Title: Addressing Competing Interests in Engaging with the Learning Healthcare System within an Academic Institution

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Participants:
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   Chief Research Information Officer

(2) Christopher Lindsell, PhD, Department of Biostatistic, Vanderbilt University, Nashville, TN  
   Director of the VICTR Methods Program and Associate Director of the Center for Clinical Quality and Implementation Research

(3) Devin Mann, MD, Department of Population Health, New York University, New York, NY  
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   Associate Chief Medical Information Officer

Abstract

With the advent of the modern electronic health record (EHR) system the dream of learning healthcare system (LHS) – one where lessons learned from clinical encounters are integrated to improve clinical care – has been in reach. However truly realizing a learning healthcare environment requires the cooperation and coordination of experts with diverse skill sets. Moreover, since most of these efforts occur at academic medical centers, most of the work is being conducted by academics. This raises important questions of how best to integrate this work into one’s academic research agenda.

In this panel, we will convene a diverse panel of experts who are actively engaged in developing a LHS at their local institutions. Each panelist has a different academic background and plays a different role in helping to realize a LHS at their local institution. We will cover the various needs of a LHS - overall structure, clinical integration, quantitative expertise, & research dissemination - and some of the implicit challenges within each.

A general description of the panel and the issue(s) that will be examined and a brief description of each panelist's presentation

The 90-minute didactic panel session will consist of 4 brief 10-minute presentations by those actively involved in creating a learning health system (LHS). Each presentation will be followed by 4 minutes for questions and answers. The final 30 minutes will be devoted to a moderated discussion between the panel members and attendees. By the end of this session, participants should be able to achieve the following learning objectives:

1. Describe structures, methods, and activities employed commonly in learning health systems
2. Identify challenges – both internal and external – to achieving a learning health environment
3. Recognize the diversity of skills and perspectives needed for a successfully learning health system.

The panel will be moderated by Dr. Benjamin Goldstein, Associate Professor of Biostatistics and Bioinformatics at Duke University. A biostatistician by training, and informatician by function, Dr. Goldstein works closely with the Duke University Health System to develop and evaluate tools to help spur a learning
health care environment. He also maintains an active research agenda focused on how best to use EHR data for clinical research.

The panel members consist of biomedical scientists that are involved at their local institutions with developing and implementing aspects of the learning healthcare system (LHS). While we are all interested in this shared goal, we each bring a unique perspective. For example, while all quantitatively oriented, the panel contains informaticians, biostatisticians, and clinicians. Moreover, while some of the panelists maintain active research agendas, others are primarily involved in quality improvement (QI) work. Finally, some of us are senior members of our departments while others are still developing their academic careers.

The goal of this panel is to discuss the diversity of perspectives and oftentimes competing interests involved in engaging locally with the learning healthcare system. We will focus on how different groups can best complement one another – as opposed to counteract – and how to maintain both a dual local and national focus.

Specifically each panelist will discuss:

**Dr. Dorr** will discuss the **structure of a LHS**. He will focus on Oregon Health Services University’s (OHSU) experiences performing pragmatic trials, in spanning operational and research informatics, the main capabilities and potential deployments needed at OHSU to further LHS work, and the future of LHS at OHSU. The focus will be on the broad processes, people, and tools that are helpful in establishing a LHS, and the underpinning role of culture and collaboration in transformation. Specific opportunities such as engagement with learning collaboratives and training grants will be discussed.

**Dr. McPeek-Hinz** will discuss the **clinical integration of a LHS**. She will explore the challenge of building clinical care tools within the EHR that are efficient and usable and also lay a foundation for LHS. She will review the secondary challenges of presenting back discrete clinical EHR data at the patient, population and research cohort levels to facilitate improve patient outcomes. EHR tools for data visualization and extraction as well as limitations will be defined. The importance of informaticians to inform and support build of EHR content and IT tools will be explored. Finally the need to partner with the analytics and statistical colleagues to measure impact of interventions and extend research questions back into the EHR for further learning will be reviewed.

**Dr. Lindsell** will discuss **quantitative needs for a LHS**. He will review the complementary roles of informatics and biostatistics, shortcomings when they are engaged separately, and strengths when working together. In addition, he will describe a workflow for fully embedding a pragmatic trial into the electronic health record and the regulatory challenges involved with getting to pragmatism, and he will offer a framework for developing and deploying predictive analytics within a healthcare system.

**Dr. Mann** will discuss **integrating research into a LHS**. He will focus on the facilitators and barriers to conducting IT centric research and operational innovation within an academic health system. This discussion will review challenges to garnering NIH support for this type of informatics implementation research and how to align it with goals and processes of clinical operations. It will a range of projects he is leading to integrate commercial software into the AMC EHR ecosystem and how to use rapid RCTs to drive CDS improvement efforts. He will also discuss his efforts to build capacity for digital health innovation at his institution in a way that help clinicians and researchers unlock their ideas to design digital solutions for clinical problems. Finally, he will discuss the role of informatics innovators in helping AMC’s make the transition to new paradigms of clinical care that align with larger shifts in technology, society, care delivery and financing of healthcare.
An explanation why the topic of this panel is timely, urgent, needed, or attention grabbing is required with a discussion of anticipated audience.

We believe that this panel will engage multiple audiences. First, involvement in learning healthcare system activities is oftentimes a very local endeavour. This panel will bring together an audience of individuals who are involved in this space but also share a research focus (the Summits Audience). Second, as the Summits is more targeted towards researchers it will introduce concepts and opportunities in doing learning healthcare work to a larger community. Third, many of these issues – balancing quality improvement vs research, collaborating with those with different methodological backgrounds – is applicable to those working in a variety of informatics applications. Finally, given the heterogeneity in this space, we believe this topic is best addressed as a panel with audience participation. The speakers will be able to lay out some of the big picture issues and questions, but we look forward to the collective audience experience.

A list of discussion questions to enhance audience participation.

Some questions we hope to address include:

1. How should LHS activities be coordinated – top down with an institutional vision or bottom up with individual investigators proposing projects and activities?
2. Who should be part of analytic teams? What is the best way for Biostatisticians and Informaticians to complement each other?
3. What are the best evaluation metrics? Clinical outcomes, financial, patient satisfaction?
4. Who should financially support LHS activities? How to pitch ROI to health system? Should the goal be to seek external (NIH) funding?
5. What knowledge is generalizable, i.e. publishable? How best to tie this work into an academic portfolio?
6. How should faculty be evaluated based on single center health system efforts?

A statement from the panel organizer that all participants have agreed to take part on the panel.

All panelists named on the authorship list have agreed to take part in this panel.