

EDUCATION, RESEARCH & INNOVATION PLATFORM

29th Annual Mayo Clinic-Karolinska Institutet Scientific Research Meeting
Rochester MN, USA | September 20-21st 2023

Report: Healthcare Management and Innovation session 2023

A discussion on models, methods, and shared challenges in research and practice in the areas of Healthcare Management, Innovation, and Quality Improvement.

This year’s theme:

Advancing Healthcare in the Digital Age: Meeting Growing Demands on Care Delivery by Empowering Patients and Professionals

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Mayo Clinic, Karolinska Institutet and Karolinska University Hospital meet to discuss how to capitalize on digital technologies to meet the growing demands on care

Two days of inspiring discussions when Mayo Clinic, Karolinska Institutet and Karolinska University Hospital met in this year’s Healthcare Management and Innovation session, an annual meeting where we share best practices, explore challenges, and promote collaboration.

The theme of this year’s Healthcare Management and Innovation session was *Advancing Healthcare in the Digital Age: Meeting Growing Demands on Care Delivery by Empowering Patients and Professionals*. The session is one of many breakout sessions of the Mayo-KI Annual Scientific Research Meeting, a collaboration that has been going on for 29 years. This dynamic meeting brings together clinicians, researchers, and managers to present and discuss their work – a fruitful way of expanding networks between and within the partnering organizations and facilitating new collaborations.

Digital technologies allow to serve more patients with the same resources

The session was opened by Cris Ross, Chief Information Officer at Mayo Clinic, who fittingly started by juxtaposing healthcare’s Quadruple aim (Figure 1) with the major challenges we are facing in terms of looming staff shortages, financial pressures, and widespread burnout among health work force. While digital technologies carry immense potential, he pointed out the importance of intelligent application of technologies that address well-defined problems and concluded that journeys worth taking will take time.

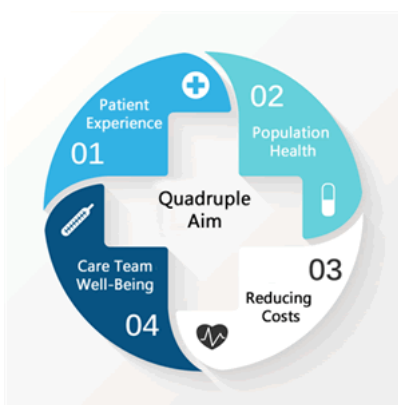


Figure 1 Healthcare’s Quadruple Aim coined by Bodenheimer and Sinsky, 2014.

Björn Zoëga, Chief Executive Officer at Karolinska University Hospital, illustrated with his presentation that some important challenges, such as significantly shortening waiting times or radically improving the hospital’s financial performance, can in fact be addressed within rather short time frames, as a result of clear principles and concerted collective effort.

After the two inspiring keynotes, the day continued with illustrating examples on how capacity and effectiveness can be increased in care delivery and education. The day was concluded with a

panel on advancing patient involvement. The different approaches and views can be summarized as a continuum of patient involvement ranging from patient satisfaction metrics to patient innovators who shape healthcare services through their entrepreneurial initiative.

Follow-ups on experience sharing and ongoing dialogues

The second day of the meeting started with a premier of much appreciated follow-up presentations from collaborations established since last year's meeting. These were about the continued importance of staff wellbeing, in particular the different ways to monitor and promote it; and the potential of virtual nursing for increasing capacity for patient care but also as a strategy for competency development and reducing burnout. The presentations were a testament of the value this session can create for staff and clinical practice through sharing experiences, knowledge and lessons learnt.

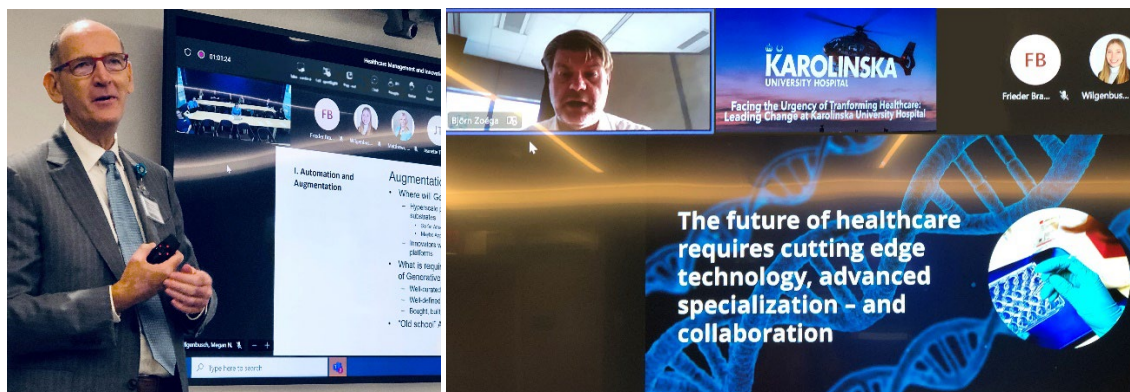
Artificial Intelligence – discovering new applications and exploring strategic questions

The second half of the day was dedicated to acquainting with practical applications of and exploring challenges tied to Artificial Intelligence (AI). Several exciting projects demonstrated how AI can be applied for diagnostic purposes. The block on AI was concluded with a panel discussion with distinguished experts from the three organizations reflecting on ethical concerns, regulatory challenges surrounding data, and critical capabilities that need to be developed to effectively leverage AI for patient benefit. While the general sentiment was that a lot of the developments will be out of human hands in the light of generative AI, the panel felt hopeful about human intelligence being able to address the challenges before us.

The two-day meeting was fittingly concluded by lifting the importance of and sharing examples of how to leverage leadership and innovation capabilities as prerequisites to thrive in this emerging wave of disruptive innovation in healthcare.

“The greatest challenge ahead? That is easy: With the same number of staff – or less staff – we will have to take care of many more patients.”

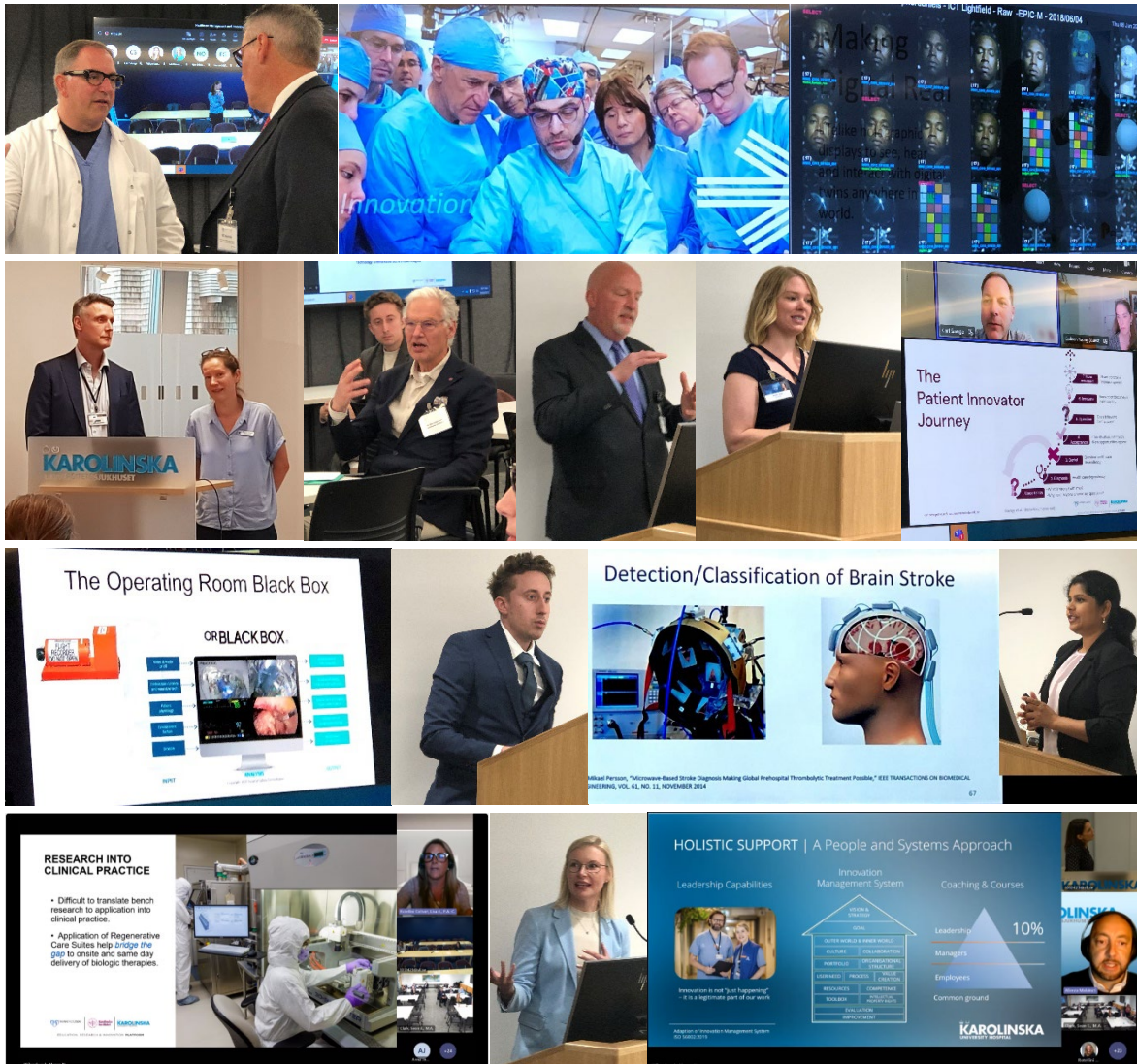
Dr Björn Zoëga, CEO, Karolinska University Hospital



Cris Ross, CIO at Mayo Clinic, and Dr Björn Zoëga, CEO at Karolinska University Hospital, set the stage by pointing out the importance of high ambition as well as the necessity of many small steps towards digitization and empowerment. How can we accomplish the same work with less labor? How can we reduce the cost of care, create capacity for high-need areas, address patient experience, address provider burnout and satisfaction – and improve health of populations?

“More effective use of scarce clinical resources is really about the opportunities to do care which is asynchronous, and algorithm driven. If we are just dividing doctor time by the slice, we haven't changed anything. The economics of care doesn't change if we go from an in-person visit to a video visit. It still requires the same amount of time from a clinician, but if we can use computers to do part of that visit, or to do that visit with a mid-level provider or have a new care altogether, then we have an opportunity to really change the economics of health.”

Cris Ross, CIO, Mayo Clinic



Dr Jonathan Morris talked about transformative medical education using immerse technologies, Dr Michael Melin and Katarina Meijers presented an ambition to double care production with current resources, Dr David Nestler, Jennifer Smith, Dr Carl Savage, Dr Carolina Wannheden and Colleen Young presented different models of patient involvement, Dr Emmanuel Tetteh, Dr Poulami Samaddar and Dawid Rutkowski presented examples of AI in healthcare before a panel discussion on AI strategy, policy and ethics (see next page). Lisa Rotellini-Coltvet talked about regenerative care procedural suites, and Alireza Malakuti and Dr Jeanette Tuval presented an ambition to leverage leadership and innovation capabilities at a university hospital.

The value to presenters and participants – inspiration and collaboration



“Advancing AI requires broad international collaboration on access, security, interoperability, and secondary use of health data.”

“We had very good dialogue on the global data network program, and we are excited to move it forward with a workshop in Stockholm Sweden October 25-26th.”

Eric Harnisch, Vice President of Partner Programs at Mayo Clinic Platform, and Dr Daniel Lundqvist, Director of CIR@Centre for Imaging Research at Karolinska Institutet, are paving the way for further experience sharing and forward-looking discussions between Mayo Clinic, Karolinska Institutet and Karolinska University Hospital.

The panel discussion on Strategy, Policies and Ethical Concerns to Leverage AI in Healthcare also included David Vidal, Vice Chair, SaMD Regulatory at the Center for Digital Health, Mayo Clinic, and Dr Patrik Georgii-Hemming, CMIO at Karolinska University Hospital.



“There is a lot we could do with automation. But the real power lies within augmentation. We already have AI in use in advanced decision-support. Mayo Clinic has about 135 algorithms that run in clinical practice. How can we use that for analytics – descriptive, predictive and in some ways proscriptive – to see what we should do in the future?”

Cris Ross, CIO, Mayo Clinic



“The learnings from Magnus Flodberg at Karolinska has demonstrated we are more alike than different with our goals, opportunities, and challenges for healthcare worker well-being. Sharing experiences has helped strengthen our approaches to care for staff.”

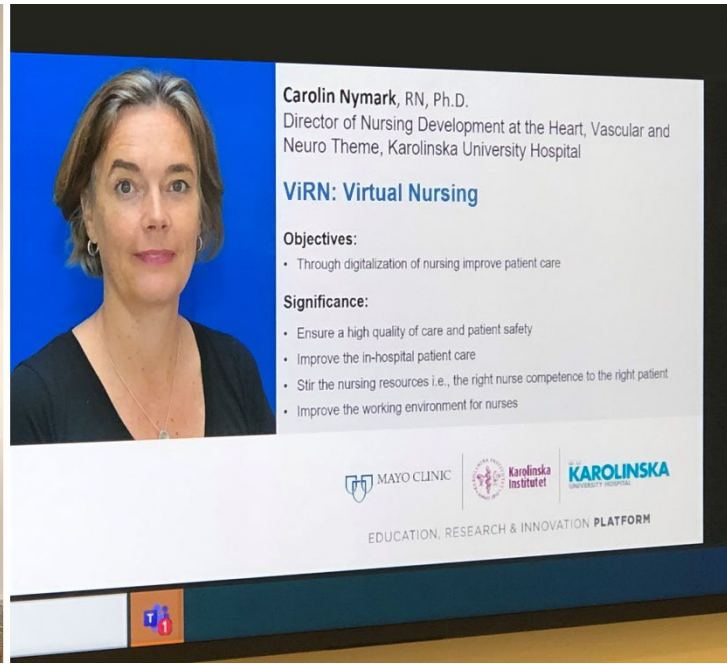
“The collaboration with Kaisa Wieneke at Mayo is rewarding, both in terms of energy and knowledge. They have made the journey we at Karolinska are now undertaking refining our work and focusing on the things that make an impact. We learn from each other, with joy.”

Since last year’s meeting, there has been an ongoing dialogue on how to optimize proactive staff well-being strategies between Kaisa Wieneke, Director of Employee Wellbeing Program at Mayo Clinic, and Magnus Flodberg, Managing Director of the Wellness Center at Karolinska University Hospital.

“As a participant, I was deeply impressed by the use of new digital solutions to create a healthier world, where individualized, precision-based and innovative healthcare becomes available for everyone.”

Jan Andersson, professor, Karolinska Institutet

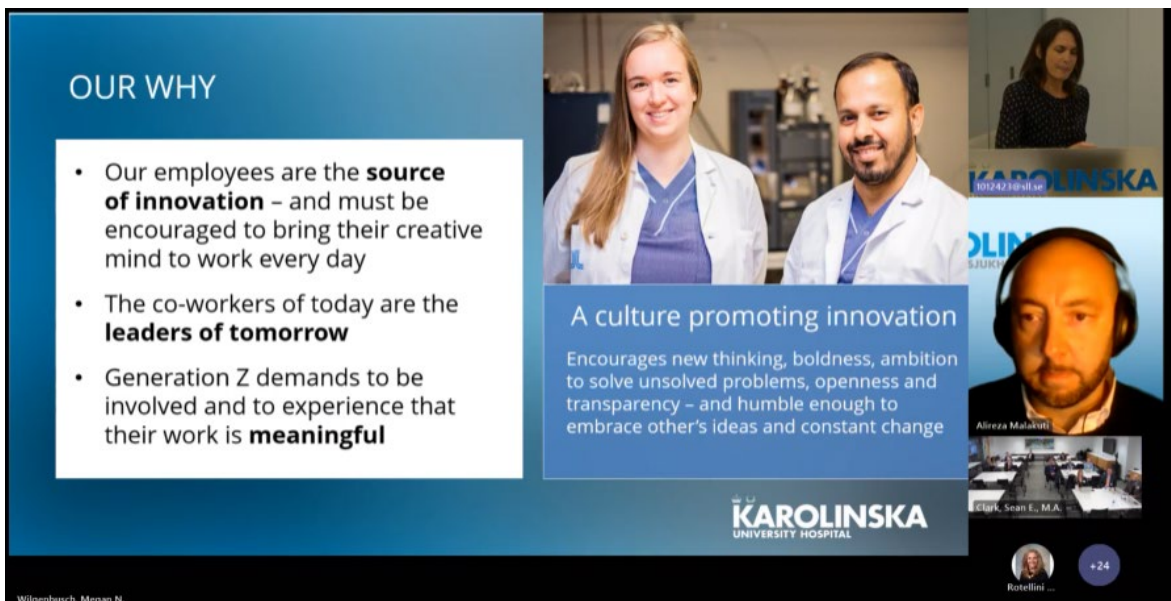




“The session is a great opportunity to meet and discuss innovations that is in pipeline and as well as ongoing. What I appreciate the most is that you can get new and other perspectives on your ideas and thus develop the care for the patients.”

Carolin Nymark, Director of Nursing Development, Heart, Vascular and Neuro Theme at Karolinska University Hospital. She is now adapting the Mayo Clinic concept of Virtual nursing to Karolinska, inspired by the presentations at last year’s Healthcare Management and Innovation session.

Virtual nursing is a concept from Mayo Clinic that attracted a lot of interest at the Healthcare Management and Innovation session 2022. This year, Amy Roberson, Clinical Nurse Specialist at the Remote Patient Monitoring and Virtual RN Practice, Center for Digital Health and Dominick Pahl, Nurse Manager, Virtual Care, Center for Digital Health at Mayo Clinic, presented recent improvements in their rapid and continuous development of the Virtual nursing concept.



“When we talk about the future, we no longer focus on our problems but on our needs. This discussion is facilitated by the fact that 10 % of the employees and leaders in our part of

the organization has undergone innovation training. They now have a common language for and fundamental understanding of innovation.”

Alireza Malakuti, Acting Managing Director of Women’s Health and Allied Health Professionals theme, and Jeanette Tuval, Head of Innovation, at Karolinska University Hospital, led a conversation on how to leverage leadership and innovation capabilities at a university hospital. The Women’s Health and Allied Health Professionals theme has set out on an ambitious journey to create an innovation friendly culture, supporting infrastructure and knowledge base for their 1300 employees and managers, supported by the Center for Innovation at Karolinska University Hospital.



Congratulations on yet another successful conference. I was thrilled to be included on this year's program, especially on a panel. As often happens with panel discussions, the panelists benefit the most through the preparatory work. I'm confident our paths will cross again and having presented together paves the way for future collaborations.

Colleen Young, Online Community Strategist at Mayo Clinic Connect, who contributed to a panel discussion on patient involvement together with David Nestler, Medical Director for Patient Experience, Mayo Clinic Rochester, Carl Savage, Senior Researcher at Karolinska Institutet, Carolina Wannheden, Senior Researcher at Karolinska Institutet, and Jennifer Smith, Service Designer at Kern Center for the Science of Health Care Delivery at Mayo Clinic.



Last year, Dr Frieder Braunschweig from Karolinska University Hospital presented the development of specialized care at home for patients with severe and chronic conditions in the Healthcare Management and Innovation session. This year, the theme for the final Plenary Lecture was Clinical Experience of Virtual Care, including Dr Braunschweig. Moderator: Professor Jan Andersson.

Promoting future collaborations

This year's session strengthened already established contacts and paved the way for new potential collaborations. Some of the emerging themes in the ongoing dialogues are following:

- **Virtual care** – research and knowledge exchange regarding distance monitoring and advanced care at home.
- **Virtual nursing** – continued exchange of experiences but also potential research collaboration with the Kern Center for the Science of Healthcare Delivery.
- **Staff wellness** – continued exchange of experiences.
- **Build research collaborations with the Kern Center for the Science of Healthcare. Delivery** – established collaboration in the study of resilience in medical training and potential research in virtual care and virtual nursing.
- **AI** – Mayo-KI-K workshop in October 2023 about data sharing.
- **Nurse-driven innovation** – sharing experiences and knowledge.

Healthcare Management and Innovation session 2023, in brief

- Participants Day 1: Ca 60 (25 on site)
- Participants Day 2: Ca 60 (30 on site)
- 4 posters
- **Facilitate connections:**
 - Pre-meetings to facilitate connections in the following themes: Patient involvement, virtual nursing, staff wellbeing, AI strategies in healthcare, leadership and innovation capabilities.
 - 3 on-site meetings between representatives from Mayo Clinic, Karolinska University Hospital and Karolinska Institutet
 - Distributed bios with all speakers and conference team
- A summary and recordings of the session have been distributed to all registered participants.

Appendix

Program

September 20th

- **Small Steps to Big Gains: Pathways to Digitization and Empowerment**
Cris Ross, Chief Information Officer, MBA, Mayo Clinic (MC)
- **Facing the Urgency of Transforming Healthcare: Leading Change at Karolinska University Hospital**
Björn Zoëga, Chief Executive Officer, MD, PhD, Karolinska University Hospital (K)
- **Taking on the Challenge: Increasing Patient Benefit with Current Resources**
Katarina Meijers, Director of Nursing, Theme Emergency and Reparative Medicine (K)
Michael Melin, Patient Flow Manager Heart Failure, MD, PhD (K)
- **Transformative Medical Education, Using Immersive Technologies for Enterprise-Wide Educational Initiatives**
Jonathan M Morris, MD (MC)
- **Panel Discussion on Advancing Patient Involvement**
David Nestler, MD, MS, Medical Director for Patient Experience, Mayo Clinic Rochester (MC)
Carl Savage, PhD (KI)
Carolina Wannheden, PhD (KI)
Colleen Young, Online Community Strategist, Mayo Clinic Connect (MC)
Jennifer Smith, MFA, Service Designer, Kern Center for the Science of Health Care Delivery (MC)

September 21st

- **Caring for Caregivers – Staff Wellbeing and Wellness Centers**
Kaisa Wieneke, MPH, Human Resources, Director of Employee Wellbeing Program (MC)
Magnus Flodberg, RN, CCN, MSC, Human Resources, Managing Director, Wellness Center (K)
- **Virtual Nursing**
Carolin Nymark, PhD, Director of Nursing Development, Heart, Vascular and Neuro Theme (K) Amy Roberson, MS, APRN, AGCNS-BC, CMSRN, Clinical Nurse Specialist, Remote Patient Monitoring and Virtual RN Practice, Center for Digital Health (MC)
Dominick Pahl, MS, RN, Nurse Manager, Virtual Care, Center for Digital Health (MC)
- **Boosting Innovation and Mitigating Risks: Paving the Way for Trustworthy AI**
Daniel Lundqvist, PhD, Director, Centre for Imaging Research (KI)
- **Artificial Intelligence-Enabled Operating Room Data Analyses**
Emmanuel Tetteh, PhD, Research Associate, Kern Center for the Science of Healthcare Delivery (MC)
- **Values of Bringing Clinicians into the Development of Research-Based AI**
Dawid Rutkowski, Medical and PhD Student (KI)
- **Machine Learning-Based Classification of Abnormal Liver Tissues Using Relative Permittivity**
Poulami Samaddar, PhD (MC)
- **Panel Discussion: Strategy, Policy, and Ethical Concerns to Leverage AI in Healthcare**
Eric Harnisch, MBA, Vice President Partner Programs, Mayo Clinic Platform (MC)
David Vidal, JD, Vice Chair, SaMD Regulatory, Center for Digital Health – Data & Analytics (MC) Daniel Lundqvist, PhD, Director of Centre for Imaging Research (KI)
Patrik Georgii Hemming, CMIO, MD, PhD (K)
- **At Ground Zero: Lessons Learned in Start Up of the Application of Regenerative Care Procedural Suites**
Lisa Rotellini-Coltvet, MA, MMS, PA-C, Assistant Professor Radiology, Instructor Regenerative Medicine (MC)
- **Leveraging Leadership and Innovation Capabilities at a University Hospital**
Alireza Malakuti, Managing Director of Theme Women's Health and Allied Health Professionals (K)
Jeanette Tuval, Head of Innovation, PhD (K)

Posters

4 posters connected to the Healthcare Management and Innovation session to be viewed online:

[Mayo-KI 2023 - Healthcare Management and Innovation Posters | Karolinska Institutet](#)

1. *Artificial Intelligence-enabled Operating Room Data Analyses*. Emmanuel Tetteh (MC)
2. *Evaluating two strategies for taking active intraoperative microbreaks in the operating room using OR-Stretch web application*. Hamid Norasi (MC)
3. *At Ground Zero: Lessons Learned in Start Up of Application of Regenerative Care Procedural Suites*. Lisa Rotellini-Coltvet (MC)
4. *Working "Hand in Glove"*. Joseph Kim (MC)

Healthcare Management and Innovation Session planning team 2023

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