International Forum on QUALITY & SAFETY in HEALTHCARE COPENHAGEN

15-17 May 2023

Bella Center | Copenhagen, Denmark

C9: The science of workforce and patient safety

Institute for Healthcare Improvement

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International Forum on
QUALITY & SAFETY
in HEALTHCARE
COPENHAGEN

Adapting to a changing world: equity, sustainability and wellbeing for all

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Welcome

Bibi Hølge-Hazelton, University Hospital Zealand

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The Importance of Workforce Wellbeing on Quality and Patient Safety

Søren Valgreen Knudsen, Danish Center for Clinical Health Services

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The Importance of Workforce Wellbeing on Quality and Patient Safety

Søren Valgreen Knudsen

MD, Ph.D., Postdoc

Psychiatry Region North Denmark

Danish Center for Health Services Research

The US Surgeon Generals warning

The NEW ENGLAND JOURNAL of MEDICINE

Perspective

Confronting Health Worker Burnout and Well-Being

Vivek Murthy, M.D., M.B.A.

Early in the Covid-19 pandemic, when much of U.S. society shut down, health workers put their own safety on the line and kept going to work to care for patients. Although their communities initially banged on pots, cheered from their balconies, and

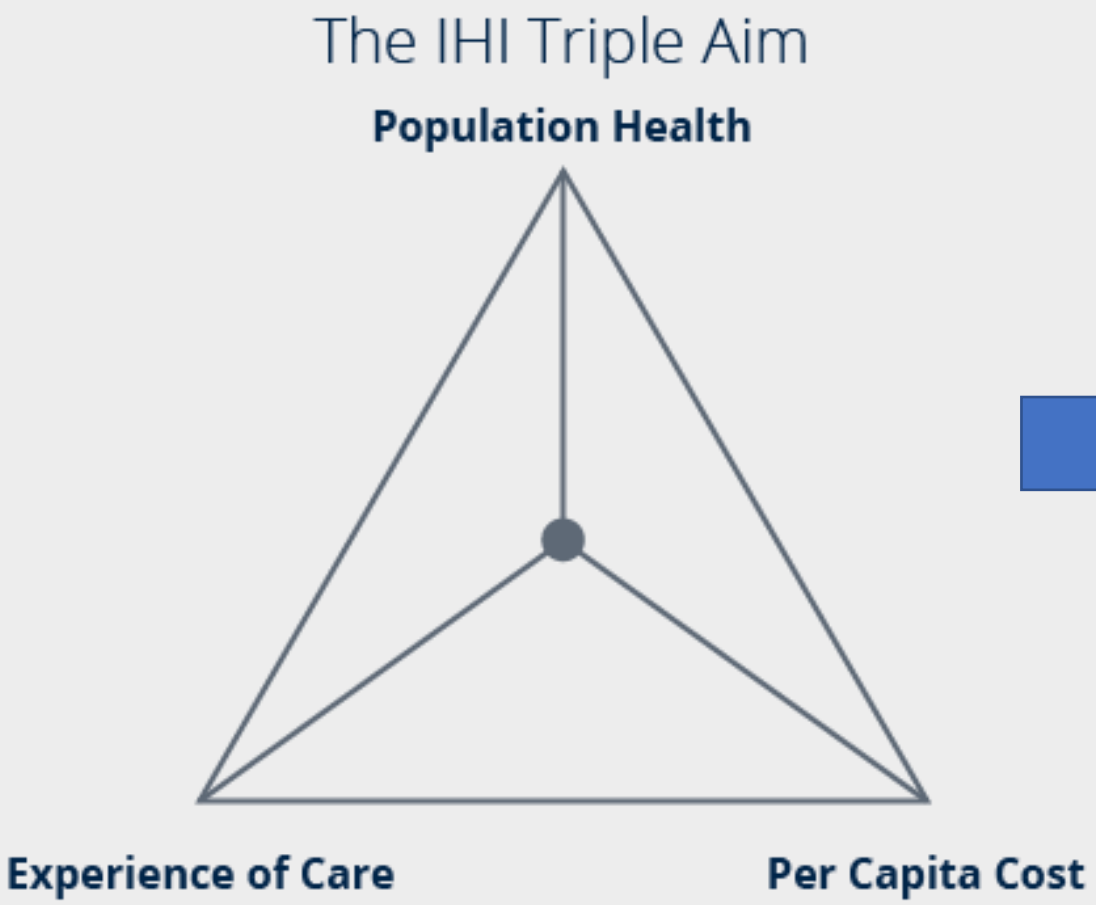
have died from Covid. More than half of health workers report

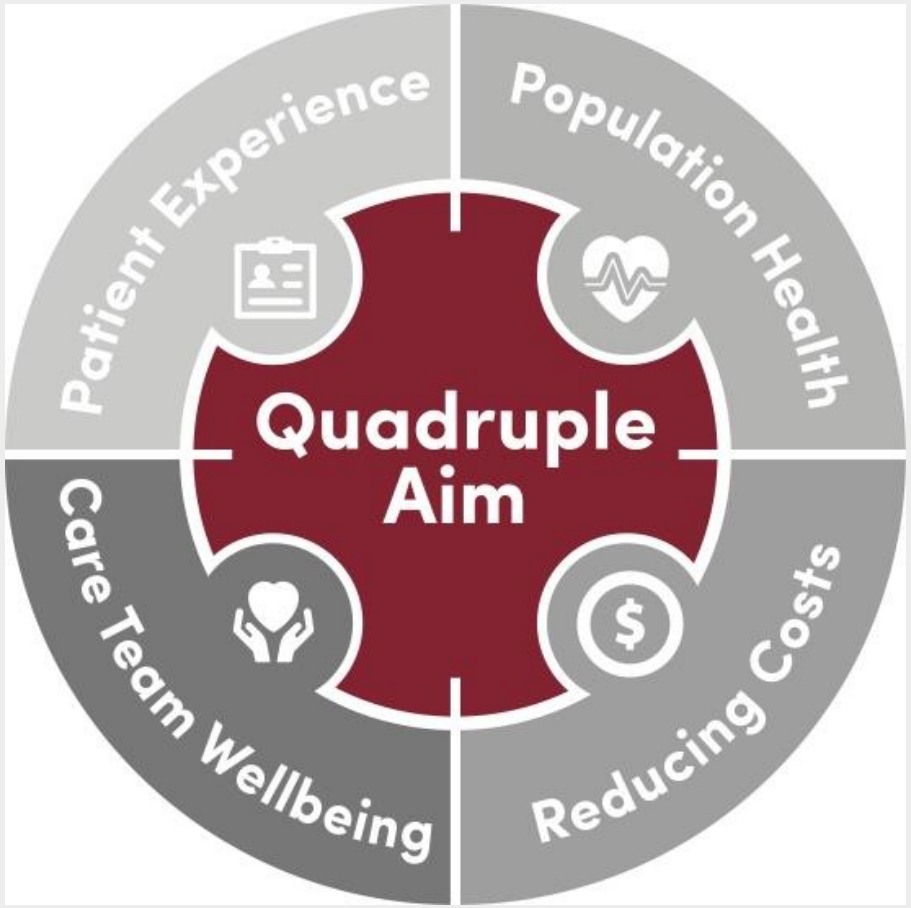
Covid-19 arrived. Causes include inadequate support, escalating workloads and administrative burdens, chronic underinvestment in public health infrastructure, and moral injury from being unable to provide the care patients need. Burnout is not only about long

We need to take care of our health workers and the rising generation of trainees.

On May 23, 2022, I issued a Surgeon General's Advisory on health worker burnout and well-being, declaring this crisis a national priority and calling the nation to action with specific directives for health systems, insurers, government, training institutions, and other stakeholders. The advisory is also intended to

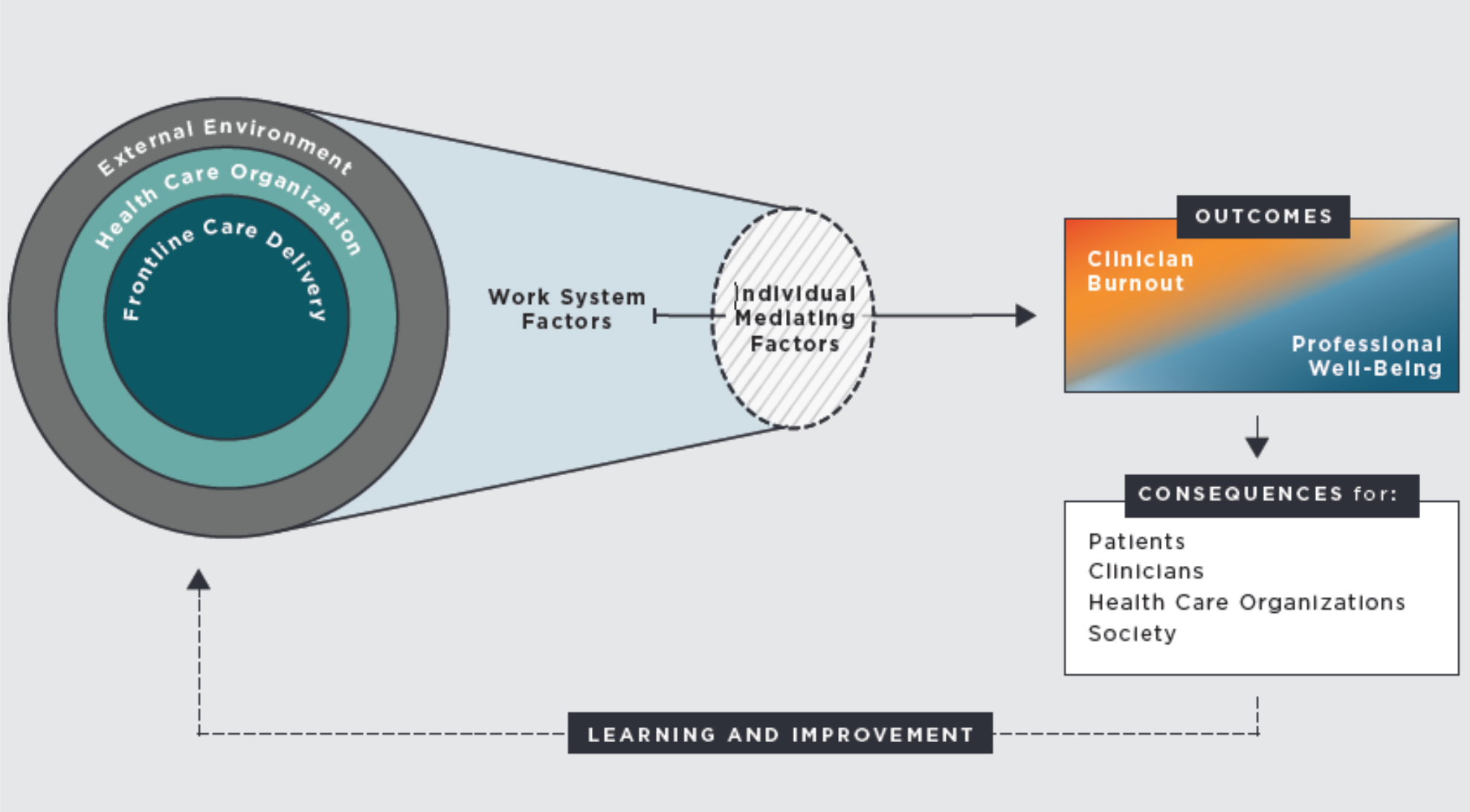
From ´Triple´ to ´Quadruple´ Aim





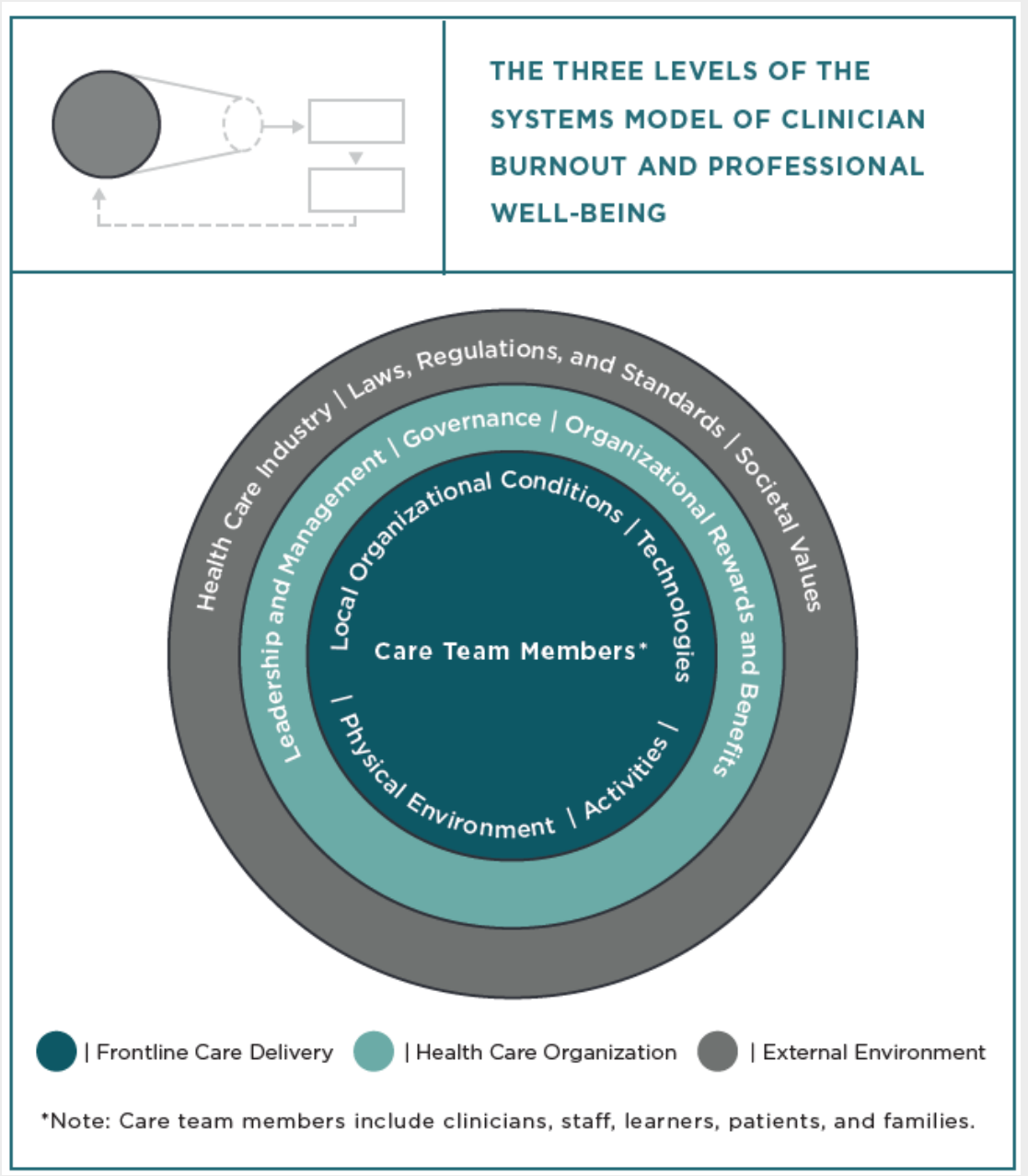
Kilde: Bodenheimer& Sinsky. "From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider", *The Annals of Family Medicine,* vol. 12, pp. 573-576.

Institute of Medicines System Model of Clinical Burnout and Professional well-being (2019)



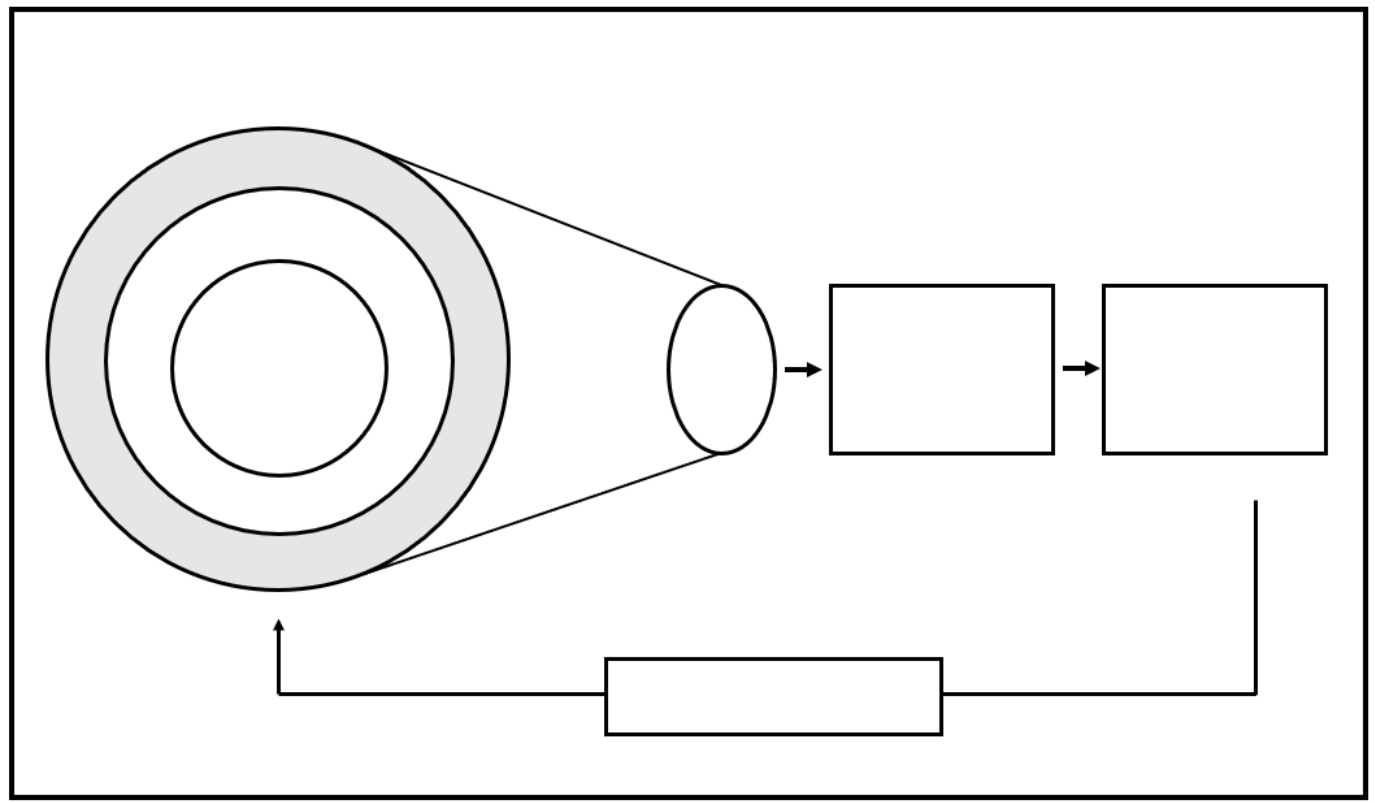
The system model

- Three levels
- External environment
- Health care organisation
- Frontline care delivery



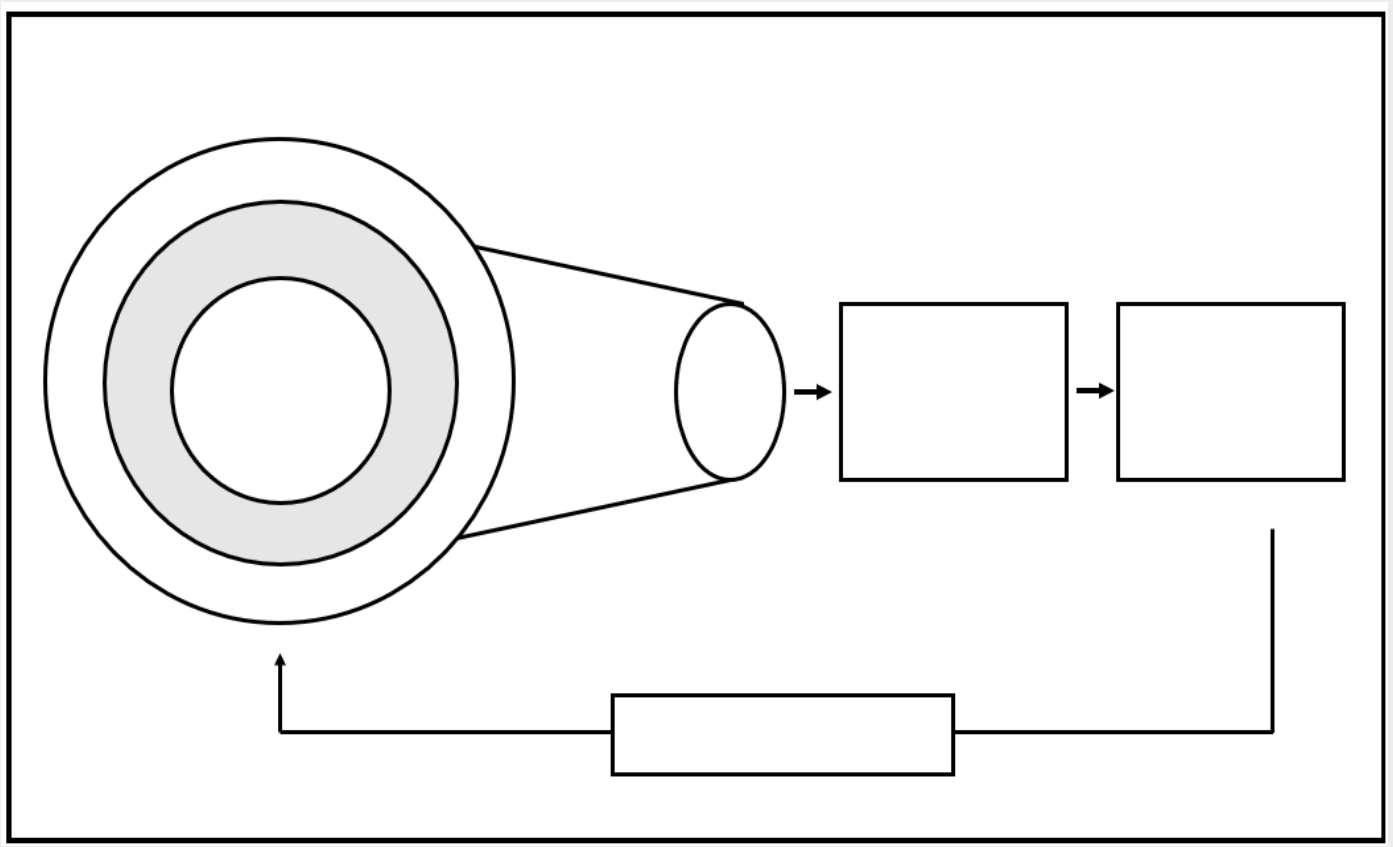
External environment

- Health care industries
- Laws, regulations and standards
- Social values



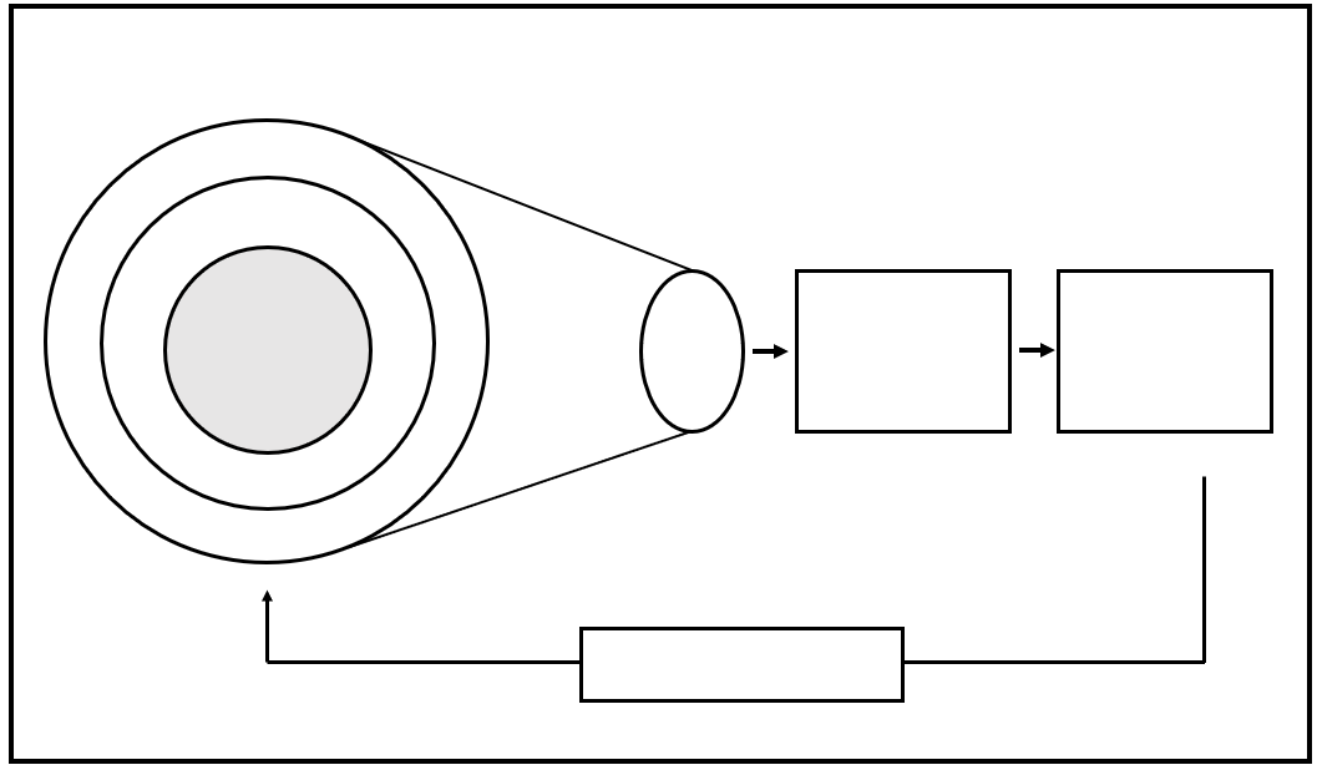
Health care organisation

- Leadership and management
- Governance
- Organizational reward and benefit

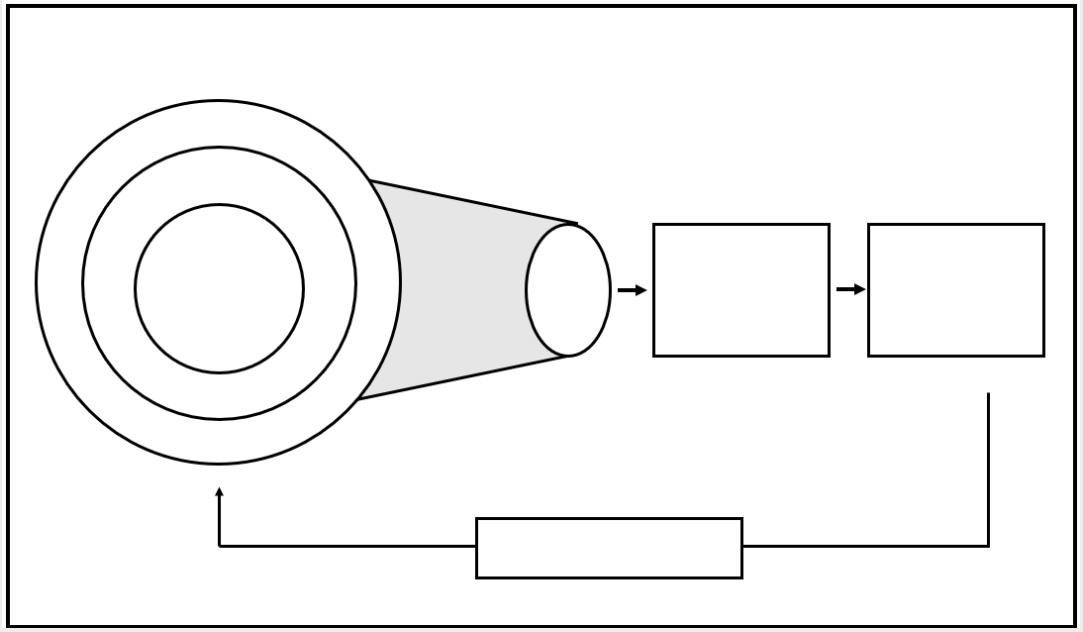


Frontline care delivery

- Local organisational conditions
- Technologies
- Physical environment
- Activities



Work system factors



Job Demands

- Excessive workload, unmanageable work schedules, and inadequate staffing
- Administrative burden
- Workflow, interruptions, and distractions
- Inadequate technology usability
- Time pressure and encroachment on personal time
- Moral distress
- Patient factors

Job Resources

- Meaning and purpose in work
- Organizational culture
- Alignment of values and expectations
- Job control, flexibility, and autonomy
- Rewards
- Professional relationships and social support
- Work–life integration

Work system factors in the Danish context

- Work pace (nurses):
  - 72% experienced that there were too few nurses at work in relation to the work tasks
  - 61% always or often feel that it is necessary to work very quickly
- Working hours (nurses):
  - 91% indicate that they have worked more than their agreed working hours
  - 30% state that within the past month they have felt pressured to go to work on a day off

Kilde: DSR Analyse

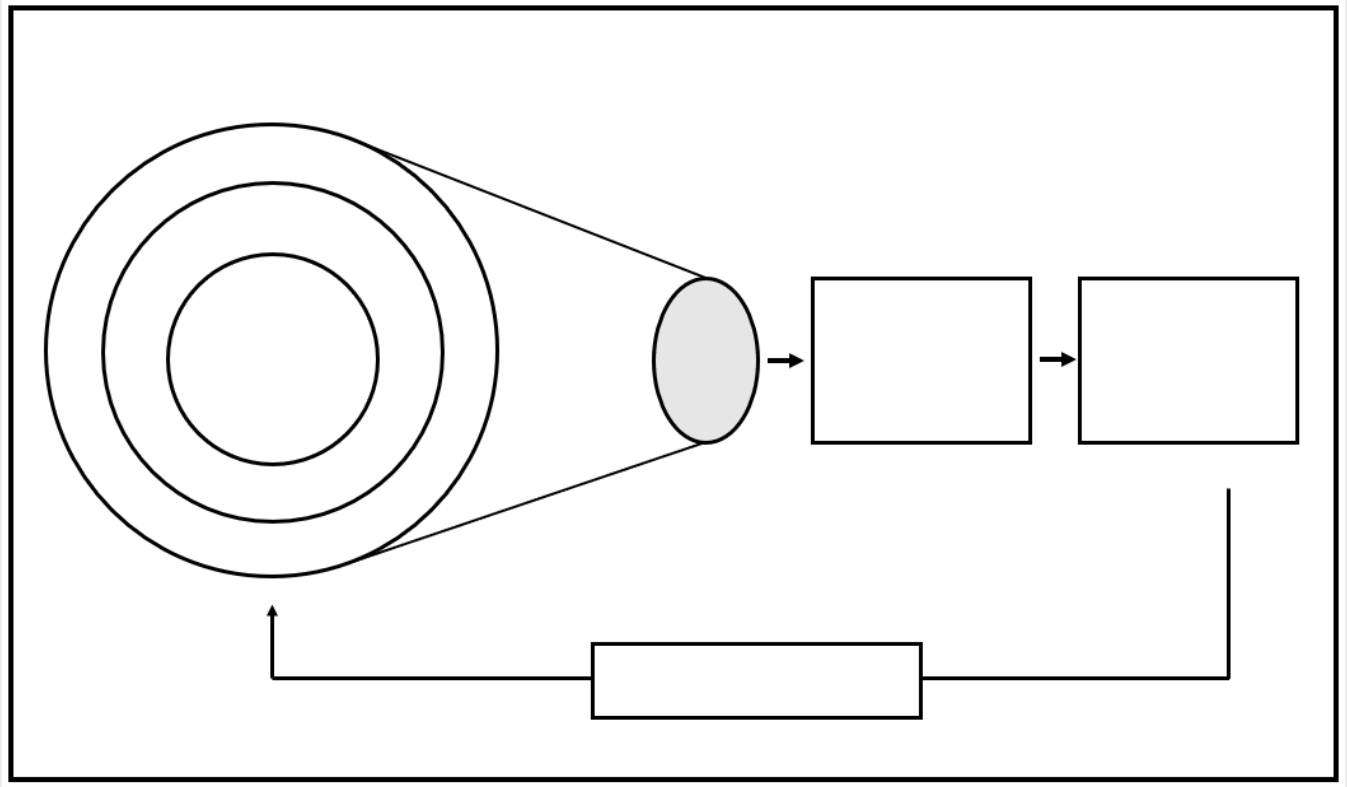
Work system factors in the Danish context

- Mental work environment (nurses)
  - 25% state that they have had sick days as a result of bullying
- Physical working environment (nurses)
  - 28% have used medicine to cope with the working day
  - 25% has been exposed to one or more occupational accidents within a year
  - 15% have been exposed to unwanted sexual attention in their workplace within the past year
  - 14% have experienced punches, kicks, bites or sprains in the course of a year

Kilde: DSR Analyse

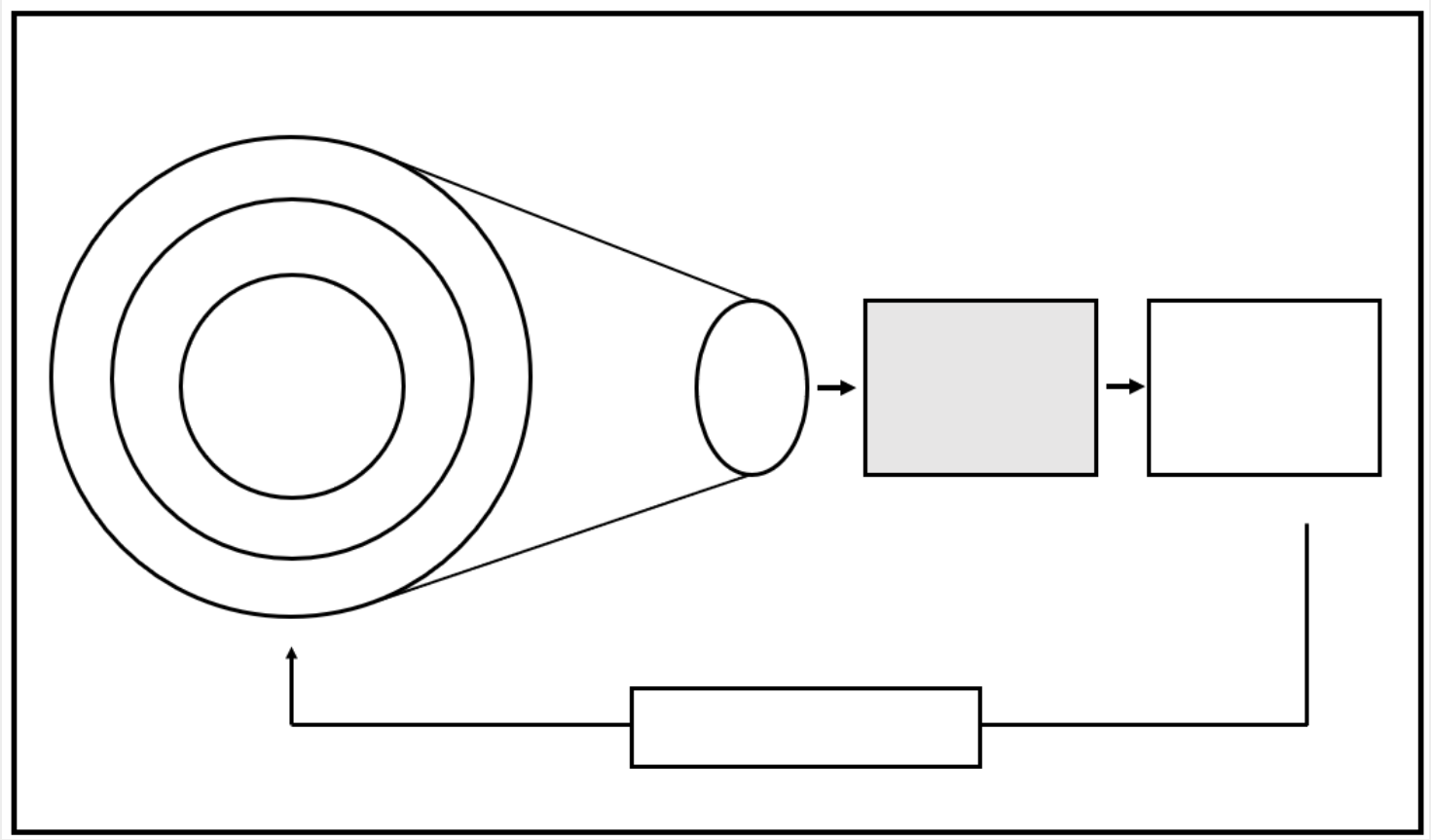
Individual mediating factors

- Personality and temperament
- Coping strategies
- Resilience
- Personal relationship and social support



Outcomes

- Burnout
- Professional wellbeing



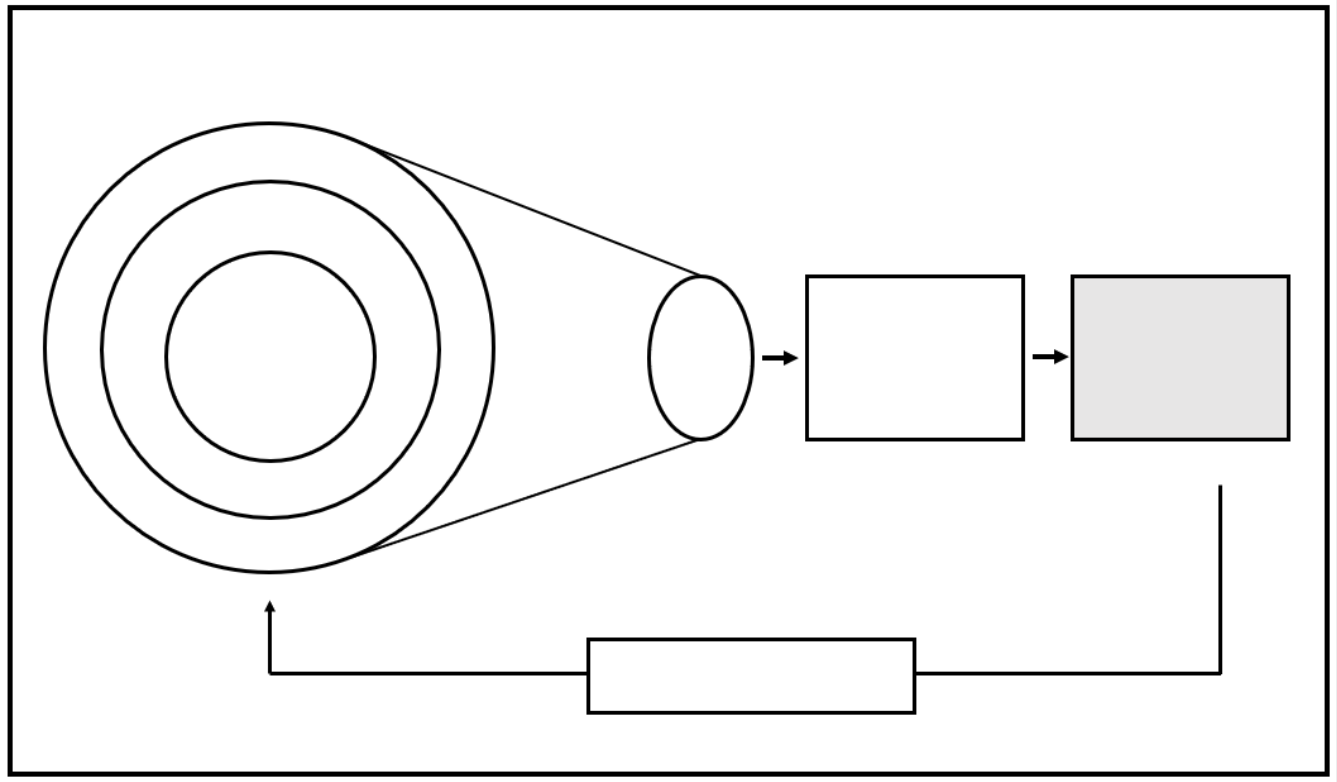
Outcomes in the Danish context

- 40% of GPs meet the criteria for a moderate degree of burnout and 10% the criteria for a severe degree of burnout.
- Among Danish vascular surgeons, more than 80% reported burnout, of which 28% in a moderate to severe degree
- 22% of nurses indicate that they have always or often felt stressed during a two-week period
- 88% of nurses are considering changing jobs
- 61% of nurses fully or partially agree that there are conditions in working life that can make it difficult to stay in the labor market until retirement age

Sources; DSR Analyse; Møller et al., 2022; Steenberger, 2022; Pedersen, 2020

Consequences for

- Patients (quality and safety)
- Clinicians
- Health Care Organizations
- Society



Consequences on quality and outcomes in Denmark

Patient safety:

- Only 43% of the nurses answer that they can 'to a great extent' or 'to a very high extent' carry out the work to a quality that they are satisfied with.
- 31% of nurses indicate that busyness or understaffing within the past month has been a contributing factor in a patient's condition worsening.
- 16% state that busyness or understaffing has been a contributing factor in a life-threatening situation for a patient.

Kilde: DSR Analyse

Consequences on quality and outcomes international

Healthcare quality:

- Correlation between a poor working environment and poorer clinical performance in diagnostics and treatment (Guo, 2022. Riskin, 2015).

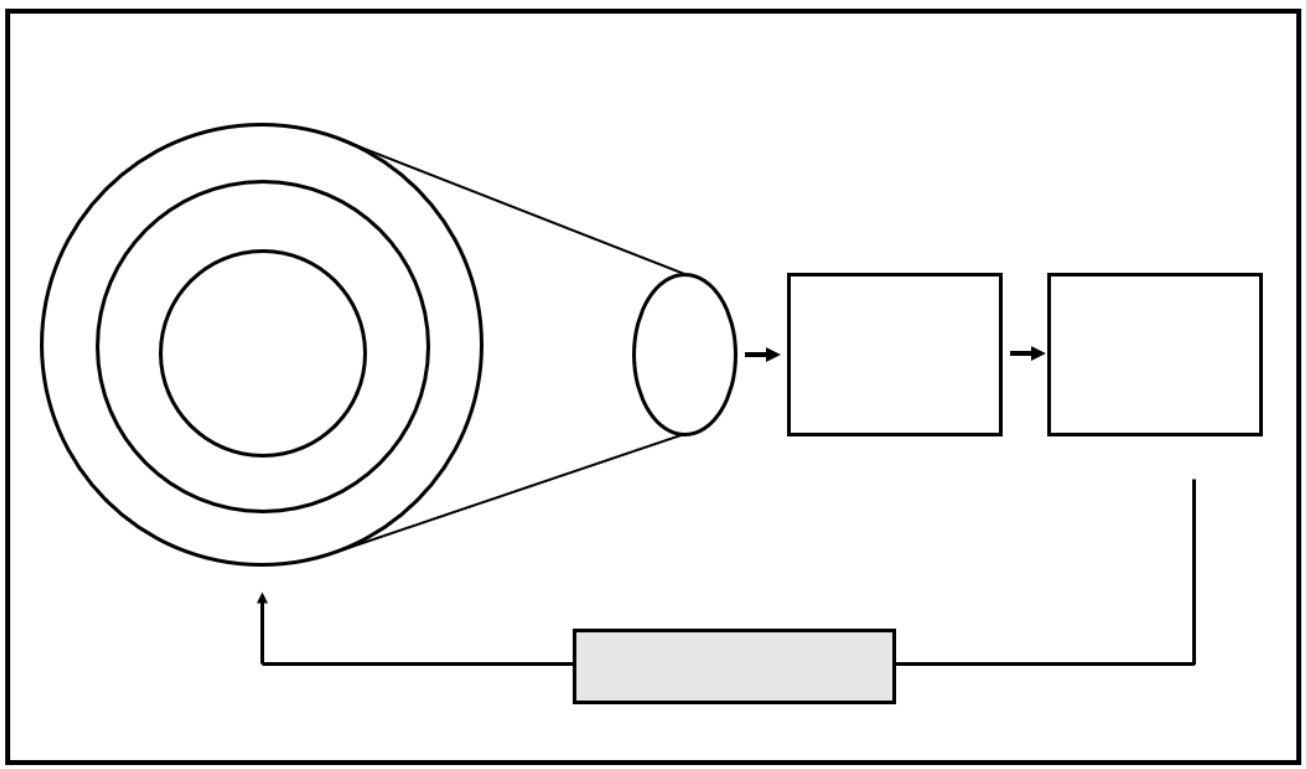
Organizational quality:

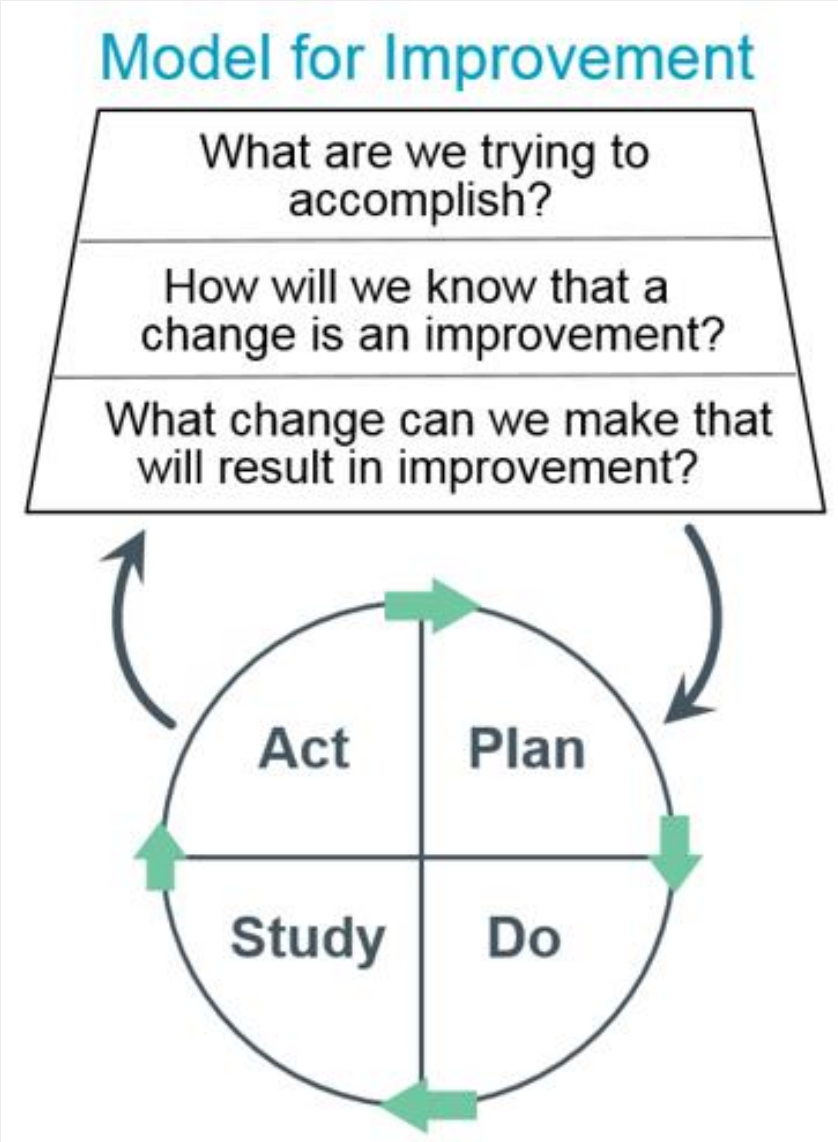
- A reduction in productivity to the extent of 20% has been demonstrated as a consequence of a poor mental working environment (Guo, 2022. Berry, 2012, Lewis, 2011. Hutton, 2008).

Results:

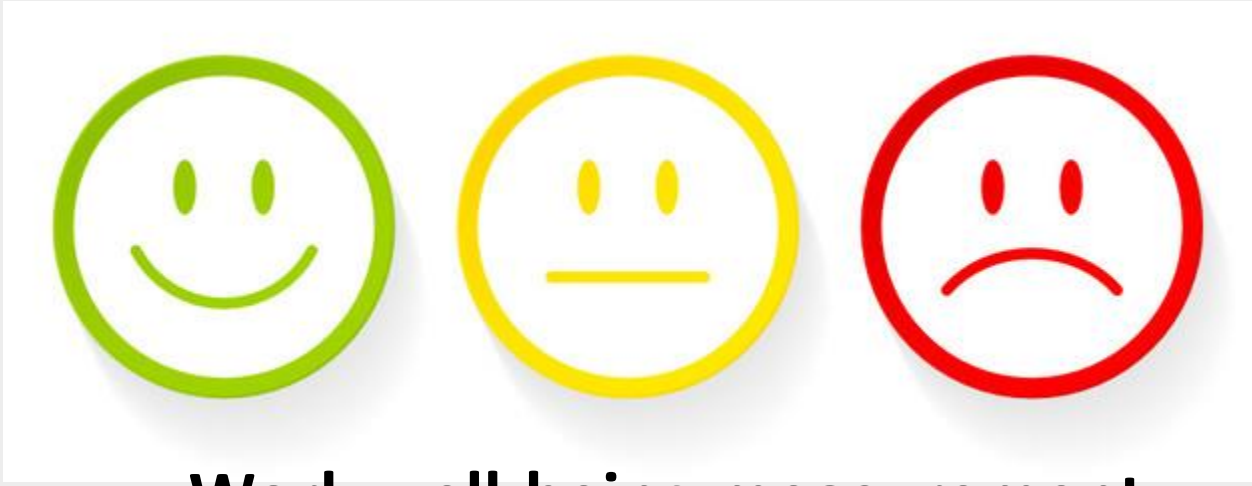
- A poor mental working environment is associated with more (10-20%) postoperative complications (Cooper, 2019).

Learning and improvement



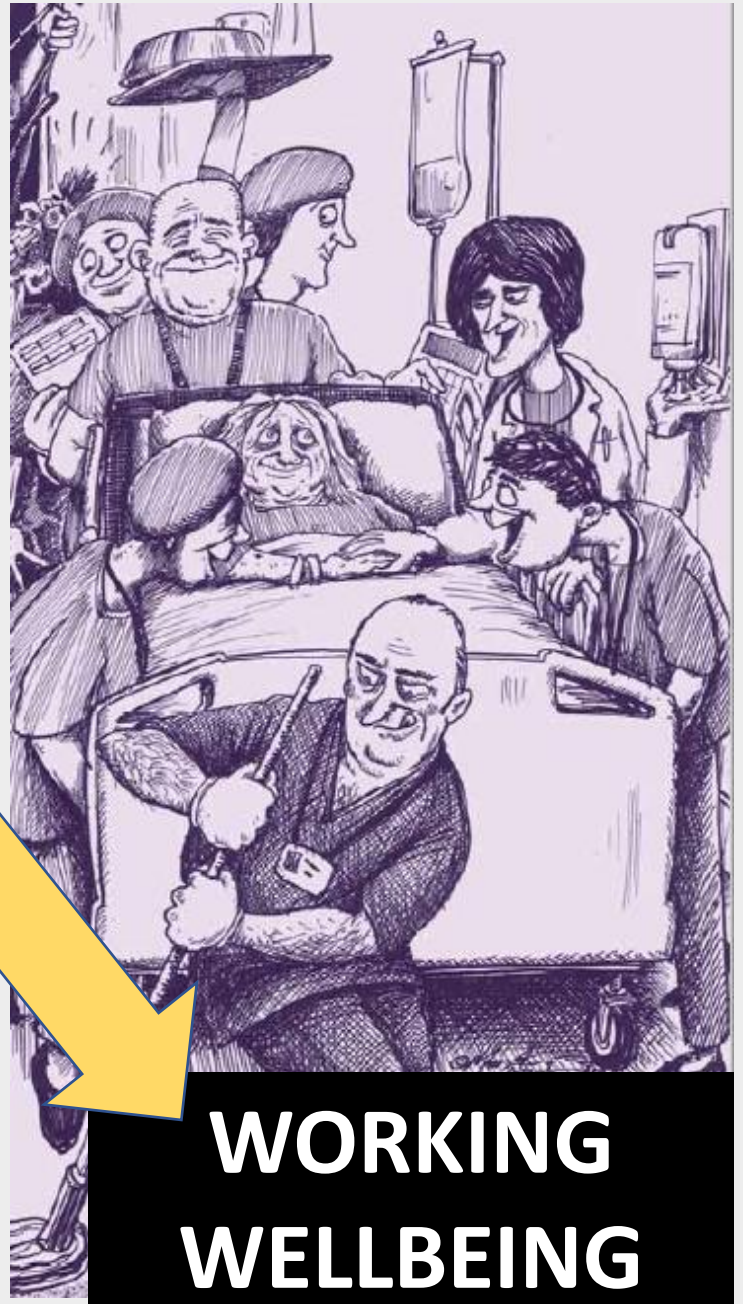


Future endeavours



Work well-being measurement

Quality of Care measures



BURNOUT

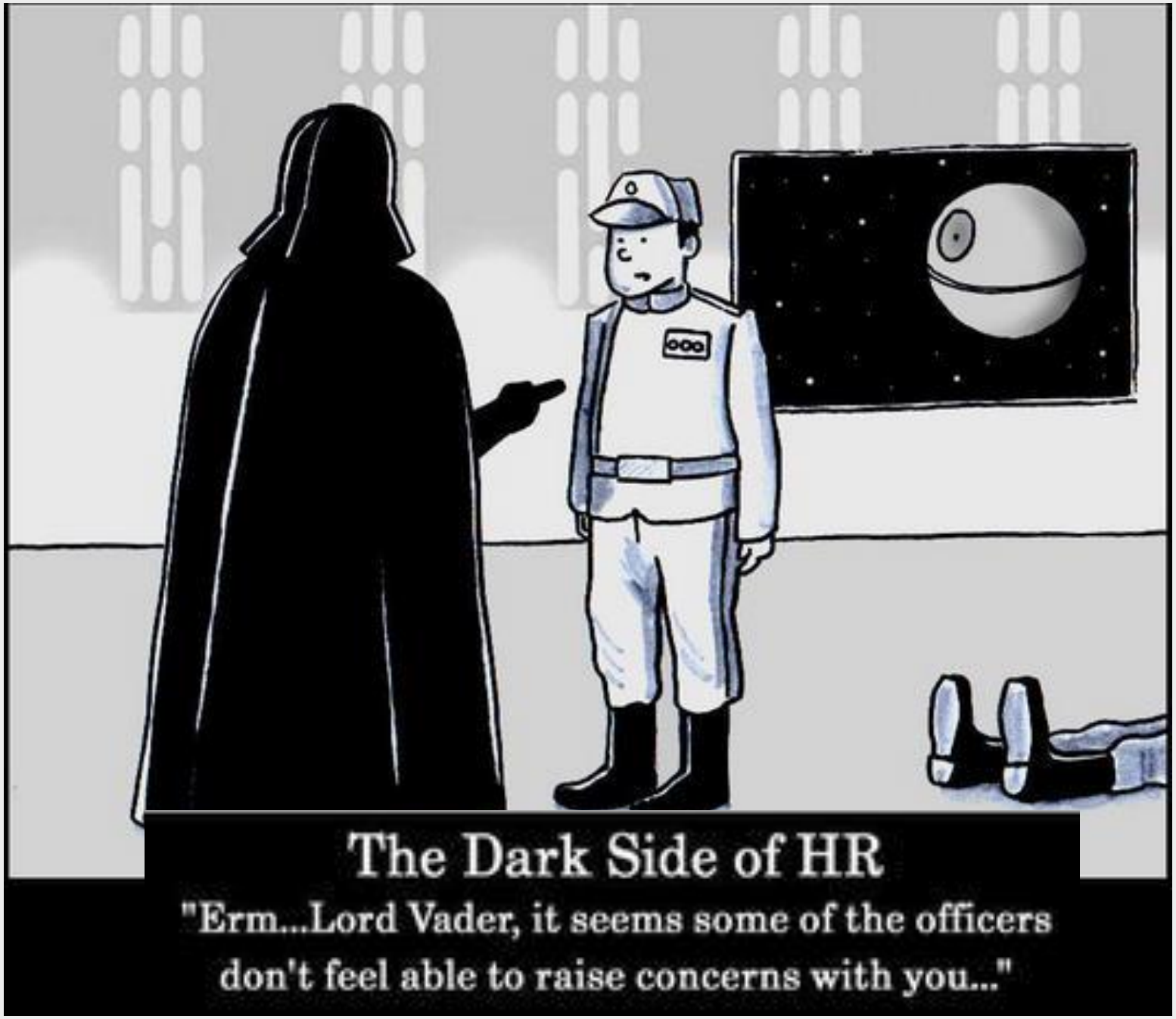
WORKING WELLBEING

Thank you for your attention

Questions?

Contact:

Soeren.k@rn.dk



“A belief that we will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes”
- Amy Edmundson
https://www.youtube.com/watch?v=LhoLuui9gX8&t=5s

Psychological Danger

Psychological Safety

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How to involve staff in the decision-making process surrounding workforce management

Tobias Bøggild-Damkvist, Region Hovedstaden

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Flexible, fair, and transparent roster planning considering physician well-being and training opportunities enhances junior doctor job satisfaction and patient safety

Line Engelbrecht Jensen, Capital Region of Copenhagen

Institute for Healthcare Improvement

BMJ

Flexible, fair, and transparent roster planning considering physician well-being and training opportunities enhances junior doctor job satisfaction and patient safety

Line Engelbrecht Jensen, MD

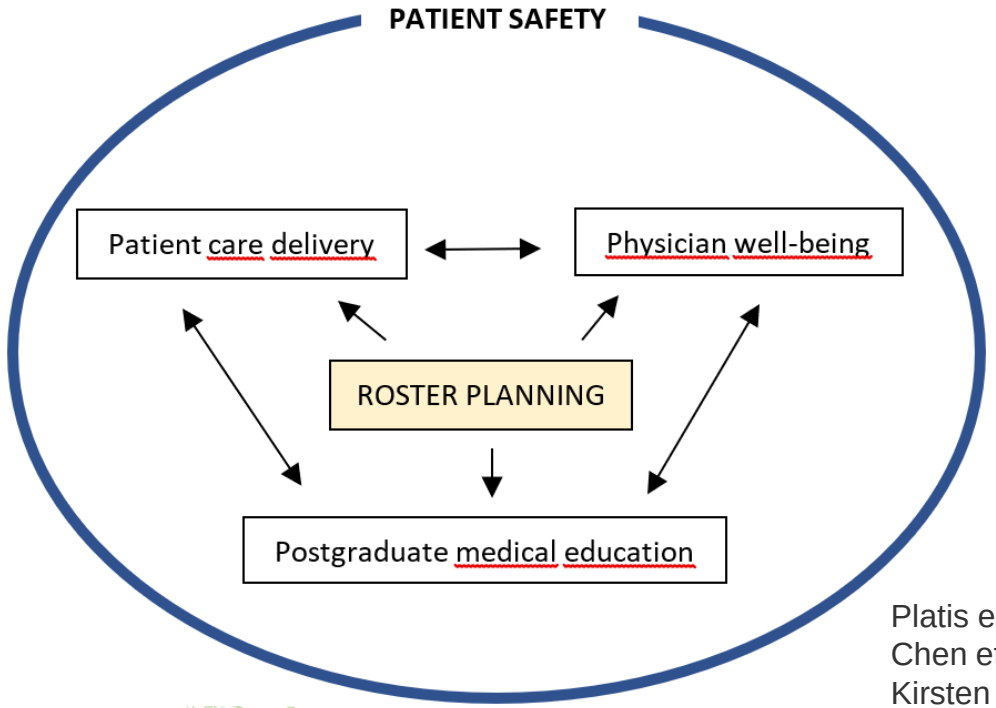
Background

- Lack of staff incl. doctors, especially specialists/consultants
- Increase in demand: more elderly, more people with chronic illnesses, rising expectations to health care, expanded treatment options.
- Decreased capacity for delivering medical education: Educators retiring, Covid-19 pandemic, lack of nurses, private practice takes over the easy cases without educational obligations.
- New generation of doctors: hopes and dreams for variation, personal development, and work-life balance.

Højgård et al 2017
Mitchell et al 2008

Background

- **Strong link between physician well-being, working environment and patient safety**
- Roster planning is diverse
- Focus on human resources to be able to
  - deliver core health services
  - provide well-educated professionals
  - secure health and retention of the workforce



Platis et al 2015
Chen et al 2015
Kirsten 2010

Aim of the pilot study

- To focus on roster planning for **junior doctors undergoing postgraduate medical education**

- To identify and explore key elements in roster planning and how this influences
  - postgraduate medical education
  - working environment
  - well-being

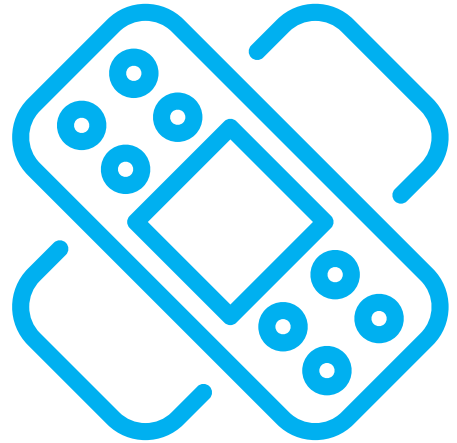
of junior doctors working in a Danish surgical department.

Methods

- Interview study building on dialog-based knowledge generation theory
- Six semi-structured interviews
  - three junior doctors (Newly graduated; GP specialist training; Last year surgical residency)
  - three rostering stakeholders (Senior consultant; Local rota coordinator; Regional head of workforce management)
- Analysis
  - Epistemological inductive approach
  - Social constructivist scientific theory framework

Limitations

- Pilot
- Low number of participants
- Limited to one surgical department
- Danish set-up, regional and local differences
- Only one investigator
- Based on perception of the participants



Results and analysis

Themes

- Work-life balance
- Flexibility, cooperation and trust
- Fairness
- Education
- Power structures

Work-life balance

"I don't think I do my work differently, but I may become a worse collegue. I don't have the energy to help others out or chip in on extra work. And at home, they can feel it."

"Before the roster, we make our own roster at home. When the roster arrives, the first thing that happens is that it becomes part of our Gmail calendar together with plans for child drop-off and pick-up responsibilities every day of that month."

"When [my] competencies don't match the situation. It's a very important factor in roster planning that you are never alone with something you don't have the competencies for."

"[The roster] means a lot to our everyday life. It's about not being able to attend functions with one's children or missing out on family birthdays because of these evening-and-night shifts. As a mother, you want to attend these things, not for you personally, but for your children. It plays a role in how successful I feel in my other role as a mother."

Work-life balance

Challenges

- Logistics related to working shifts (family time)
- Missing out on social gatherings and family time
- Physical and mental strain

- Accepted largely due to the meaningfulness of the job

Consequences

- Incoherent planning may cause stress, burnout and disease
- Predictebility, timely adequacy and influence on rosters are positive factors

Flexibility, cooperation and trust

"I think that it is a joint responsibility of the duty team that the department and our responsibilities within it run smoothly."

"It wouldn't be worth it if I felt that there was no flexibility whatsoever, if I could never leave early or someone else could take the evening part of my shift. In general, we as colleagues are very flexible and help each other out. Maybe because we are all in the same boat. There is a high degree of cooperation."

"I have experienced that some people have [taken operations]. But I didn't make a fuss about it, I just thought that on their own heads be it. Because in the future, they make it difficult to cooperate with them. Something like that is never forgotten

"I only submit roster requests to a degree where my family can function, with the hope and trust that the others do the same."."

Flexibility, cooperation and trust

- Flexibility is highly valued
- Sense of community in performing the core task enforces cooperation and trust
- Collegiality enhances job satisfaction and well-being

- Detailed control and rigid structures leads to frustration, decreased collegiality and lack of cooperation.

Fairness

”In the case where I for example have had many shifts and extra shift and lost OR days, then it means a lot to me [if the distribution is not fair]. The roster planner should know that you can’t just give all the OR days to the same two people!”

”It’s alright, if the communication is sufficient. (…) I would much rather hear why and that they know it’s a lot to ask, if they have to break the union rules. Better up-front than me being angry about it afterwards.”

”When I get my roster, I focus on if my responsibilities are fairly distributed. Not so much compared to the others, but more to see if I got sufficient educational content.”

Fairness

- It is important that the workload and especially the educational elements are fairly distributed
- They are willing to put in an extra effort for the core task and for their colleagues if the distribution is fair
- Perceived fairness and social capital is enhanced by
  - Transparency
  - Flexibility
  - Influence

Education

”It’s my responsibility that [my patient] gets the right treatment. This responsibiliuty means that I have to have the competencies to stand alone with the treatment responsibility, that I feel competent enough. It’s about trainig and supervision.”

”In an ideal world, I would appreciate if someone cared about my education. But I think [the lack of coordination of education] is to be expected in a public health care system where focus is on so many other things.”

”And it means the world to me that there is a focus on taht I learn something while I’m here. It’s more important that there is an educational content. Then I don’t mind working extra hours

”Being in an educational position, I expect and hope to learn the things I’m supposed to learn while being here. And I feel that this has been thought about.

Education

- Good education is strongly linked to job satisfaction and well-being
- Education as integrated part of patient care enhances phycisian well-being, work environment and hence patient safety
- Education is perceived as an individual responsibility, but:
- Improvement when the junior doctor is planned as part of the community of practice

Power structures

”I have a feeling that the thing with clinical supervisors and educational meetings with my supervisor is being treated quite laissez-faire. I don’t think anyone other than myself is looking after if I reach my educational requirements.”

”I would probably ask my clinical advisor or the consultant responsible for my education if my questions were related to my education. They could probably guide me in the right direction. Or I would ask the union representative if I had problems related to the union rules or social issues.”

”I don’t know who is responsible for my roster. A secretary I guess. I don’t know whom to call my immediate leader, good question! Is it the chief of department? My clinical supervisor? The consultant responsible for my education maybe?”

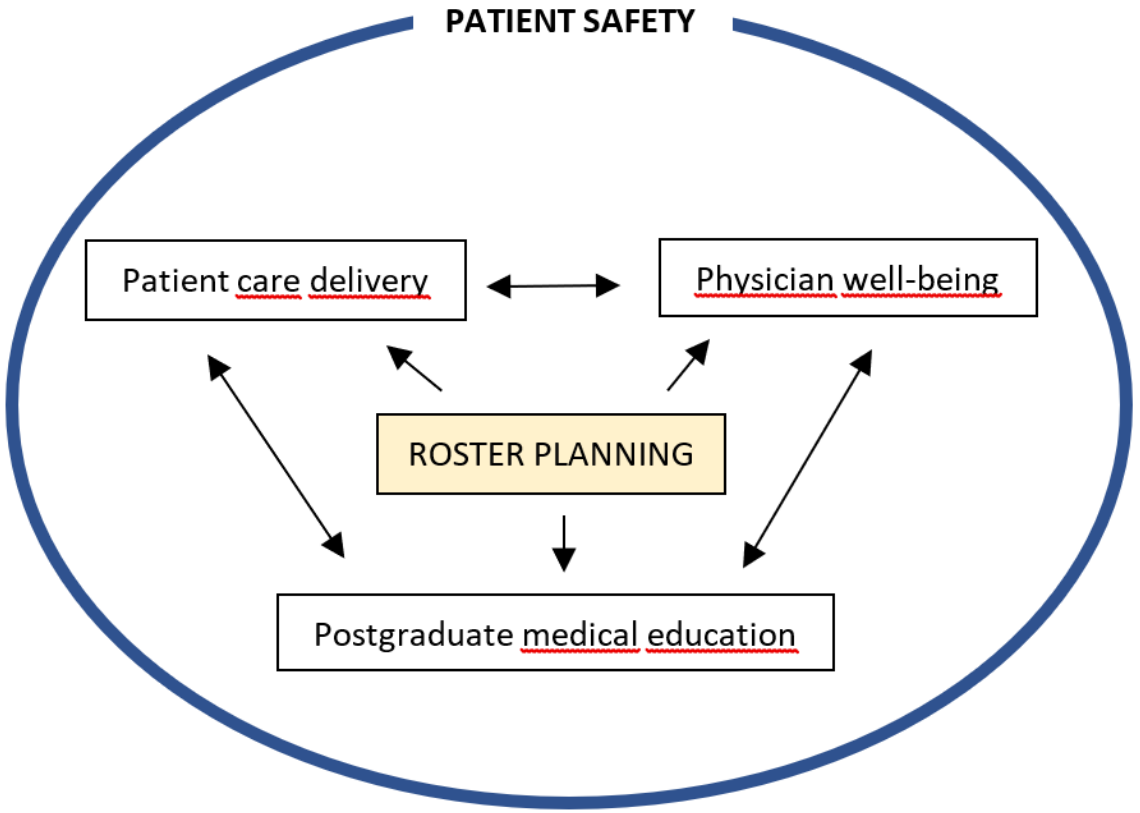
Power structures

- Lack of clarity in the pathways of power – immediate manager/leader of the junior doctors? Responsible for rosters?
- The person to approach differs and does not necessarily have the power
  - work planning
  - physician well-being or family issues
  - personal problems
  - educational matters
- Focus on transparent power structures may improve rosters and well-being

Conclusion

It's beneficial for education, physician well-being and the core task when roster plannings is carried out with transparency and physician involvement.

Flexible, fair, and transparent roster planning considering physician well-being and training opportunities enhances junior doctor job satisfaction and patient safety.



Perspectives

Study 3: Exploring interview study

Title

Good rostering practices in relation to postgraduate medical education – learning from Danish departments with documented good education and high job satisfaction among junior doctors

Aim

To uncover and evaluate good rostering practices from departments with documented good education and high job satisfaction among junior doctors with a special focus on postgraduate medical education and how departments manage to relay theory into practice.

Method

Qualitative mixed-methods study where individual and focus group interviews with relevant stakeholders are combined with analysis of available written procedures.

Study 4: Prospective organisational development study

Title

Educationally focused rostering in a newly reorganised emergency department of digestive disorders.

Aim

To create a map of the already existing knowledge on hospital roster planning for junior doctors undergoing postgraduate medical to find modalities and initiatives related to roster planning that impacts postgraduate medical education.

Method

Scoping review following the guidelines for Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR Statement).

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Measuring the effects of simulation training for 3rd year Nursing students: an experimental study

Hanne Selberg, University College Copenhagen

Institute for Healthcare Improvement

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PIQUED

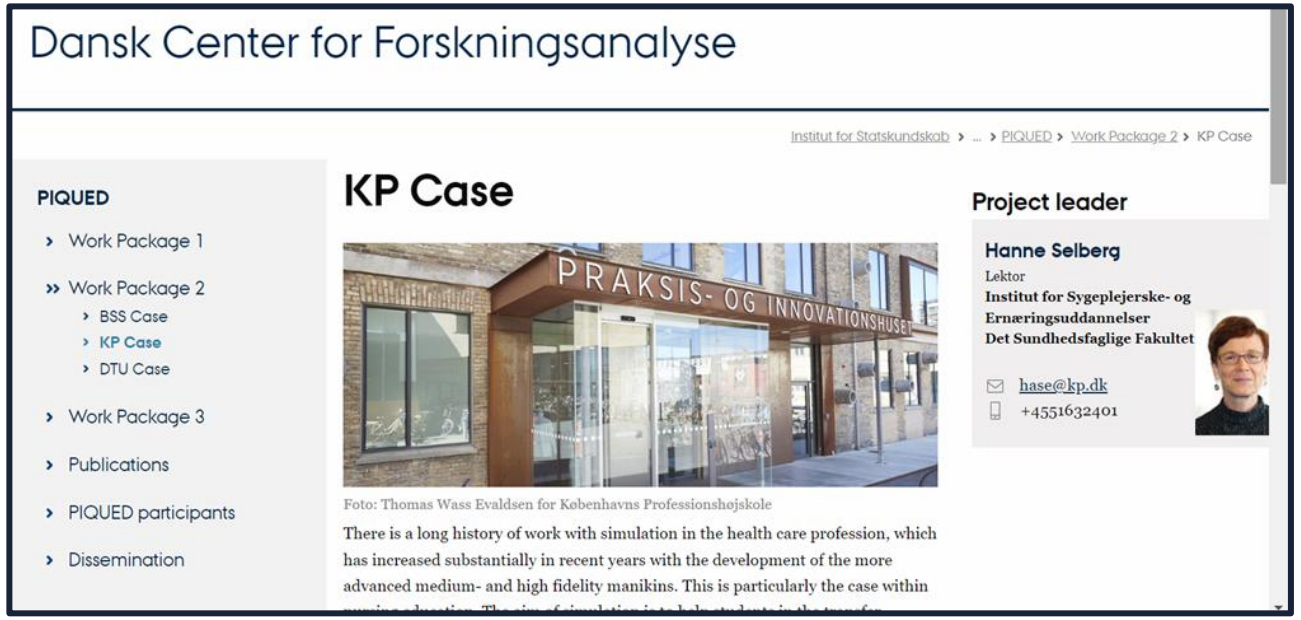
Pathways to Improve Quality in Higher Education in Denmark

https://ps.au.dk/forskning/forskningscentre/dansk-center-for-forskningsanalyse/piqued

KØBENHAVNS PROFESSIONS HØJSKOLE

- **This study is part of the PIQUED project (Pathways to Improve Quality in Higher Education).**
- **Funding from the Danish Ministry of Higher Education and Science is gratefully acknowledged.**
- **Laerdal Medical DK has facilitated the development of P2P scenarios. The contribution is gratefully acknowledged.**

Simulation training and professional self-confidence: a large-scale study of 3rd year nursing students



Case Study:

What are the effects of simulation training on knowledge gained, skills performance, critical thinking and self-confidence for nursing students?

KP case in PIQUED (Pathways to Improve Quality in Higher Education)

CONTROL GROUP

5th Semester (155 students)

Standard 3 lessons

- Full-scale facilitator led simulation
- Standard debriefing

INTERVENTION GROUP

5th Semester (164 students spring)

Day 1

P2P skills stations Technical skills	Exercises Non-technical skills

Day 2

P2P skills stations Technical skills	Scenarios Non-technical skills

Day 3

- Full-scale facilitator led simulation
- SMART GOAL debriefing

6th Semester (147 students fall)

Day 1

P2P skills stations Technical skills	Team training

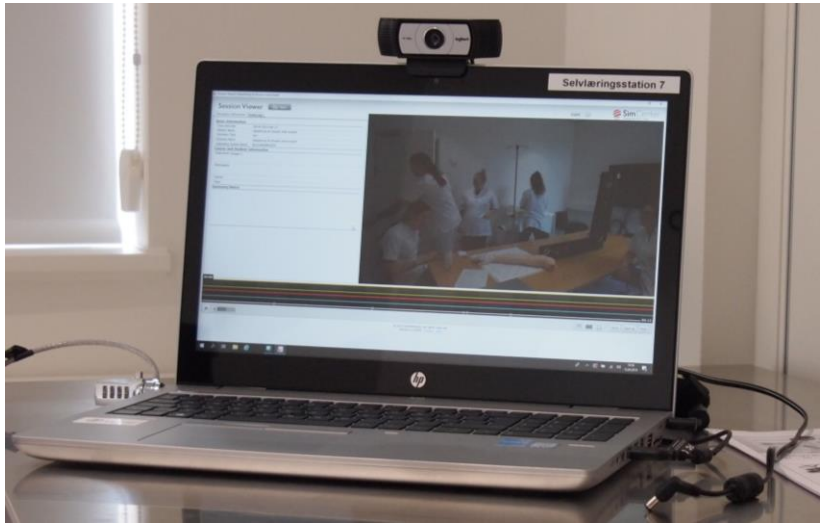
Day 2

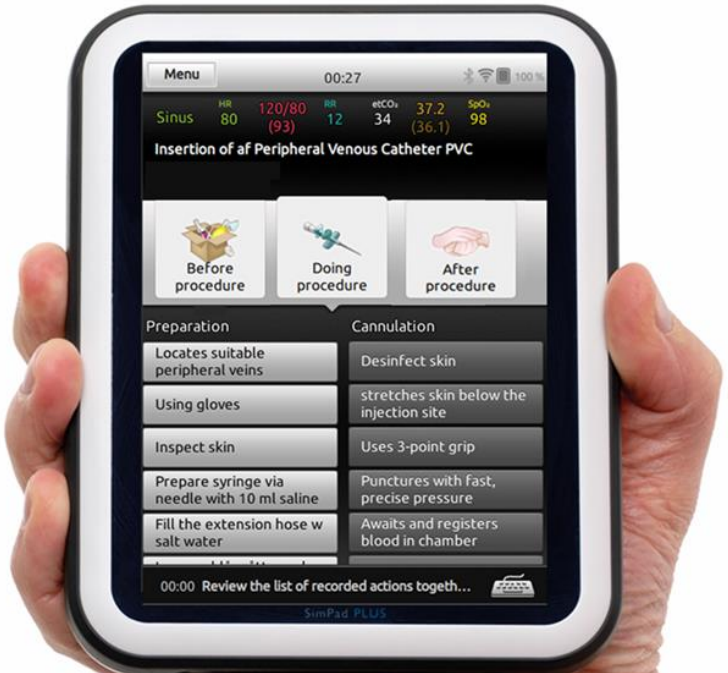
- Full-scale facilitator led simulation
- Debriefing

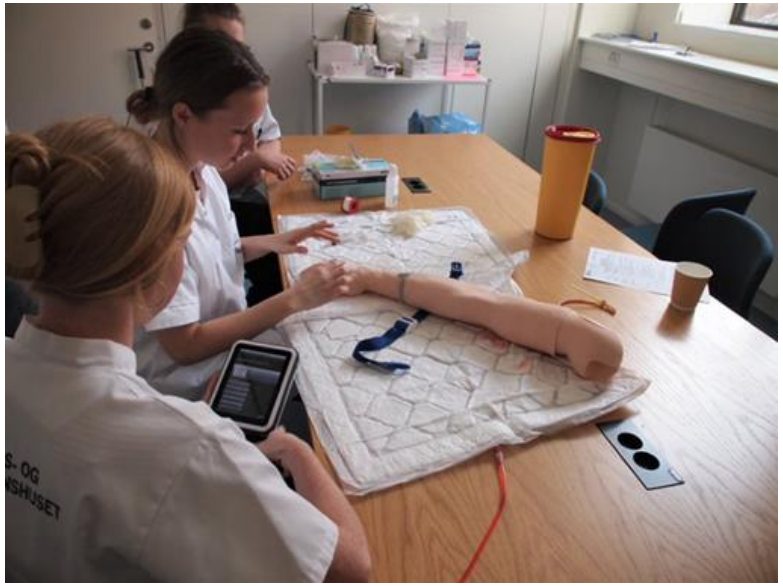
TECHNICAL SKILLS

- Duodenal tube placement
- Peripheral intravenous cannulation
- Oxygen therapy
- Urinary catheterisation
- The Trendelenburg position
- Intravenous medication administration
- Intravenous fluid therapy
- Blood pressure measurement

PEER-TO-PEER SKILLS TRAINING







PEER-TO-PEER DEBRIEFING

Menu 12:58 48 %

Use detailed log O

Anlæggelse af perifert venekateter 1

2. May 2022 12:55 2 min 6 sec

01:01 ✓ " Det var korrekt at inspicere huden inden desinficering.
Det er vigtigt, at huden er ren uden synlige hår. "

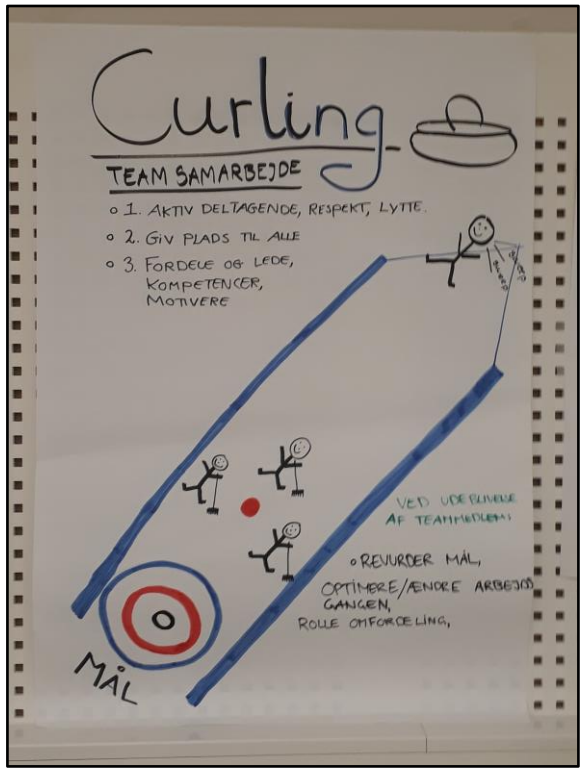
01:11 Desinficerer hud med sprit-swaps

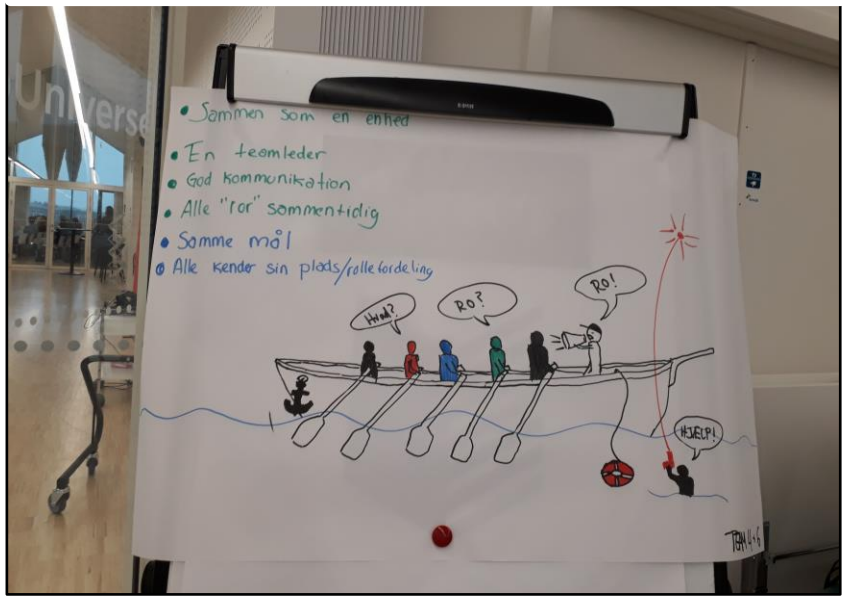
01:11 ✓ " Det var korrekt at desinficere huden. Husk at anvende princippet om at gå fra ren til urent. Første desinficering skal være tør før procedure gentages. "

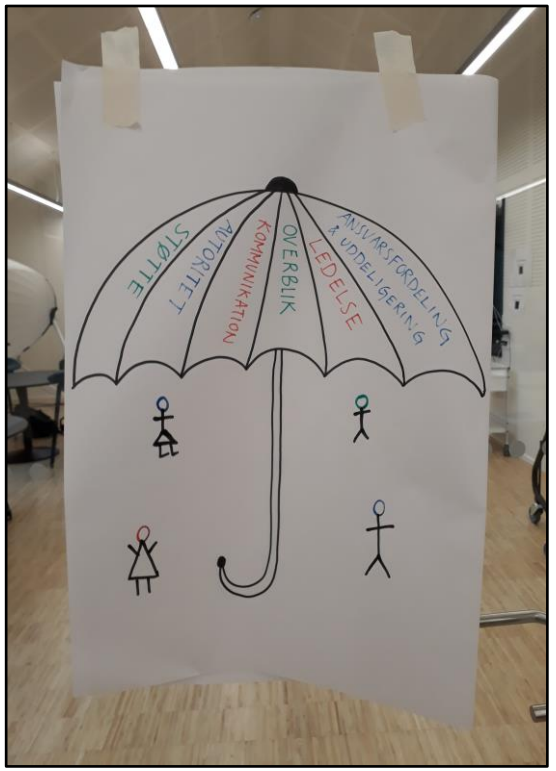
01:11 Bruger 3-punktsgreb

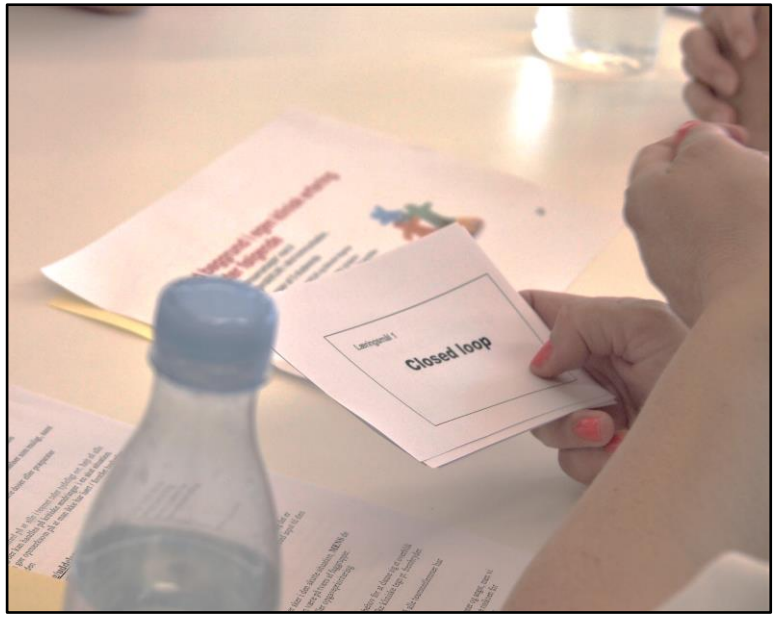
01:11 ✓ " Det var korrekt at bruge 3-punktsgreb. Vælg indstiksstedet distalt for, hvor spidsen skal perforere venen. "

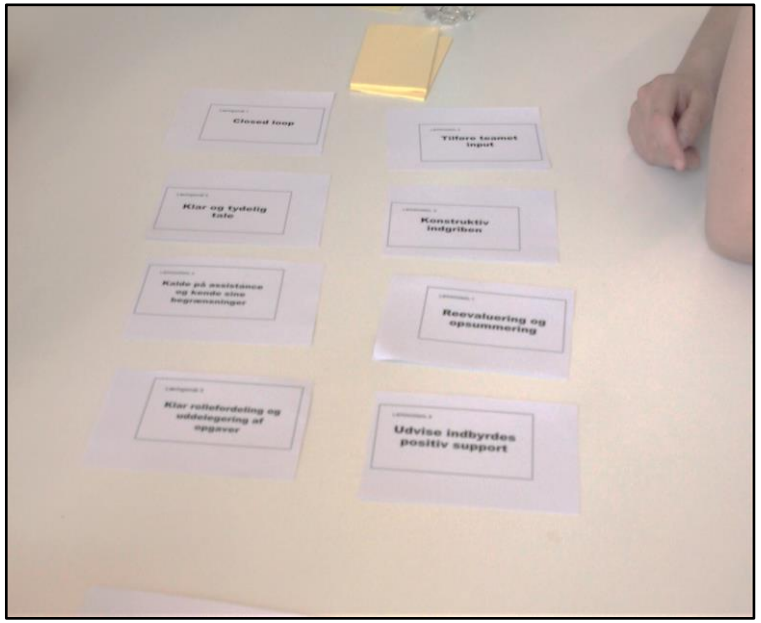
NON-TECHNICAL SKILLS

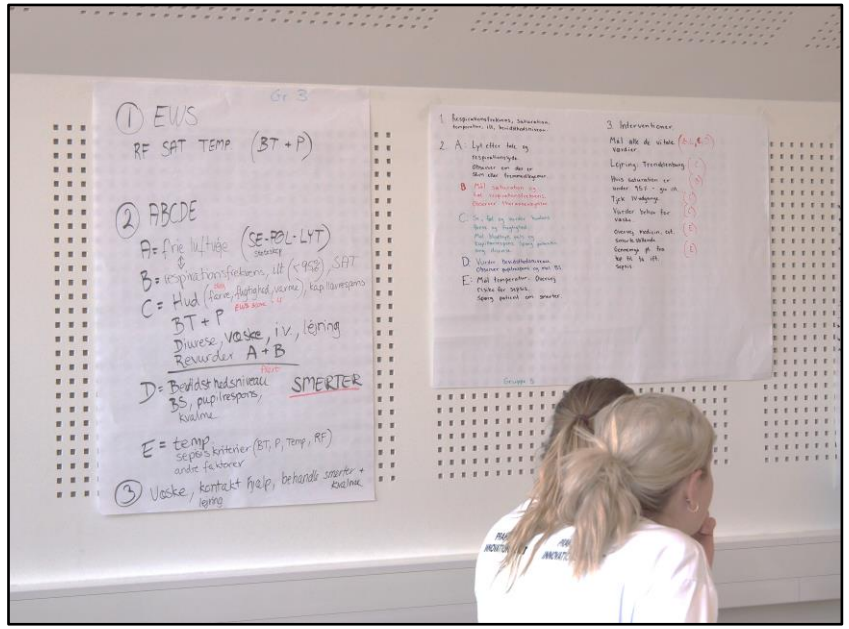












Teaching objectives

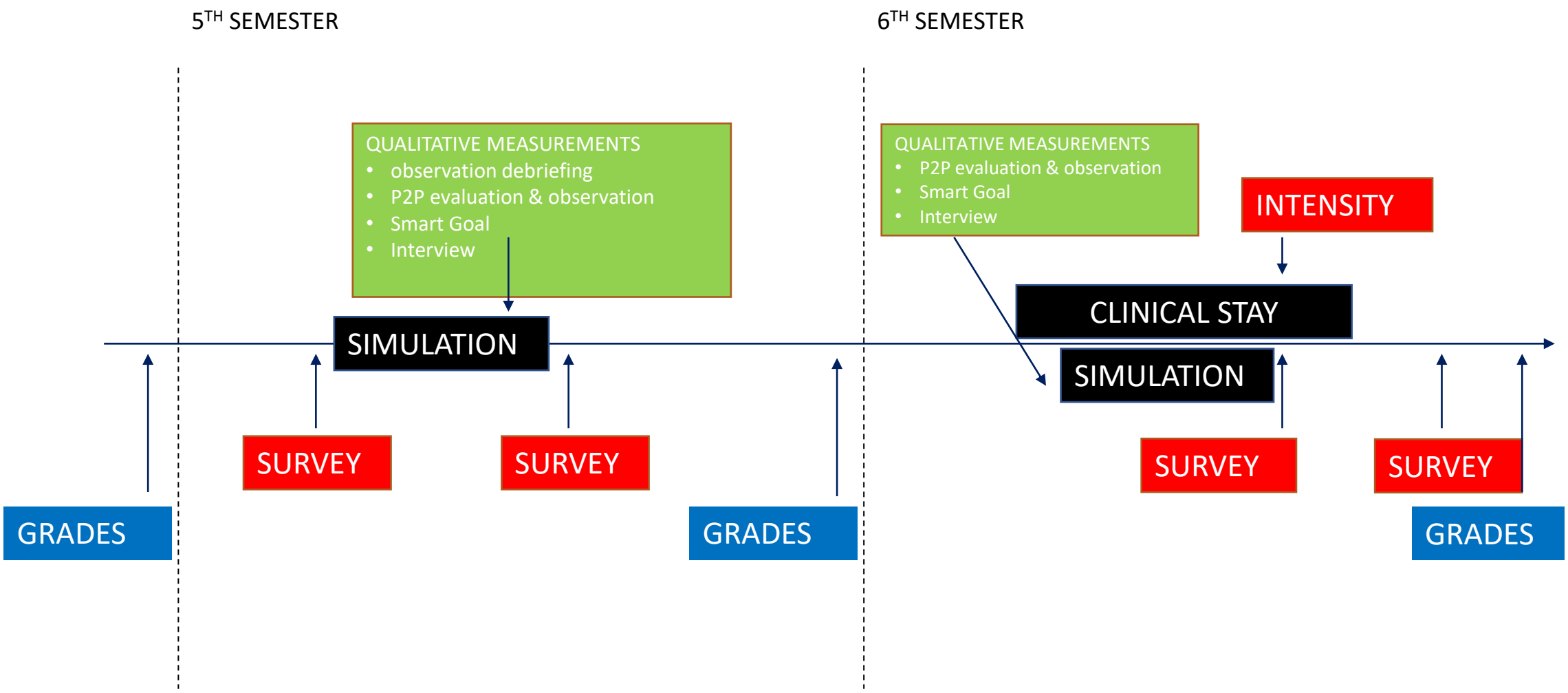
- Combining theory and practice
- Preparing for full-scale scenarios
- Mastering skills
- Team training
- Reflection
- Observation

ABCDE

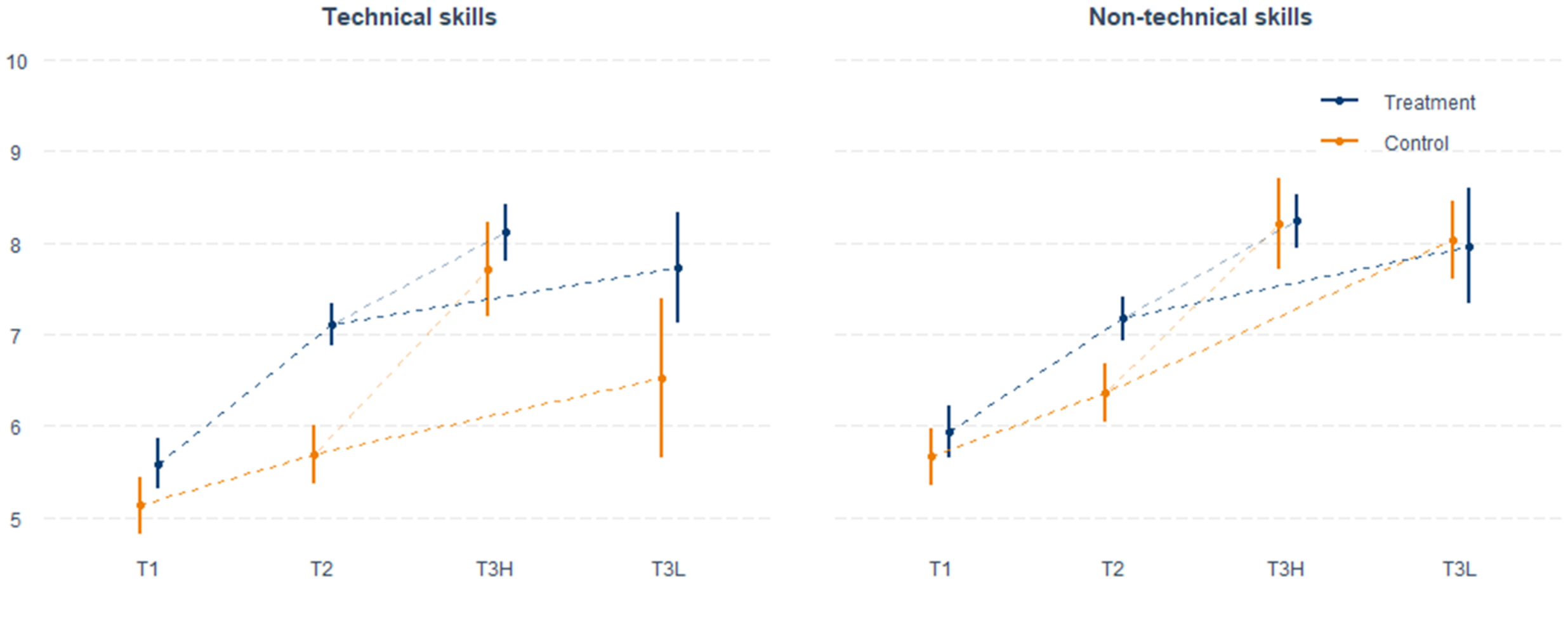
Peer-to-Peer
Scenario training

- Full-scale scenarios with live streaming
- Focused observation
- Smart Goal Debriefing

PIQUED NURSING STUDY TIMELINE



Fuglsang, S., Bloch, C. and Selberg, H. (2021) Simulation training and professional self-confidence: a large-scale study of 3rd year nursing students. **https://doi.org/10.1016/j.nedt.2021.105175**



KØBENHAVNS PROFESSIONS HØJSKOLE

PIQUED 2 – Implementering into the curriculum

5th semester- 12 classes

Day 1

Communication training

P2P skills training

- **Intravenous medication**
- **Intravenous fluid therapy**
- **Trendenburg position**

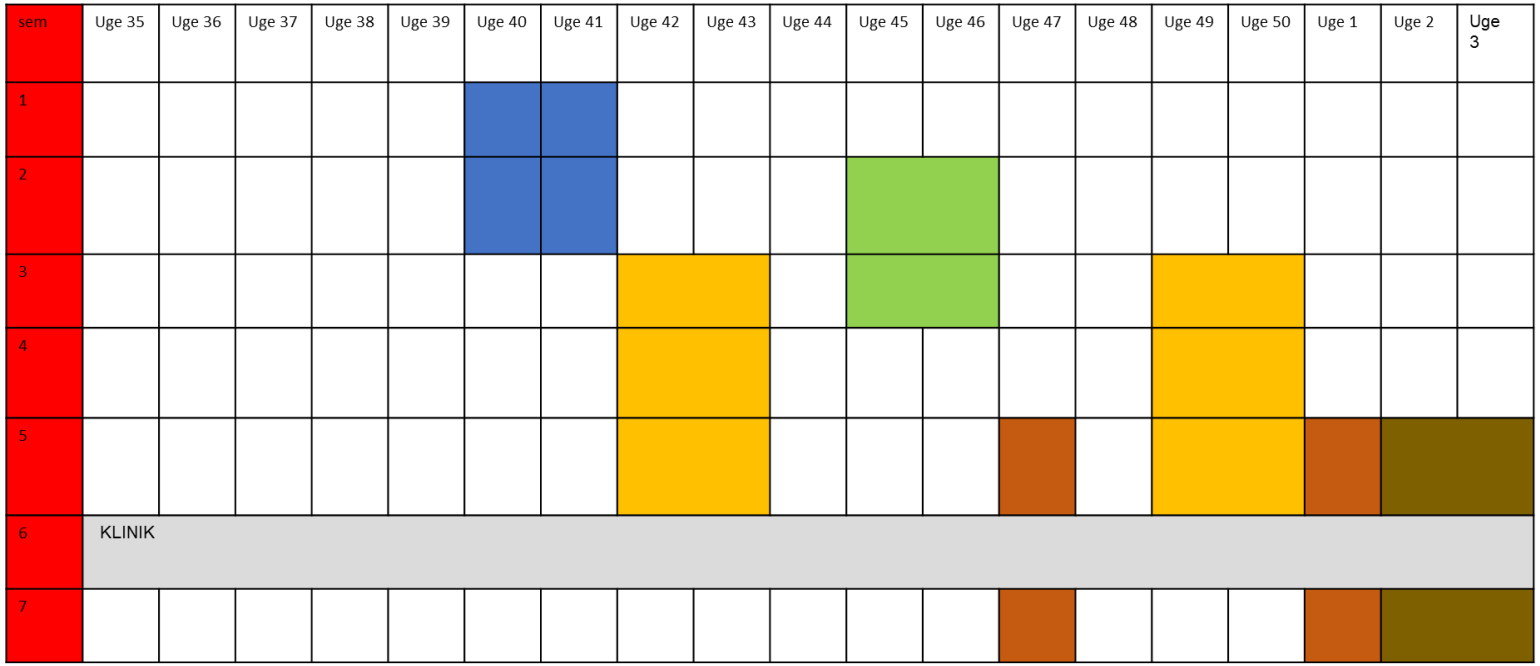
P2P ABCDE training

Day 2

Collaboration training

3 Full-scale scenarios
in small groups

Ekstracurricular training



Blood pressure measurement, Duodenal tube placement,
Urinary catheterisation, IV medicine, Peripheral intravenous cannulation

Peer-to-peer training

Monoprofessional workshops

Interprofessional workshops

Thank you for your Attention

Contact
Hanne Selberg
Hase@kp.dk

Articles

Fuglsang, S., Bloch, C. and Selberg, H. (2021) *Simulation training and professional self-confidence: a large-scale study of 3rd year nursing students*.
https://doi.org/10.1016/j.nedt.2021.105175

*Degn, L.; Selberg, H,; Markussen, AL.(2022)*Learning without a teacher
https://link.springer.com/book/10.1007/978-3-031-10399-5

International Forum on QUALITY & SAFETY in HEALTHCARE COPENHAGEN

Discussion

Bibi Hølge-Hazelton, University Hospital Zealand
Søren Valgreen Knudsen, Danish Center for Clinical Health Services
Tobias Bøggild-Damkvist, Region Hovedstaden
Line Engelbrecht Jensen, Capital Region of Copenhagen
Hanne Selberg, University College Copenhagen

Institute for Healthcare Improvement

BMJ

Did you hear about breakthrough ideas, methods, or results in the Improvement Science Stream?

Share them in the Learning Agents response form!

Relevant sessions:

- A9. Introduction to the Science Symposium stream and new methodologies / evaluation design (Tuesday 11:00 - 12:15)
- B10. The science of workforce and patient safety - the challenges and opportunities of technology for improvement (Tuesday 13:15-14:30)
- C9. The science of workforce and patient safety (Tuesday 15:00-16:00)
- D9. How can Improvement Science improve the quality of care? (Wednesday 11:00 - 12:15)
- E9. Delivering equity and sustainability (Wednesday 13:15-14:30)
- F9. What have we learned about the science of improvement? What's next? (Wednesday 15:00 - 16:00)