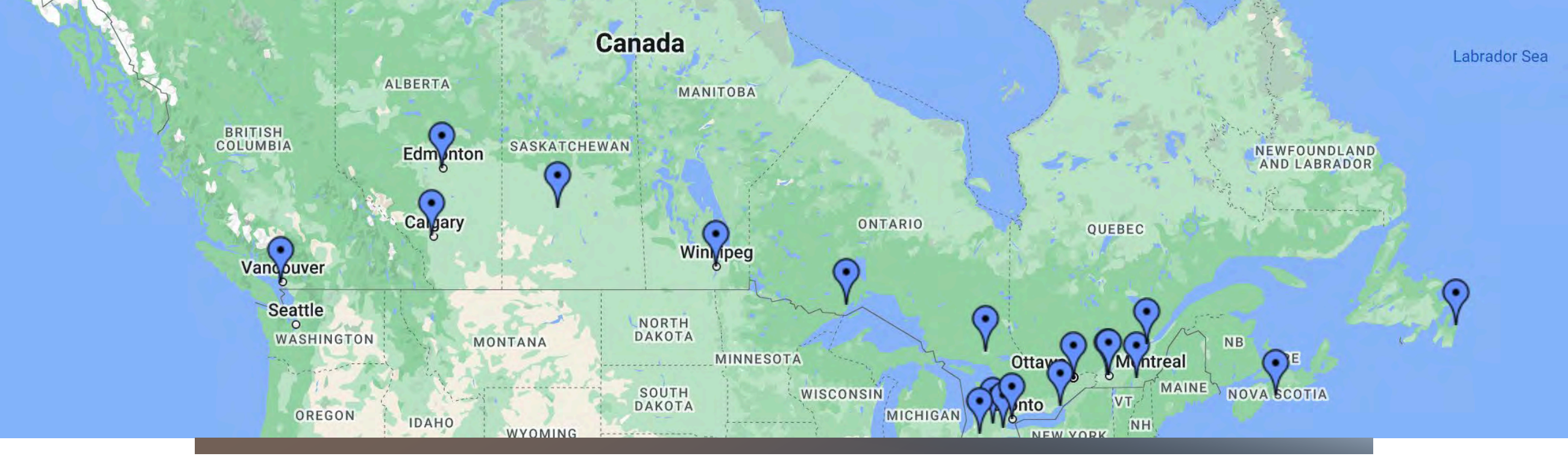
Schulich MEDICINE & DENTISTRY

Western
Centre for Education Research & Innovation

Study Purpose

To explore current configurations of CTUs across North America and how these support the delivery of quality care and learning.

To gain greater depth of insight into the tensions and challenges being faced by CTUs and the strategies that have been tried (both successful and less successful) to address these.



Methods

Methodology:

Constructivist Grounded theory

Data collection:

Semi-structured individual and group interviews

Data Set:

- 20 interviews
  - 27 Participants
    - 20 Canadian from 13 different hospitals in 11 different cities
    - 9 American from 9 different hospitals in 9 different cities/states

Key Findings

1. CTU is an **essential rotation** that continues to be relevant
2. Getting CTU right is not just about learning and patient care, it is also about **physician wellness**
3. Getting CTU right requires being **proactive** and rethinking some of its key design features and relationships

CTU is an essential rotation that continues to be relevant

Essential Rotation

Professional Identity Formation aligned with ideals of the profession

Empathy and the need to advocate for own patients

Learning around wide range of clinical topics and communication challenges

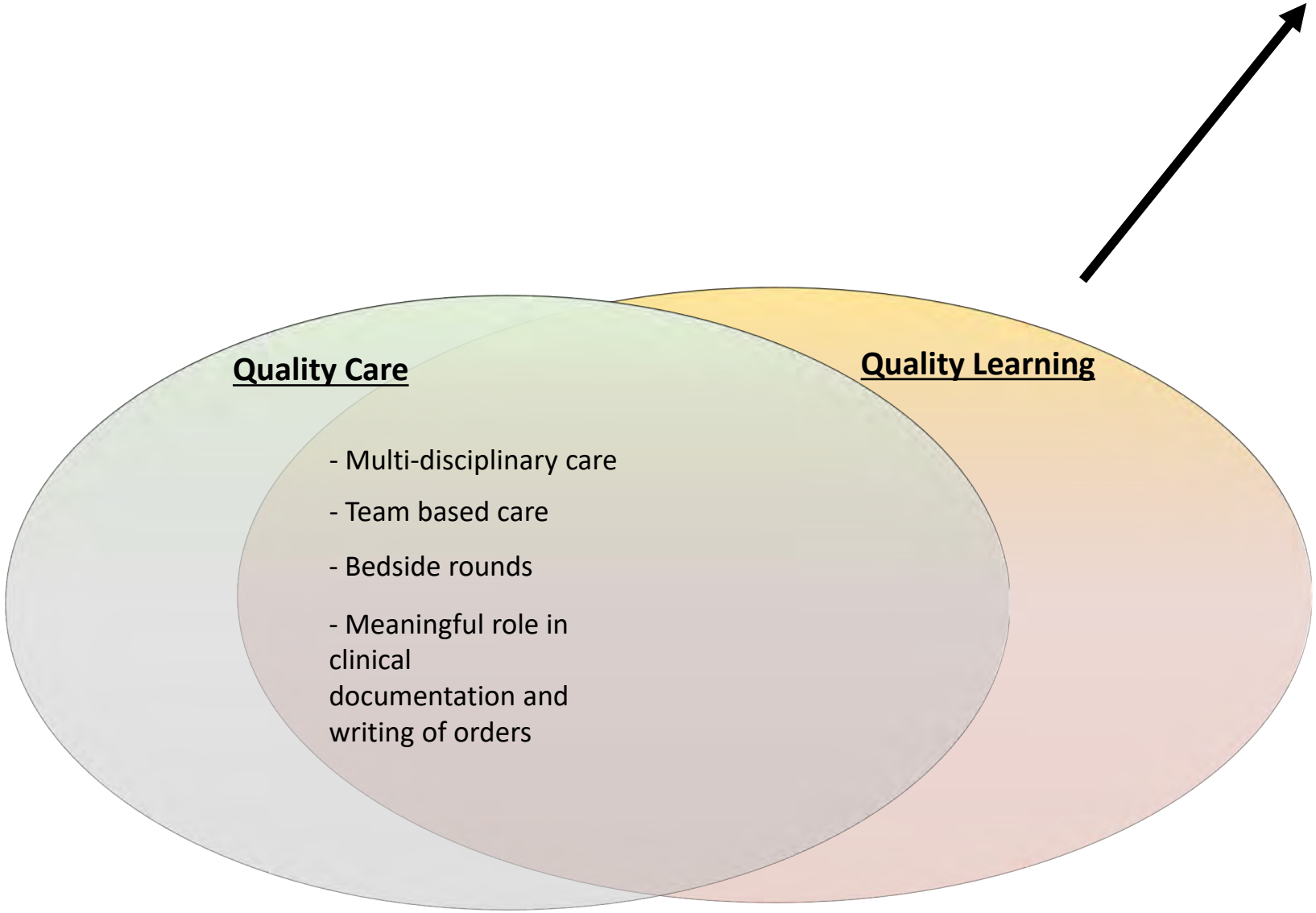
Clinical reasoning skill development around multimorbidity and the need to determine what to address

Inter and intra-professional collaboration skills

Depth of understanding of the affordances and constraints of the health care system and how to navigate them

Leadership, team management, supervisory and teaching skills (SMRs).

Key Features



Learning Outcomes

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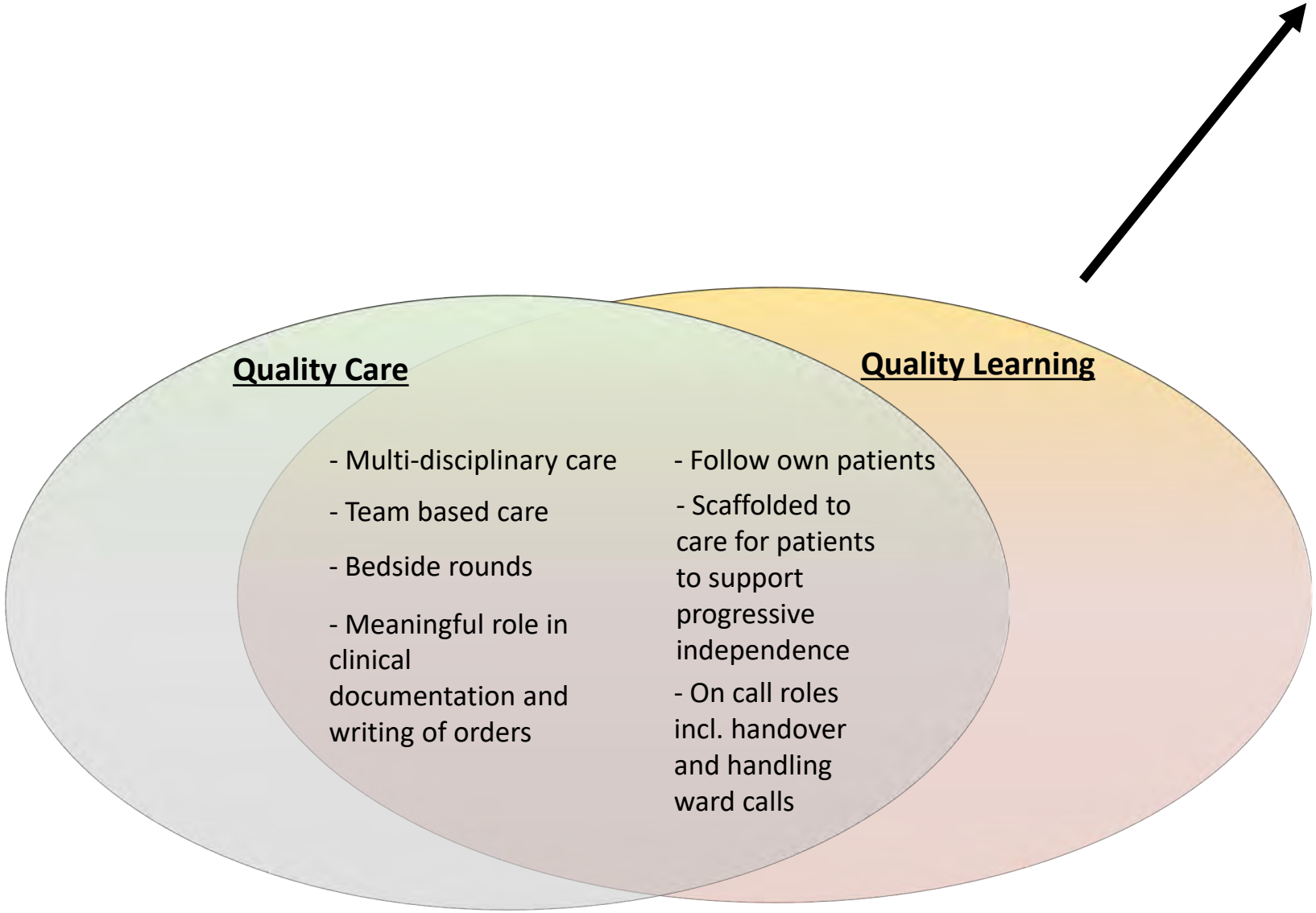

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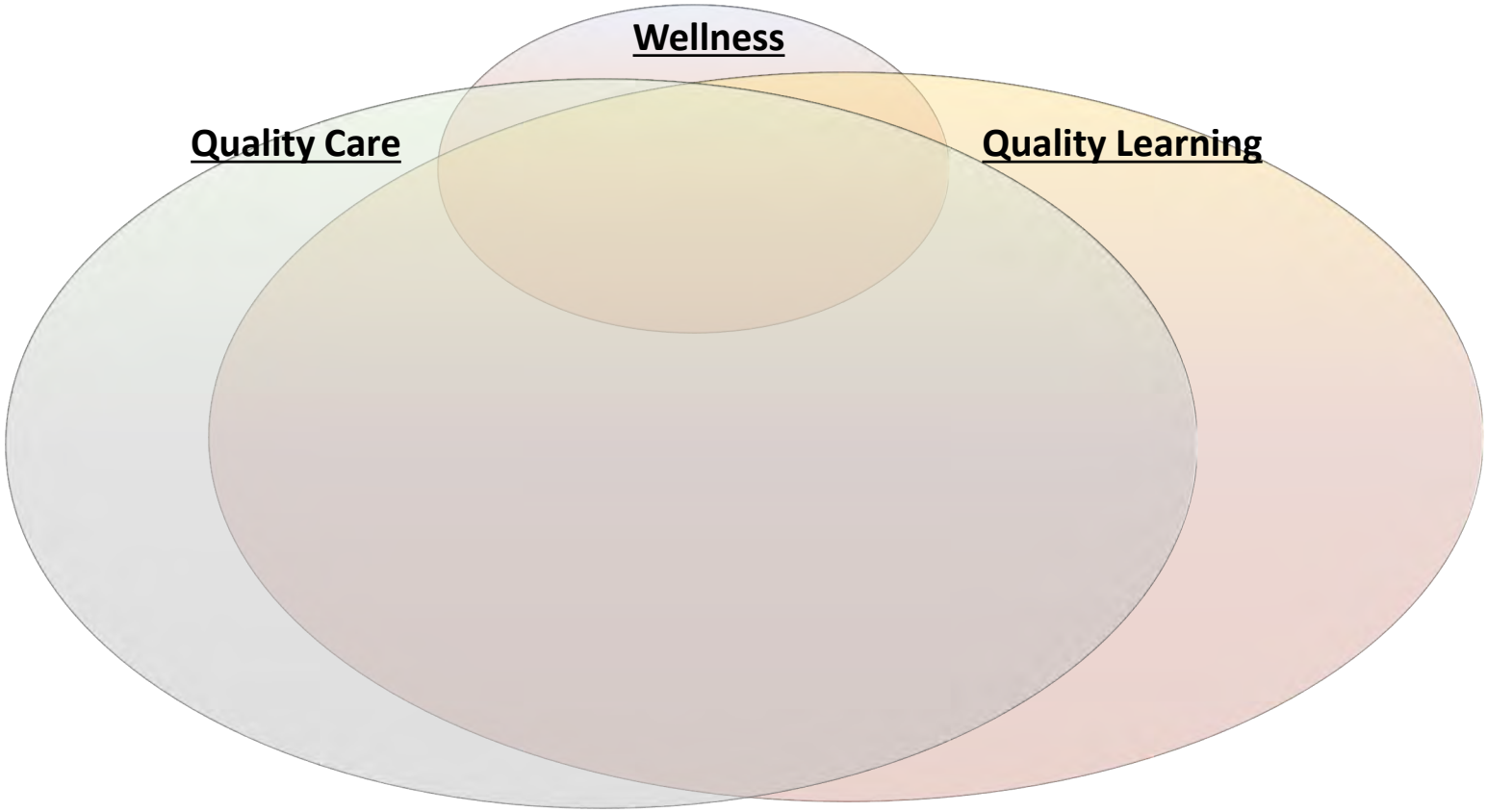
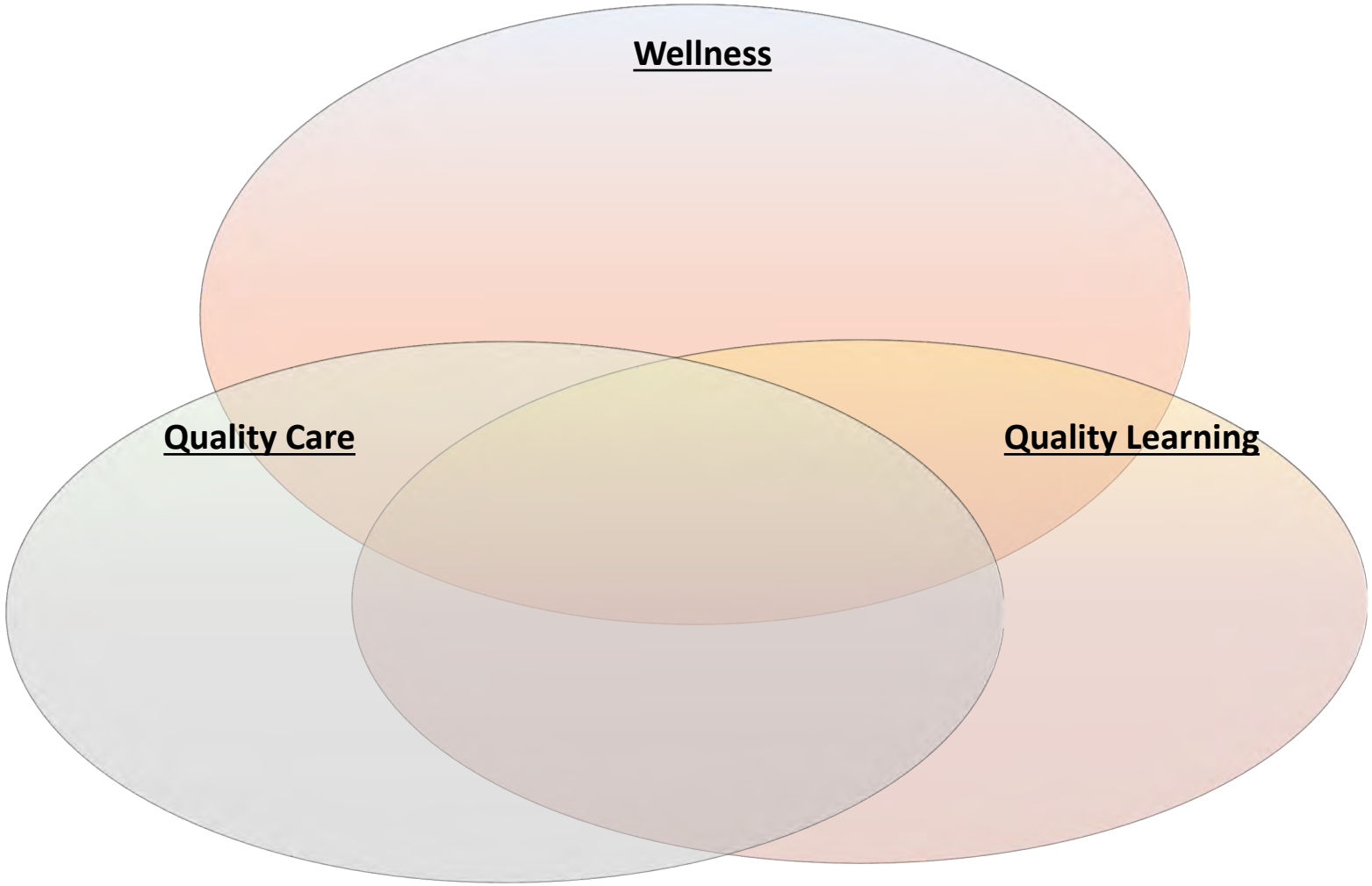
Getting CTU right is not just about learning and patient care, it is also about physician wellness


Wellness
Quality Care
Quality Learning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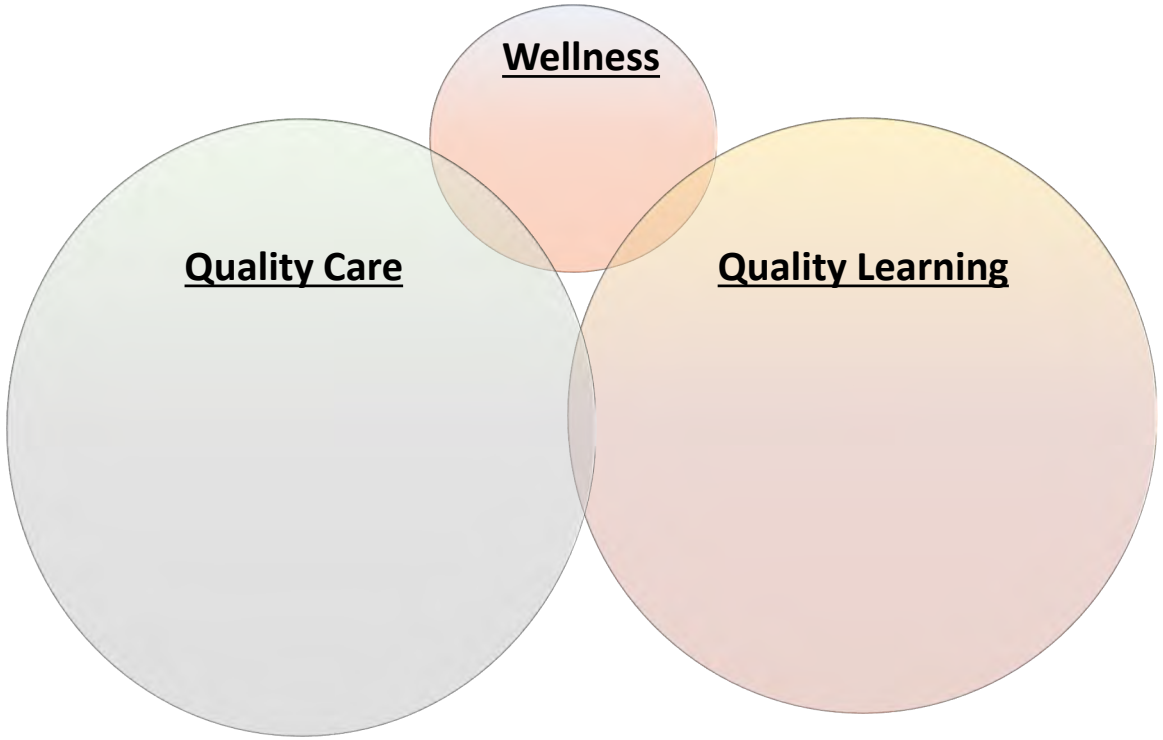
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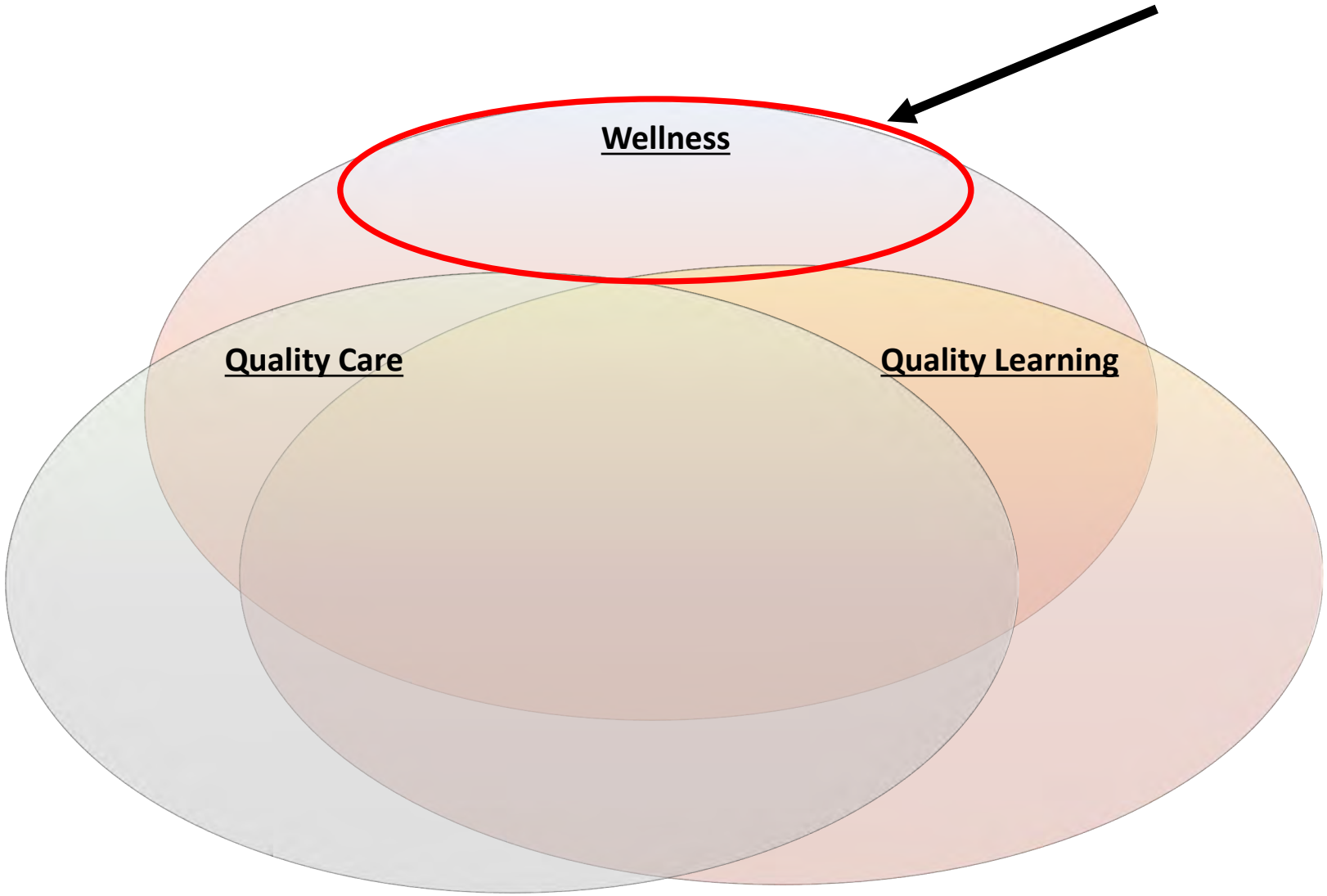
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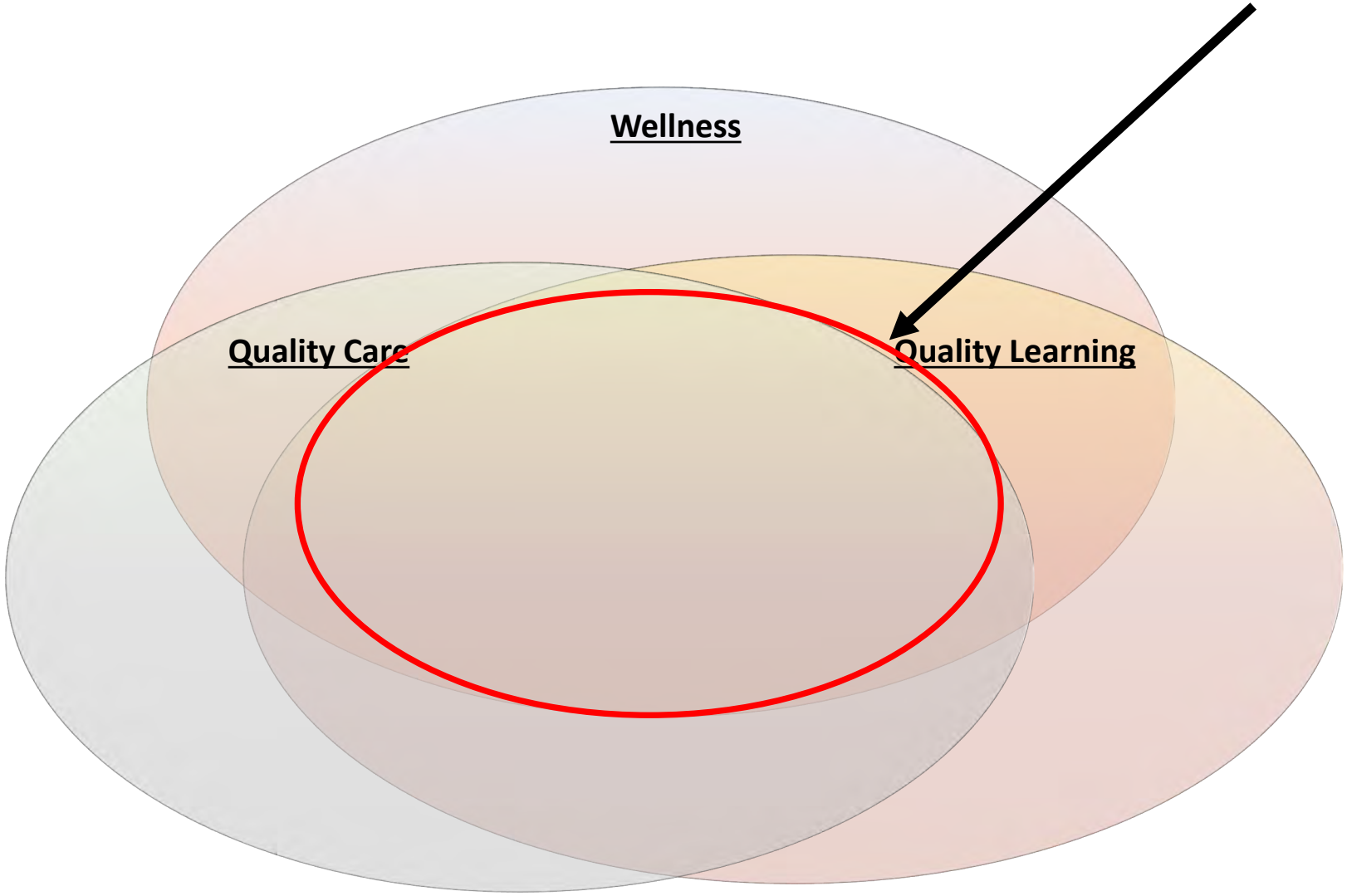
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Quality Care
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Getting CTU right requires being **proactive** and rethinking some of its key design features and relationships

UNDERMINING

SCHEDULING

Overlapping changeover days
Inconsistent team size with no ability to adjust for busier times
Long SMR rotation (attendings now only do 1-2 weeks)

SUPPORTIVE

SCHEDULING

Staggered changeover of SMR and Attending
Consistent team size/membership with high flow strategies
Adjust trainee rotation duration to match intensity

UNDERMINING

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COLLABORATIVE MODEL

Patients geographically dispersed
Interprofessional members shared across teams
Ineffective/asynchronous communication
Focus on discharging patients
8-4, M-F Models of care
Only SMR and Attending participate in multidisciplinary rounds

SUPPORTIVE

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Staggered changeover of SMR and Attending
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COLLABORATIVE MODEL

Patient geographically co-located
Interprofessional members dedicated to teams
Focus on synchronous communication
Focus on challenging cases and quality care + Discharge
24/7 models of care
Full team participates in multidisciplinary rounds

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PATIENT MIX/CENSUS
Too many patients
High variation in census/no balancing between teams
Too many non-acute patients
Too many sub-specialty-focused patients

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PATIENT MIX/CENSUS
Capped teams with adjustment for trainee numbers & time of year
Triage officers to support optimal case mix
Direct care teams to handle overflow

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CLINICAL WORKFLOW
Divide and conquer to get work done
Direct care by attending and SMR undermines jr. Trainee care
Too little time at the bedside/too much time in conference room
Prioritizing discharge over care

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Mix of independent and supervised time
Attending and SMR scaffold to support jr trainee ownership of pt.
Adequate time at bedside to observe and be observed
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EDUCATION WORKFLOW
Scheduled didactics pulling away from learning through care
Lack of faculty/trainee engagement
Lack of direct observation
Heavy focus on accreditation requirements (EPAs, duty-hours)

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EDUCATION WORKFLOW
Scheduled didactics based on rhythm of day
Range of teaching types, including bedside
Meaningful faculty/trainee engagement
Meaningful observation and feedback

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RELATIONSHIP TO HOSPITAL LEADERSHIP
Antagonistic or indifferent relationship
Lack of resident input
Metrics focused on efficiency and throughput

SUPPORTIVE

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RELATIONSHIP TO HOSPITAL LEADERSHIP
Leaders' familiar with CTU needs/priorities
Attending and Resident input on metrics
Hospital metrics adjusted to account for learning

Case Examples

	# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
University of Toronto	230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2
University of Alberta	110	9	15-25	3/1/2	1 Sr/2-3 Jrs/2-3 students	~100	6-28	1-2
McMaster University	107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2
Université de Montréal	150 (45 @HSCM)	3 @HSCM	12-15	2/2/3	0-1 Sr/2-3 Jrs/4-5 students	16 (14 FT) @HSCM	18	1-2

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Case Study #1 University of Toronto

Dr. Zac Feilchenfeld

Staff Physician, Division of General Internal Medicine, Sunnybrook Health Sciences Centre, University of Toronto

TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

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Case Study #1 University of Toronto

Key Themes: Scheduling, Patient Mix/Census

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Design: University-wide senior resident scheduling redesign to improve continuity of care

SCHEDULING

- **Goals of redesign:**
  - **Improve continuity of care**
  - **More consistent housestaff presence**
  - **Reduce 24h senior call**
  - **Better weekend coverage**
  - **Separation of consultant and MRP roles**

CLINICAL WORKFLOW

COLLABORATIVE MODEL

EDUCATION WORKFLOW

PATIENT MIX/CENSUS

RELATIONSHIP TO HOSPITAL LEADERSHIP

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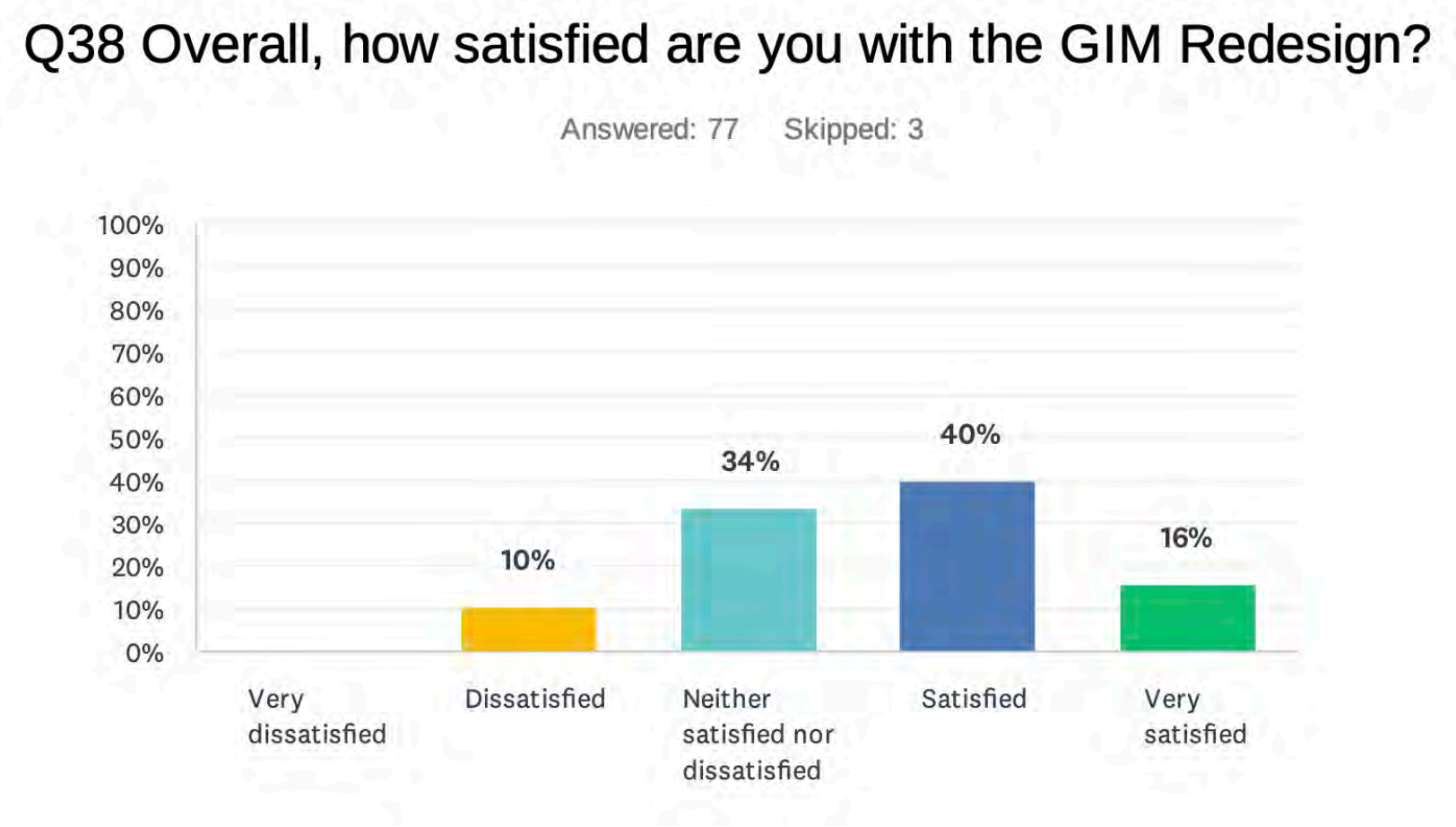
		CONSULTS			WARD							
	DATE	CONSULTS DAY		CONSULTS NIGHT	WARD DAY				WARD NIGHT			
		Consults Day 1	Consults Day 2	Consults Night	Yellow Ward Day	Green Ward Day	Blue Ward Day	Red Ward Day	Yellow Ward Night	Green Ward Night	Blue Ward Night	Red Ward Night
5	Monday	Red Senior B	Green Senior B	Blue Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
6	Tuesday	Yellow Senior B	Red Senior B	Green Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
7	Wednesday	Blue Senior B	Yellow Senior B	Red Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
8	Thursday	Green Senior B	Blue Senior B	Yellow Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
9	Friday	Red Senior B	Green Senior B	Blue Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
11	Saturday	Blue Senior A	Green Senior A	Green Senior B	Yellow Junior 3	Green Senior A	Blue Senior A	Red Junior 3	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
12	Sunday	Green Senior A	Blue Senior A	Blue Senior B	Yellow Junior 2	Green Senior A	Blue Senior A	Red Junior 2	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
14	Monday	Green Senior B	Yellow Senior B	Red Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
15	Tuesday	Blue Senior B	Green Senior B	Yellow Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
16	Wednesday	Red Senior B	Blue Senior B	Green Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
17	Thursday	Yellow Senior B	Red Senior B	Blue Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
18	Friday	Green Senior B	Yellow Senior B	Red Senior B	Yellow Senior A	Green Senior A	Blue Senior A	Red Senior A	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
20	Saturday	Red Senior A	Yellow Senior A	Yellow Senior B	Yellow Senior A	Green Junior 1	Blue Junior 1	Red Senior A	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
21	Sunday	Yellow Senior A	Red Senior A	Ambulatory Senior	Yellow Senior A	Green Junior 2	Blue Junior 2	Red Senior A	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
23	Monday	Yellow Senior A	Blue Senior A	Green Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
24	Tuesday	Red Senior A	Yellow Senior A	Blue Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
25	Wednesday	Green Senior A	Red Senior A	Yellow Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
26	Thursday	Blue Senior A	Green Senior A	Red Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
27	Friday	Yellow Senior A	Blue Senior A	Green Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
29	Saturday	Green Senior B	Blue Senior B	Blue Senior A	Yellow Junior 2	Green Senior B	Blue Senior B	Red Junior 2	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
30	Sunday	Blue Senior B	Green Senior B	Green Senior A	Yellow Junior 3	Green Senior B	Blue Senior B	Red Junior 3	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
32	Monday	Blue Senior A	Red Senior A	Yellow Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
33	Tuesday	Green Senior A	Blue Senior A	Red Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
34	Wednesday	Yellow Senior A	Green Senior A	Blue Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 2	Green Junior 3	CC3	Red Junior 2
35	Thursday	Red Senior A	Yellow Senior A	Green Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	Yellow Junior 3	CC3	Blue Junior 3	Red Junior 3
36	Friday	Blue Senior A	Red Senior A	Yellow Senior A	Yellow Senior B	Green Senior B	Blue Senior B	Red Senior B	CC3	Green Junior 1	Blue Junior 1	Red Junior 1
38	Saturday	Yellow Senior B	Red Senior B	Red Senior A	Yellow Senior B	Green Junior 2	Blue Junior 2	Red Senior B	Yellow Junior 1	Green Junior 2	Blue Junior 2	CC3
39	Sunday	Red Senior B	Yellow Senior B	Ambulatory Senior	Yellow Senior B	Green Junior 1	Blue Junior 1	Red Senior B	CC3	Green Junior 1	Blue Junior 1	Red Junior 1

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Design: University-wide senior resident scheduling redesign to improve continuity of care



# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Volume: Operationalizing caps and offloading

SCHEDULING

- Goals of redesign:
  - Improve continuity of care
  - More consistent housestaff presence
  - Reduce 24h senior call
  - Better weekend coverage
  - Separation of consultant and MRP roles

CLINICAL WORKFLOW

COLLABORATIVE MODEL

EDUCATION WORKFLOW

PATIENT MIX/CENSUS

- Capped teams via expansion of resident-independent units
- Other team members incorporated on CTUs
- Integration with scheduling
- On-going data-driven evaluation

RELATIONSHIP TO HOSPITAL LEADERSHIP

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Volume: Operationalizing caps and offloading

DATE		Green Team								
		Staff	Daytime Housestaff							
			Senior	Junior 1	Junior 2	Junior 3	Fly-in daytime	Elective Clerk	Clerk 1	Clerk 2	Total
Monday	28-Aug	Dhhar	Green Senior A		Green Junior 2				Clerk 1	Clerk 2	4
Tuesday	29-Aug		Green Senior A (PM half-day)	Green Junior 1	Green Junior 2	Green Junior 3			Clerk 1	Clerk 2	6
Wednesday	30-Aug			Green Junior 1	Green Junior 2 (PM half-day)	Green Junior 3 (AM half-day)					3
Thursday	31-Aug		Green Senior A		Green Junior 2	Green Junior 3			Clerk 1	Clerk 2	5
Friday	01-Sep		Green Senior A		Green Junior 2				Clerk 1	Clerk 2	4
Saturday	02-Sep		Green Senior A				Fly-in				2
Sunday	03-Sep				Green Junior 2						1
Monday	04-Sep			Green Junior 1							1
Tuesday	05-Sep	Juurlink	Green Senior A (PM half-day)		Green Junior 2	Green Junior 3 (AM half-day)					3
Wednesday	06-Sep		Green Senior A	Green Junior 1	Green Junior 2 (PM half-day)						3
Thursday	07-Sep		Green Senior A	Green Junior 1 (PM half-day)	Green Junior 2	Green Junior 3				Clerk 2	5
Friday	08-Sep		Green Senior A	Green Junior 1		Green Junior 3					3
Saturday	09-Sep					Green Junior 3					1
Sunday	10-Sep			Green Junior 1							1
Monday	11-Sep		Green Senior B		Green Junior 2			Elective Clerk	Clerk 1	Clerk 2	5
Tuesday	12-Sep		Green Senior B	Green Junior 1	Green Junior 2			Elective Clerk			4
Wednesday	13-Sep		Green Senior B (PM half-day)	Green Junior 1 (PM half-day)				Elective Clerk	Clerk 1	Clerk 2	5
Thursday	14-Sep		Green Senior B	Green Junior 1 (PM half-day)	Green Junior 2			Elective Clerk	Clerk 1	Clerk 2	6
Friday	15-Sep		Green Senior B		Green Junior 2			Elective Clerk	Clerk 1	Clerk 2	5
Saturday	16-Sep				Green Junior 2			Elective Clerk (until 5 PM)			2
Sunday	17-Sep		Green Senior B				Fly-in		Clerk 1	Clerk 2	4
Monday	18-Sep	Dhhar	Green Senior B	Green Junior 1		Green Junior 3		Elective Clerk			4
Tuesday	19-Sep		Green Senior B	Green Junior 1		Green Junior 3 (AM half-day)		Elective Clerk	Clerk 1	Clerk 2	6
Wednesday	20-Sep		Green Senior B (PM half-day)			Green Junior 3 (AM half-day)		Elective Clerk	Clerk 1	Clerk 2	5
Thursday	21-Sep		Green Senior B	Green Junior 1 (PM half-day)		Green Junior 3		Elective Clerk	Clerk 1	Clerk 2	6
Friday	22-Sep		Green Senior B	Green Junior 1		Green Junior 3		Elective Clerk			4
Saturday	23-Sep			Green Junior 1							1
Sunday	24-Sep					Green Junior 3					1

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Volume: Operationalizing caps and offloading

Housestaff

		Blue	Green	Red	Yellow
Monday	28-Aug				
Tuesday	29-Aug				
Wednesday	30-Aug	3	4.4	4.4	3.4
Thursday	31-Aug				
Friday	01-Sep				
Saturday	02-Sep				
Sunday	03-Sep				
Monday	04-Sep	Holiday			
Tuesday	05-Sep				
Wednesday	06-Sep	2.75	3.5	3.8	2.75
Thursday	07-Sep				
Friday	08-Sep				
Saturday	09-Sep				
Sunday	10-Sep				
Monday	11-Sep				
Tuesday	12-Sep				
Wednesday	13-Sep	5	5	4.8	4.8
Thursday	14-Sep				
Friday	15-Sep				
Saturday	16-Sep				
Sunday	17-Sep				
Monday	18-Sep				
Tuesday	19-Sep				
Wednesday	20-Sep	5.8	5	4.8	5.8
Thursday	21-Sep				
Friday	22-Sep				
Saturday	23-Sep				
Sunday	24-Sep				

Housestaff

		Blue	Green	Red	Yellow
Monday	28-Aug	2	4	4	2
Tuesday	29-Aug	3	6	6	4
Wednesday	30-Aug	3	3	5	5
Thursday	31-Aug	3	5	3	4
Friday	01-Sep	4	4	4	2
Saturday	02-Sep				
Sunday	03-Sep				
Monday	04-Sep	Holiday			
Tuesday	05-Sep	2	3	4	2
Wednesday	06-Sep	3	3	3	3
Thursday	07-Sep	3	5	5	4
Friday	08-Sep	3	3	3	2
Saturday	09-Sep				
Sunday	10-Sep				
Monday	11-Sep	5	5	6	5
Tuesday	12-Sep	5	4	5	6
Wednesday	13-Sep	4	5	5	5
Thursday	14-Sep	6	6	5	3
Friday	15-Sep	5	5	3	5
Saturday	16-Sep				
Sunday	17-Sep				
Monday	18-Sep	5	4	5	6
Tuesday	19-Sep	6	6	5	5
Wednesday	20-Sep	6	5	3	7
Thursday	21-Sep	6	6	6	5
Friday	22-Sep	6	4	5	6
Saturday	23-Sep				
Sunday	24-Sep				

Patient Numbers (0800h) - after moves

		Blue	Green	Red	Yellow	Orange(K3E)	Purple	Silver+	Total CTU	Total Non-CTU
Monday	28-Aug	14	17	16	16	16	14	13	63	43
Tuesday	29-Aug	16	14	18	17	15	14	14	65	43
Wednesday	30-Aug	16	17	16	19	15	15	14	68	44
Thursday	31-Aug	18	17	16	18	16	15	12	69	43
Friday	01-Sep	17	16	18	18	15	15	13	69	43
Saturday	02-Sep									
Sunday	03-Sep									
Monday	04-Sep									
Tuesday	05-Sep	17	18	16	18	17	15	14	69	46
Wednesday	06-Sep	18	18	17	20	16	16	15	73	47
Thursday	07-Sep	19	18	15	17	18	13	15	69	46
Friday	08-Sep	17	16	17	18	17	15	14	68	46
Saturday	09-Sep									
Sunday	10-Sep									
Monday	11-Sep	19	21	20	19	16	16	15	79	47
Tuesday	12-Sep	20	21	22	19	16	16	14	82	46
Wednesday	13-Sep	22	23	23	22	16	16	17	90	49
Thursday	14-Sep	23	22	18	20	16	16	16	83	48
Friday	15-Sep	22	21	18	20	16	16	17	81	49
Saturday	16-Sep									
Sunday	17-Sep									
Monday	18-Sep	20	20	19	18	16	14	12	77	42
Tuesday	19-Sep	20	21	18	19	17	14	11	78	42
Wednesday	20-Sep	19	22	19	18	18	14	11	78	43
Thursday	21-Sep	20	23	19	19	17	16	12	81	45
Friday	22-Sep	19	19	15	20	16	13	10	73	39
Saturday	23-Sep									
Sunday	24-Sep									
		-3	0	-1	-16	7	2	11		
		18.7	19.2	17.9	18.7	16.3	14.9	13.6		

Notes

i.e. What moves did you make
Silver took 1 from Blue, 2 from Yellow
Green took 1 from Yellow
Silver took 1 from Yellow, Orange took 1 from Yellow
Orange took 1 from Yellow
Silver took 1 from Green, 1 from Yellow; Orange took 1 from Red
Silver took 1 from Yellow, Orange took 1 from Yellow
Silver took 1 from Yellow, Orange took 1 from Blue, 1 from Yellow
Orange took 1 from Blue, Purple took 1 from Yellow
Silver took 1 from Yellow, Purple took 1 from Yellow
Silver took 1 from Yellow
Silver took 1 from Yellow

	Blue	Green	Red	Yellow	Avg Team	K3E	Silver	Total CTU	Total RIU	Total GIM	% GIM on CTU
Oct 22-Jun 23	19.7	18.6	18.5	19.0	18.9	29.8	9.6	75.8	39.5	115.2	65.8%
Block 1-2 Total	16.5	16.7	17.0	17.6	17.0	29.6	14.4	67.8	44.0	111.8	60.7%
Block 3 Running To	18.7	19.2	17.9	18.7	18.6	31.2	13.6	74.5	44.8	119.3	62.4%
Post-implementati	17.3	17.5	17.3	18.0	17.5	30.1	14.2	70.0	44.3	114.3	61.3%
Difference	-2.4	-1.0	-1.2	-1.1	-1.4	0.3	4.6	-5.7	4.8	-0.9	-4.5%
Proportional differ	-12%	-5%	-7%	-6%	-8%	1%	47%	-8%	12%	-1%	-7%

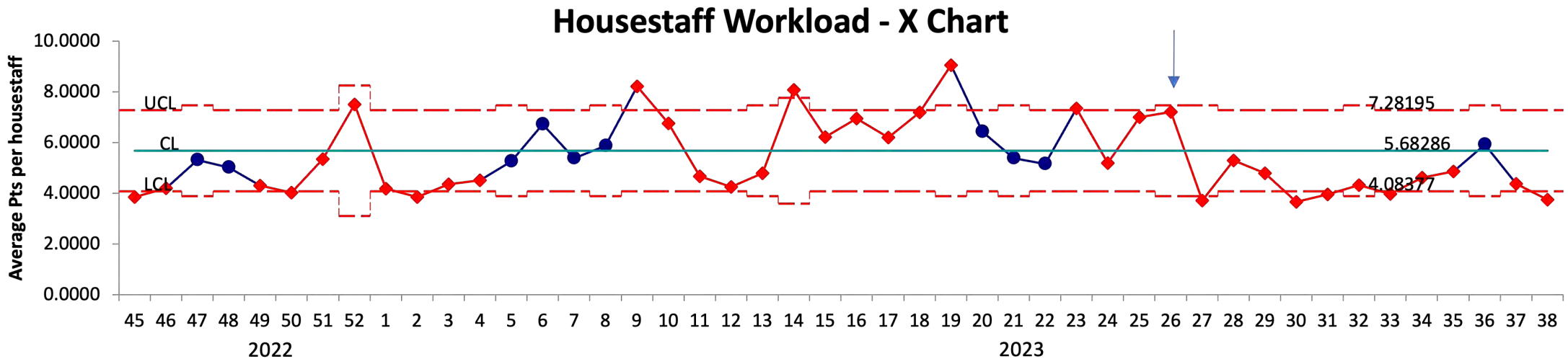
Housestaff Ratios

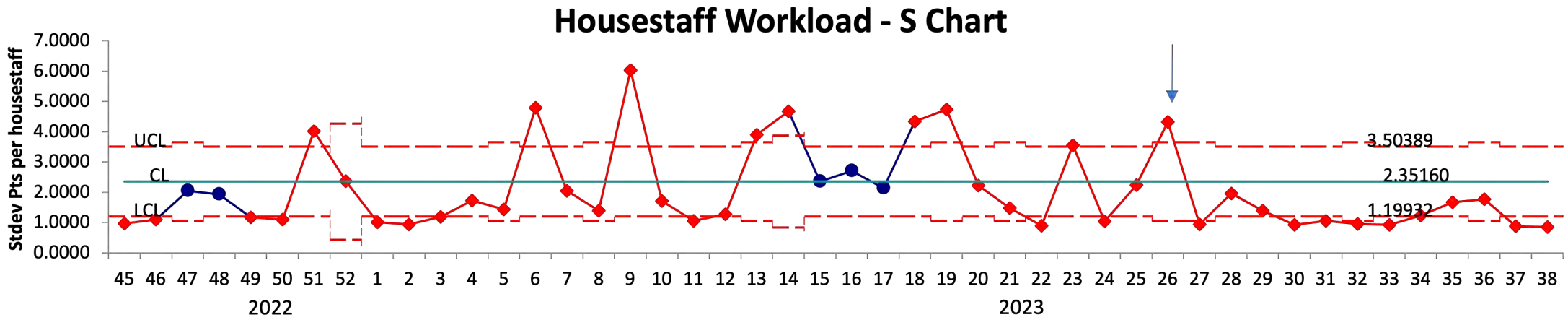
		Blue	Green	Red	Yellow
Monday	28-Aug	7.0	4.3	4.0	8.0
Tuesday	29-Aug	5.3	2.3	3.0	4.3
Wednesday	30-Aug	5.3	5.7	3.2	3.8
Thursday	31-Aug	6.0	3.4	5.3	4.5
Friday	01-Sep	4.3	4.0	4.5	9.0
Saturday	02-Sep				
Sunday	03-Sep				
Monday	04-Sep	Holiday			
Tuesday	05-Sep	8.5	6.0	4.0	9.0
Wednesday	06-Sep	6.0	6.0	5.7	6.7
Thursday	07-Sep	6.3	3.6	3.0	4.3
Friday	08-Sep	5.7	5.3	5.7	9.0
Saturday	09-Sep				
Sunday	10-Sep				
Monday	11-Sep	3.8	4.2	3.3	3.8
Tuesday	12-Sep	4.0	5.3	4.4	3.2
Wednesday	13-Sep	5.5	4.6	4.6	4.4
Thursday	14-Sep	3.8	3.7	3.6	6.7
Friday	15-Sep	4.4	4.2	6.0	4.0
Saturday	16-Sep				
Sunday	17-Sep				
Monday	18-Sep	4.0	5.0	3.8	3.0
Tuesday	19-Sep	3.3	3.5	3.6	3.8
Wednesday	20-Sep	3.2	4.4	6.3	2.6
Thursday	21-Sep	3.3	3.8	3.2	3.8
Friday	22-Sep	3.2	4.8	3.0	3.3
Saturday	23-Sep				
Sunday	24-Sep				
		5.0	4.4	4.3	5.2

	<3	>6
	2	10
<3	0	1	0	1
>6	3	0	1	6

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Volume: Operationalizing caps and offloading





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230	20	18-20	4/4/4	1 Sr/2-3 Jrs/2-3 students	~95+	8-30	1-2

Unaddressed tensions: A ton of other work to do

TEMERTY FACULTY OF MEDICINE
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SCHEDULING
- Accounting for absences (e.g. AHD, vacations)
- Ability to adapt to busier times of day/year/skillset of trainees

CLINICAL WORKFLOW
- (Re)-incorporating bedside care and teaching
- Ensuring appropriate opportunities for supervised and independent time

COLLABORATIVE MODEL
- Lack of dedicated multi-disciplinary teams at all sites
- Geographic co-location only at some sites and imperfect

EDUCATION WORKFLOW
- Enabling attendance at high quality rounds
- Ensuring assessment is aligned with clinical responsibilities and generates meaningful feedback

PATIENT MIX/CENSUS
- Continued clinical volume pressures
- Sustainability of current offload models

RELATIONSHIP TO HOSPITAL LEADERSHIP
- Need for on-going engagement of residents and GIM staff with changes that impact clinical practice/learning
- Priorities/metrics need to be aligned with academic mission

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
110	9	15-25	3/1/2	1 Sr/2-3 Jrs/2-3 students	~100	6-28	1-2

Case Study #2
University of Alberta

Dr. Jennifer Ringrose

Staff Physician, University of Alberta Hospital, GIM Divisional Director, University of Alberta

UNIVERSITY OF ALBERTA

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
110	9	15-25	3/1/2	1 Sr/2-3 Jrs/2-3 students	~100	6-28	1-2

Case Study #2 University of Alberta

Key Themes: Collaborative Model, Clinical Workflow

UNIVERSITY OF ALBERTA

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
110	9	15-25	3/1/2	1 Sr/2-3 Jrs/2-3 students	~100	6-28	1-2

Design: Care transformation project circa 2010 decreased LOS and improved overall CTU experience

SCHEDULING
- New dedicated team in Emergency to triage and admit patients
- Dedicated team to support ward consults and ICU transfers
- Night float rotation, CTU seniors not on call during the week

CLINICAL WORKFLOW
- Cohorting of patients facilitated efficiency of patient care and rounds given geographic proximity
- Sick patients can be attended to with immediacy

COLLABORATIVE MODEL
- Rapid rounds each morning with multi-disciplinary teams to establish and monitor care plan for patients
- Dedicated allied health members per CTU team
- Medication reconciliation at admission and discharge with pharmacy support with associated rationale for changes

EDUCATION WORKFLOW
- Cohorting of patients facilitated a team “touchdown space” and associated team building
- Attendance at rounds increased due to team culture

PATIENT MIX/CENSUS
- Cohorting of patients naturally capped CTU team size
- Addition of i-care unit (observation unit which allowed BIPAP/IV rate controlling medications and telemetry), improving breadth of educational experience

RELATIONSHIP TO HOSPITAL LEADERSHIP
- Funding received from AHS
- Full support of project which was highlighted as a model to reduce LOS

UNIVERSITY OF ALBERTA

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
110	9	15-25	3/1/2	1 Sr/2-3 Jrs/2-3 students	~100	6-28	1-2

Unaddressed tensions: Increased patient volumes and pandemic reactions that have been sustained

SCHEDULING

- CBD has lessened the number of learner rotating through GIM
- One hospital in Edmonton which previously had UME/IM learners currently does not
- Asynchronous learner absences for educational and personal reasons

CLINICAL WORKFLOW

- (Re)-incorporating bedside care and teaching post pandemic

COLLABORATIVE MODEL

- Increase in non-resident teams (4) has decreased geographic cohorting over multiple units
- Previous cohorting criteria were strict but erosion has occurred over time
- Ongoing confusion at night about “who to call”

EDUCATION WORKFLOW

- Many were on hold or virtual during the pandemic – re-introduction has been slow

PATIENT MIX/CENSUS

- Patient numbers per team have increased due to usage of overcapacity beds and hallway placement
  - From 18-20 patients to up to 25 per team

RELATIONSHIP TO HOSPITAL LEADERSHIP

- Increasing pressures on patient flow/discharges without additional resources, more patients without primary care
- Shortages/cross covering of allied health teams has decreased continuity of care

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Case Study #3
McMaster University

Dr. Leslie Martin

Department of Medicine, McMaster University

McMaster University

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Case Study #3
McMaster University

Key Themes: Scheduling, Relationship to Hospital Leadership

McMaster University

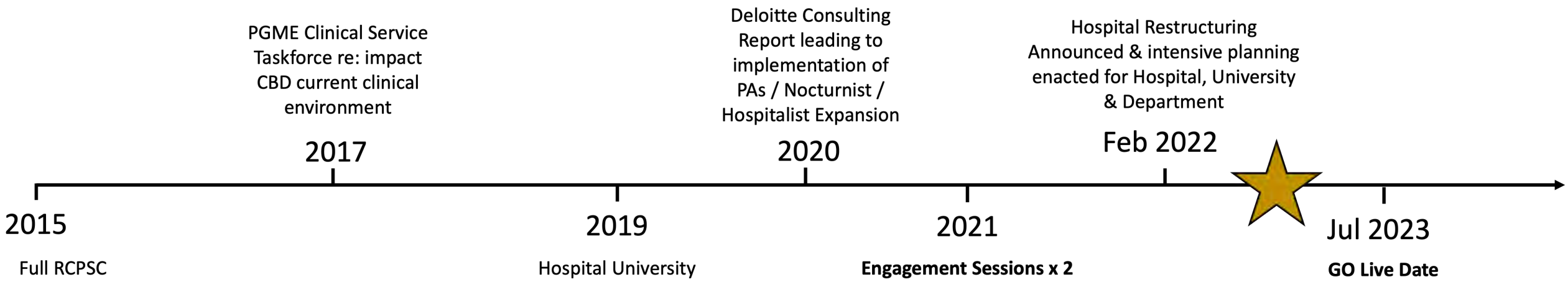
# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Options Explored

	Daytime Model	Nighttime Model	Pros	Cons
1	CTU team coverage at 3 sites	Nighttime Coverage at 2 sites	Maintain 3 CTUs Case-mix at sites	• Reduce learners further across sites in the daytime • Erosion of team culture • Lack of continuity of care
2	CTU team coverage at 3 sites	Partial night coverage at 3 sites	Maintain 3 CTUs Case-mix at sites	• Reduce learners further across sites in the daytime and nighttime • Erosion of team culture • Complex model for night coverage • Ensuring proper resident supervision by non-academic faculty
3	CTU team coverage at 2 sites	Coverage at 2 sites	Opportunity to re-envision academic CTU to establish team culture and robust education	• Lose a CTU Site • Re-allocate faculty • Determine what the 3rd site looks like from an educational perspective (?No CMR, rounds)

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Timeline of Restructure Plan & Engagement



McMaster University

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Design: Restructure July 2023

McMaster University

SCHEDULING

- Growth of the call team from 4 to 5 residents
- Paired senior residents in PGY2
- Enhanced resilience in schedule for illness with “home call” to minimize fragility of NF schedule
- Night float rotation, CTU seniors not on call during the week

CLINICAL WORKFLOW

- Improved capacity for SMRs and faculty to engage in direct observation due to improvement in census through the restructure

COLLABORATIVE MODEL

- Cohorting of patients was well-established in the 2 CTU sites
- Interprofessional model well-established in the 2 CTU sites

EDUCATION WORKFLOW

- Reintroduction of morning report 8-8:30AM at both sites
- Attendance at rounds increased due to reconcentration of learners at the 2 sites
- Meaningful engagement of residents and faculty in changes

PATIENT MIX/CENSUS

- Restructure concentrated the full CTU teams at the 2 remaining sites, enhancing capacity for patient care
- MD-based teams were maintained at each site, supported by physician extenders

RELATIONSHIP TO HOSPITAL LEADERSHIP

- Full support of hospital and university to support restructure, which included hiring of 80 part-time and full-time physicians at our site of closure
- Resident input systematically sought in re-design

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
107	12	25-30	4/3.5/2-3 (JA/CMR)	1 Sr/3-4 Jrs/2-3 students	58	4-30	2

Ongoing (anticipated/real) Challenges:

McMaster University

SCHEDULING

- CBD continues to threaten the number of learner rotating on the CTU
- Unanticipated learner absences for educational and personal reasons – feeling of feast vs. famine
- Rising conversation examining 24 hour call model for all rotations
- Defining expectations for after-hours supervision

COLLABORATIVE MODEL

- 24/7 model of care
- Morning report interferes with engaging the full team in multi-disciplinary rounds at one site

PATIENT MIX/CENSUS

- CTU is not a closed unit in order to maintain continuity of care
- Caps continues to be a challenge when hospital census rises in order to meet need (across CTU and MD based teams)
- Lack of flexibility for learners and the program around timing for rotations in order to adjust trainee numbers based on time of year and other pressures

CLINICAL WORKFLOW

- Ongoing focus for (re)-incorporating bedside care and teaching post pandemic
- Census shifts continue to impact availability for faculty for direct observation

EDUCATION WORKFLOW

- Many were on hold or virtual during the pandemic – need to rebuild culture and comfort
- Aligning “rhythm” of the unpredictable clinical day with education

RELATIONSHIP TO HOSPITAL LEADERSHIP

- Ongoing pressures due to continued rise in patient complexity/need
- Health human resource shortages

**Note: Restructure very fresh, ongoing monitoring of impact is underway*

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
150 (45 @HSCM)	3 @HSCM	12-15	2/2/3	0-1 Sr/2-3 Jrs/4-5 students	16 (14 FT) @HSCM	18	1-2

Case Study #4
Université de Montréal

Dr. Rosalie-Sélène Meunier

Affiliations

Université de Montréal

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
150 (45 @HSCM)	3 @HSCM	12-15	2/2/3	0-1 Sr/2-3 Jrs/4-5 students	16 (14 FT) @HSCM	18	1-2

Case Study #4 Université de Montréal

Key Themes: Different Model, Similar Challenges

Université de Montréal

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
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Francophone faculties, a different model

- 3 Francophone faculties in Québec
- 24-hour call shifts abolished for residents through collective labor agreement over 10 years ago
- Different hospital structure, fewer beds under GIM's responsibility
- Consequently, different rotation planning

Université de Montréal

# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
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A solution for calls

- Night Shift Rotation to limit absences and promote continuity of care for patients/continuous clinical exposition for trainees
- Night shifts from Monday to Thursday under the responsibility of the same team of residents (size vary according to the number of patients to be covered in the hospital)
- Friday to Sunday, residents from day rotations (CTU and other specialties) on call

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GIM and other subspecialties @ Hôpital du Sacré-Coeur

- 458 beds, 262 medical beds including 62 acute care beds
- **30 GIM beds**
- 24 Neurology
- 16 Nephrology
- 16 Hemato-oncology
- 2 Rheumatology
- 24 Cardiology
- 24 Respirology
- 10 Gastroenterology
- 34 Geriatrics and palliative care by family medicine

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CTU and GIM Rotations PGY1-2-3

- PGY1: 2 CTU rotations
- PGY2: 2 CTU rotations, 1 rural GIM
- PGY 3: 3 CTU rotations, 1 rural GIM, 2 consultations, 3 ambulatory medicine, 1 Night Shift

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# Core IM trainees	# CTUs	Pts per avg. CTU	# Blocks of CTU PGY 1/2/3	Trainees per team	# Faculty	# Weeks CTU per year per faculty	Faculty consecutive weeks CTU
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Different structure, same challenges: Local and program adaptations

SCHEDULING

- Improve continuity of care by implementing Night Shift rotation
- Regrouping non-clinical academic activities
- Addition of a second internist for better weekend coverage

CLINICAL WORKFLOW

- Creation of a third CTU, 0-1 residents, 2-3 medical students

COLLABORATIVE MODEL

EDUCATION WORKFLOW

PATIENT MIX/CENSUS

- Collaboration with different subspecialties to transfer interesting cases to meet training objectives

RELATIONSHIP TO HOSPITAL LEADERSHIP

- Day hospitalisation, dedicated CTU with access to rapid investigation

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Unadressed tensions: Different structure, similar challenges

SCHEDULING

- Academic training on different days for medical studenst and junior and senior residents
  - Difficult to plan common activities

CLINICAL WORKFLOW

COLLABORATIVE MODEL

- Unique MDT challenged

EDUCATION WORKFLOW

PATIENT MIX/CENSUS

RELATIONSHIP TO HOSPITAL LEADERSHIP

- Rapid investigation closed during pandemic, new version planned does not integrate with CTU teams

Université de Montréal

Conclusion

A Vision for the Present

Carrying on the Discussion

(1500h – Rm. 205C)

Questions and Comments Welcomed