

TRAILBLAZER ADVENTURER  
INNOVATOR DEFENDER CHALLENGER  
ADVENTURER TRAILBLAZER DEFENDER VISIONARY  
VISIONARY ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY  
KIPKIPKIPKIP TRILIP DE I TON ADI I FLIPPA PFFPFFP TRAILBLAZER CHALLENGER DEFENDER VISIONARY

# Longitudinal Clerkship

UGME Boot Camp

---



UNIVERSITY  
OF MANITOBA

# Outline of Presentation

- What is a Longitudinal Integrated Clerkship (LInC)?
    - Principles
    - Beginnings
    - Types of LInCs
    - Variables
  - Outcomes
  - Disadvantages of a LInC
  - Brandon LInC
  - Lessons learned from the first year
  - Future for U of M
- 



# LInC Principles

- Continuity underpins the educational rationale for an LInC
- Commission on Education of Health Professionals for the twenty-first century in 2010 concluded that one of the main issues with medical education is fragmentation of curriculum.
- The Commission recommended
  - A greater emphasis on teamwork
  - Continuous rather than episodic care
  - Primary rather than hospital focused care

---

•



## LInC Principles 2

- Longitudinal exposure to the same preceptors over the course of the year to help strengthen relationships between preceptors and students
- Longitudinal exposure to a group of patients over the course of a year
- Integration of learning



# LInC Beginnings

- LInCs are not new
- First LInC was established in 1971 in Minnesota
- Major reason for establishing the first one was to try to improve populating the rural area with physicians
- Now offered in many countries including Australia, Canada, US, Singapore, Britain



## LInC Beginnings 2

- Consortium now includes 80 programs across the world including Canada, US, Singapore, China, Australia and South Africa
- Settings as urban as Harvard and UC San Francisco and as rural as very small towns in Australia and the Midwest US
- 11/17 medical schools in Canada offer a version (NOSM is all in)



# Types of LInC

- There is a saying in the LInC community that if you have seen an LInC you have seen one LInC
  - LInC development is often site specific
  - Styles
    - Family Physician predominant – usually rural in sites where there are not a lot of specialists
    - Parallel stream – usually in large cities
    - Hybrid – Brandon one is considered a hybrid
  - Duration
- 





# ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR

TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER

	MON	TUES	WED	THUR	FRI	W/E
8 – 9	HCS	HCS	HCS	HCS	HCS	HCS (you may be scheduled to work)
9 – 12 (you may be scheduled to work)	PCS	PCS	PCS	PCS	SES	
12 – 1	BREAK					
1 – 4 (you may be scheduled to work)	DTS	PCS	Personal Study	VAR - Case 1	SES	HCS (you may be scheduled to work)
	VAR - Case 1			VAR - Case 2		
7 – 11		HCS				

Legend
DTS = Distributed Tutorial Session
VAR = Virtual Academic Rounds
PCS = Primary Care Sessions
HCS = Hospital Care Sessions (On-Call Sessions)
SES = Specialty Enhancement Sessions



UNIVERSITY  
OF MANITOBA



# ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR

TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER

Monday	Tuesday	Wednesday	Thursday	Friday
Medicine clinic	Family and Community Medicine clinic	Psychiatry clinic	Patient panel and self- directed learning*	Surgery (operating room)
Urgent Care	Patient panel and self- directed learning*	Pediatrics clinic	Surgery clinic	PISCES school
Reflections group				
Monday	Tuesday	Wednesday	Thursday	Friday
Medicine clinic	Family and Community Medicine clinic	Psychiatry clinic	Gynecology clinic	Anesthesia (operating room)
Patient panel and self-directed learning*	PISCES school Emergency Medicine	Patient panel and self-directed learning*	Neurology clinic	Anesthesia (operating room)



# ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR

TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER TRAILBLAZER CHALLENGER DEFENDER VISIONARY INNOVATOR EXPLORER

Weeks	Aug 28 - Sept 29 - Pre-Clerkship	1	2	3	4	5	6	7	8	9	10	11	12
		Oct 1-Oct 7	Oct 8-Oct 14	Oct 15-Oct 21	Oct 22-Oct 28	Oct 29 - Nov 4	Nov 5-Nov 11	Nov 12-18	Nov 19-Nov 25	Nov 26-Dec 2	Dec 3-Dec 9	Dec 10-Dec 16	Dec 17-Dec 23
Student 1		SUR	SUR	OBGYN	OBGYN	IM	HSP MED	PEDS	PEDS	SUR	EM	ANA	Psych
Student 2		OBGYN	OBGYN	IM	HSP MED	PEDS	PEDS	SUR	SUR	ANA	Psych	Psych	OBGYN
Student 3		IM	HSP MED	PEDS	PEDS	Psych	SUR	ANA	Psych	Psych	HSP MED	HSP MED	Ortho
Student 4		EM	PEDS	Psych	Psych	OBGYN	OBGYN	EM	HSP MED	Optha/ENT	SUR	SUR	IM

SUR	Surgery
OBGYN	Obstetrics and Gynecology
IM	Internal Medicine
HSP MED	Hospital Medicine
PEDS	Pediatrics

EM	Emergency Medicine
ANA	Anaesthesia
Psych	Psychiatry
Ortho	Orthopedics
Optha/ENT	Ear, Nose Throat, Ophthalmology



# Academic Outcomes

- Walters et. al. (2012) review of LInCs
- 18 studies were identified looking at academic outcomes using a variety of indicators including
  - University specific exams
  - Shelf subject exams
  - USMLE 1 and 2
  - OSCEs



## Academic Outcomes 2

- 14 comparisons showed LIC students did better than TBR
- 18 comparisons demonstrated similar outcomes
- 1 comparison where outcomes were poorer



## Academic Outcomes 3

- UC San Francisco developed a longitudinal clerkship in a teaching hospital setting using outpatient clinics

		<i>N</i>	Mean (SD)	<i>P</i> -value
Internal medicine	Traditional	171	81.9 (7.9)	0.52
	PISCES	23	83.0 (8.3)	
Obstetrics and gynecology*	Traditional	176	74.2 (7.3)	0.40
	PISCES	15	72.4 (11.9)	
Pediatrics	Traditional	182	87.7 (10.8)	0.38
	PISCES	23	85.7 (11.2)	
Surgery	Traditional	191	73.5 (8.0)	0.93
	PISCES	23	73.3 (9.6)	



## Academic Outcomes 4

- In OSCE style exam with eight stations PISCES students did slightly better than traditional clerkship students
- 67.1% correct (SD4.3) versus 65.6% (SD4.6) respectively,  $P < 0.05$



# Clinical Performance

- Increased patient-centered skills
- A deeper understanding of the psychosocial component of the biopsychosocial model of illness
- More actively contribute to the health care of patient
- Improved understanding of their own limits.





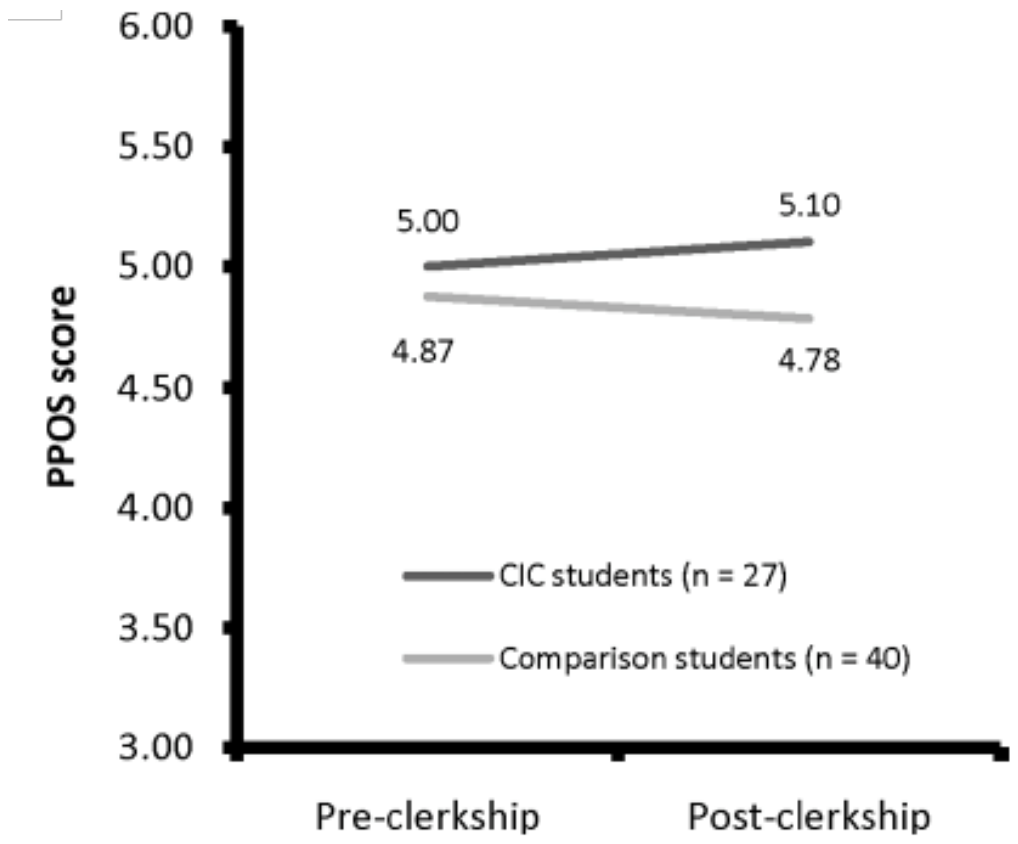
## Clinical Performance 2

- Greater confidence in dealing with uncertainty
- More reflective practice
- Self-directed
- Better understanding the health care system.



# Empathy

PPOS = Patient-Practitioner Orientation Scale



## Values and Ethics

- Inspired commitment to and advocacy for patients and communities
- Increased feeling of responsibility to the community
- Increased confidence in dealing with ethical dilemmas



## Access to Patients

- LIC students logged equal or more exposure to core diagnoses
- More LIC students (n = 27) than TBR students (n = 45), indicated they saw patients before admission (70% versus 17%) and post-discharge (89% versus 12%)

Hirsh D, Gauferg E, Ogur B, Cohen P, Krupat E, Cox M, Pelletier S, Bor D. Educational outcomes of the Harvard Medical School–Cambridge Integrated Clerkship: a way forward for medical education. *Acad Med* 2012;87 (5):643–50



## Adequacy of Evaluation

- Self-reported adequacy of direct observation of clinical skills LIC Mean 4.4 cf. TBR 3.8 (ES = 0.09 of 5)
  - Self-reported adequacy of feedback on student performance Mean 4.2 cf. 3.8 (ES = 0.05 of 5)
- (Poncelet AN, Bokser S, Calton B, et al. Development of a longitudinal integrated clerkship at an academic medical centre. Med Educ Online 2011;16:5939)
- More LIC students (n = 27) compared with TBR students (n = 40) indicated they received feedback on clinical performance (90% versus 33%) (p < 0.01)

Hirsh et al.



## Disadvantages of a LInC

- Works better with students that are self-directed in the clinical environment
- At the beginning learning a more complex environment can be disorienting
- More complex scheduling
- Audio-visual challenges



# Brandon LInC Delivery

- Core of the LInC is to place students in a rural family practitioner's practice for a day every two weeks and do the same with a Brandon family practitioner
- Mini-blocks for two weeks at a time.
- Major disciplines are revisited 3 or four times during the year.
- Try to use the same preceptors in specialties for each exposure





## Brandon LInC Delivery 2

- Exams are written after academic content has been covered but not all clinical exposure
- Evaluation is similar to Winnipeg but an extra ITER is done after two weeks in a discipline to get feedback to the student earlier
- Mini-CEXs (Clinical examination exercises) are done 16 times in the family medicine environment including communication, clinical reasoning, history and physical exam



## Brandon LInC Delivery 3

- Started October 2017
- Attracted one student
- Passed exams and met all ECPs
- Most ECPs were met by the six-month mark
- One student for 2018/19
- Four students interested for 2019/2020



# Brandon LInC Delivery 4

- Learning from the first year
  - Small bumps along the way
  - Adjusted exam day part way through
  - AV was a challenge – need to get teaching in a room with AV connection
  - Did fairly well with evaluation completion
  - Getting a single FITER for family medicine or internal medicine is a challenge



# Brandon LInC Delivery 5

- Feedback
  - More exposure to orthopedics
  - Different preceptors for Psychiatry – busier practitioners
  - More ED up front
  - More time in anesthesia
  - One pediatric preceptor didn't allow a lot of hands on
  - Difficulty getting deliveries when paired with a family medicine resident
  - More call at the beginning of the year



# The Future

- Viable model of clerkship for U of M
- Helps to get students to rural Manitoba for longer during medical school
- The sooner you can get students out of the city, the more likely they are to stay rural
- Expansion to 16 LInC spots over the next five years



# Bibliography

- Thistlethwaite JE, Bartle E, Chong AA, et al. A review of longitudinal community and hospital placements in medical education: BEME Guide No. 26. *Med Teach*. 2013;**35**:e1340-1364.
- Walters L, Greenhill J, Richards J, et al. Outcomes of longitudinal integrated clinical placements for students, clinicians and society. *Med Educ*. 2012;**46**:1028-1041.
- Hirsh DA, Ogur B, Thibault GE, Cox M. "Continuity" as an organizing principle for clinical education reform. *N Engl J Med*. 2007;**356**:858-866
- Poncelet A, Bokser S, Calton B, et al. Development of a longitudinal integrated clerkship at an academic medical center. *Med Educ Online* 2011;16 5939 - DOI: 10.3402/meo.v16i0.5939
- Hirsh, D. et al. Educational Outcomes of the Harvard Medical School–Cambridge Integrated Clerkship: A Way Forward for Medical Education *Acad Med* 2012; 87: 643-50



TRAILBLAZER ADVENTURER  
INNOVATOR DEFENDER CHALLENGER  
ADVENTURER TRAILBLAZER DEFENDER VISIONARY  
VISIONARY ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY  
ADVENTURER TRAILBLAZER CHALLENGER DEFENDER VISIONARY ADVENTURER TRAILBLAZER CHALLENGER  
TRAILBLAZER CHALLENGER DEFENDER VISIONARY ADVENTURER TRAILBLAZER CHALLENGER



UNIVERSITY  
OF MANITOBA