A Massive Open Online Course, The Science of Safety in Healthcare, Builds Competence for Patient Safety Among Global Learners

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Presentation Objectives

- Describe the delivery and evaluation of the MOOC, The Science of Safety in Healthcare
- Discuss benefits, disadvantages, and lessons learned from using the MOOC platform
- Discuss the applicability and implications of using the MOOC platform to deliver patient safety and quality improvement content

Background

- Medical errors are among the leading causes of death in the United States (1)
- Health professionals are not sufficiently trained to provide high quality and safe medical care (2)
  - The Institute of Medicine demanded inclusion of patient safety content in health professionals' education
  - Lack of faculty prepared to teach such courses, limited available time in medical and nursing curriculum, and inflexibility of health professionals' schedules are barriers to the inclusion of patient safety content

Massive Open Online Course

- Different from conventional online education programs (3):
  - No formal requirements for entry
  - No participation limit
  - No resulting credentials
  - Asynchronous course delivery
  - Free
  - Interactive and dynamic structure
  - Optional certificate of completion with a fee
- Unique opportunity to reach a large, diverse local to global audience

The Science of Safety in Healthcare

- 5-week massive open online course
  - Introduced foundational principles of the science and culture of safety in healthcare
  - 2 to 5 hours of work by participants expected each week
  - Simulations for participants to apply patient safety concepts and improvement tools to realistic scenarios
  - Structured exercises to challenge participants to consider patient safety concepts, principles, and best practices

Course Design

- Module 1- Overview of science of safety, introduction to a culture of safety in healthcare
- Module 2- Enabling and contextual factors, including communication, teamwork, and healthcare human factors, that influence patient safety, and the role of patient-centered care in patient safety
- Module 3- Methodologies to improve safety
- Module 4- TRiP Model for translating evidence into practice, distinguished technical and adaptive challenges of safety and quality improvement
- Module 5- Opportunities to build capacity in patient safety and quality improvement

Course Evaluation Methods

- Participation rates
  - Tracked assignments completed, lectures viewed, participation in discussion forums, and course completion rates
- Participant satisfaction
- Health Professional Education in Patient Safety Survey (H-PEPSS)
  - Measures perceived patient safety competence through 6 domains of safety competencies: culture of safety, working in teams with other healthcare providers, effective communication, managing risk, optimizing human and environmental factors, and recognizing and responding to adverse events (6)

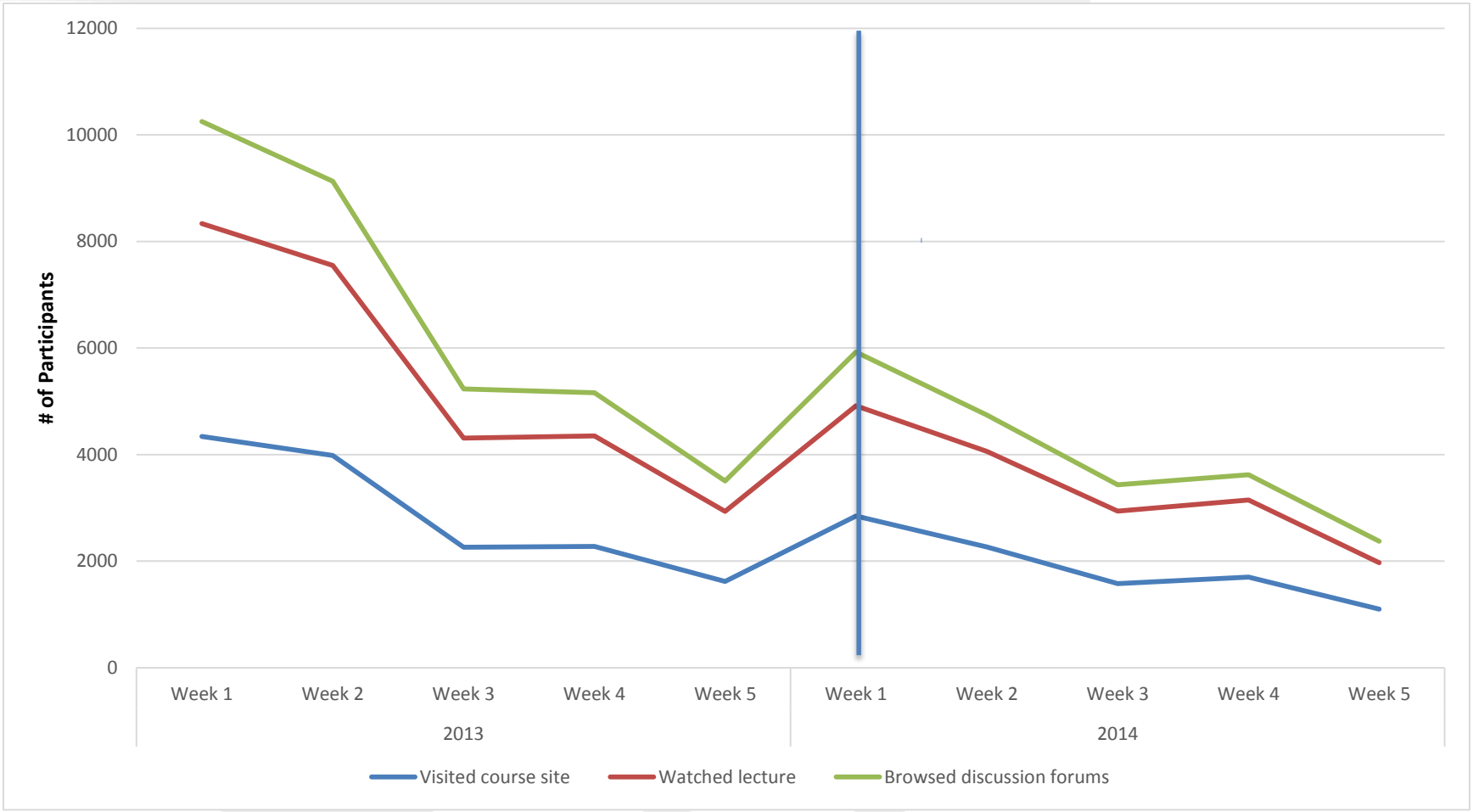
Participants

- 2013- 14,972 participants
- 2014- 8,047 participants
- From over 100 countries
- Broad range of experience
  - Consumers of healthcare with no prior training in healthcare to licensed clinicians with experience leading patient safety efforts

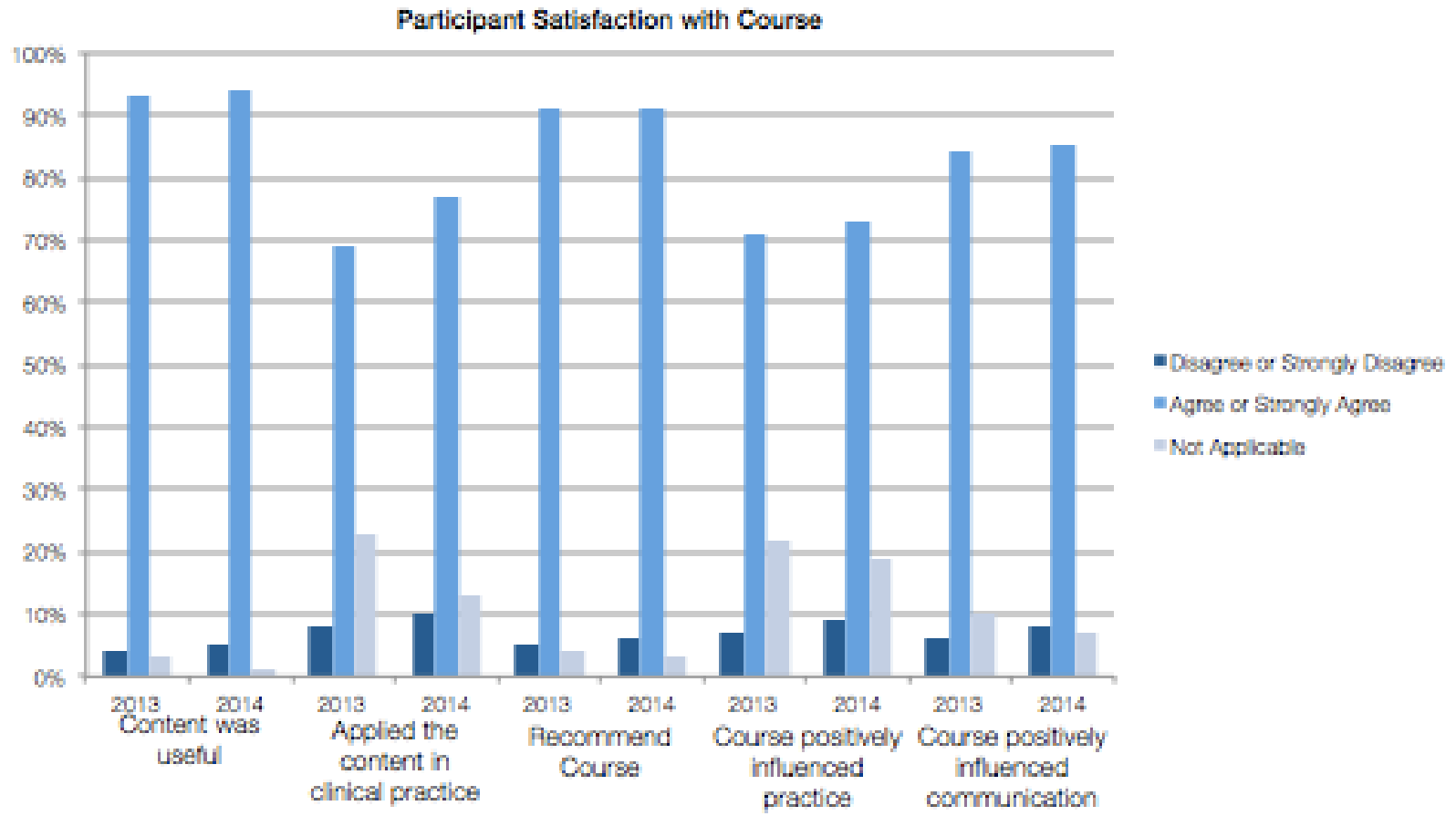
Course Participation

- 2013- 1229 (8.2%) of 14972 participants earned a certificate of completion
- 2014- 674 (8.4%) of the 8047 participants earned a certificate of completion
- Participation steadily declined throughout both courses

Course Participation



Participant Satisfaction



Patient Safety Competence

	2013 N=913			**2014** N=406		
	Pre	Post	P value	Pre	Post	P value
Teamwork	8.33	10.36	<0.001	8.27	10.28	<0.001
Communication	8.65	10.73	<0.001	8.65	10.86	<0.001
Managing risk	8.123	10.47	<0.001	8.36	10.61	<0.001
Human environment	5.96	7.24	<0.001	5.88	7.20	<0.001
Recognize and respond	5.79	7.08	<0.001	5.91	7.13	<0.001
Culture	8.84	10.99	<0.001	8.64	11.08	<0.001

Feedback from Participants

- “This course had helped to build my confidence in advocating more for key patient safety issues in our organization. Also to challenge proposed actions which may be less effectual from a patient safety perspective”
- “In my job designing healthcare software (an EMR), I now have a broader perspective when considering how to design certain aspects of the system.”
- “It was a fantastic course, which gave me lots of information and education on the concepts of Safety in health care. I am a mental health worker and have to deal with many depressed, suicidal, homicidal patients and this information helped me in designing a safety plan for my practice where we minimize the risk.”

Conclusion

- Massive Open Online Courses provide an innovative way to deliver patient safety content to a large, diverse audience
- Participation and completion rates were low
  - Attrition rates in MOOCs are estimated to be about 90% (3)
- Reported competence in patient safety significantly increased

References

- 1. The Institute of Medicine. (2000). To Err Is Human: Building a Safer Health System. National Academy Press
- 2. The Institute of Medicine. (2003). Health Professionals Education: A Bridge to Quality. National Academy Press.
- 3. Coursera, (n.d.). Coursera Programs. Retrieved from https://www.coursera.org/about/programs 4. Mehta, NB., Hull, AL, Young, JB, & Stoller, JK. (2013). Just imagine: New paradigms for medical education. Academic Medicine, 88(10): 1418-23.
- 5. Pilcher, J. (2014). Education and learning: What's on the horizon? Neonatal network, 33(1), 24-28.
- 6. Ginsburg, L., Castel, E., Tregunno, D., & Norton, PG. (2012). The H-PEPSS: An Instrument to measure health professionals' perceptions of patient safety competence at entry into practice. British Medical Journal for Quality and Safety. doi:10.1136/bmjqs-2011-000601