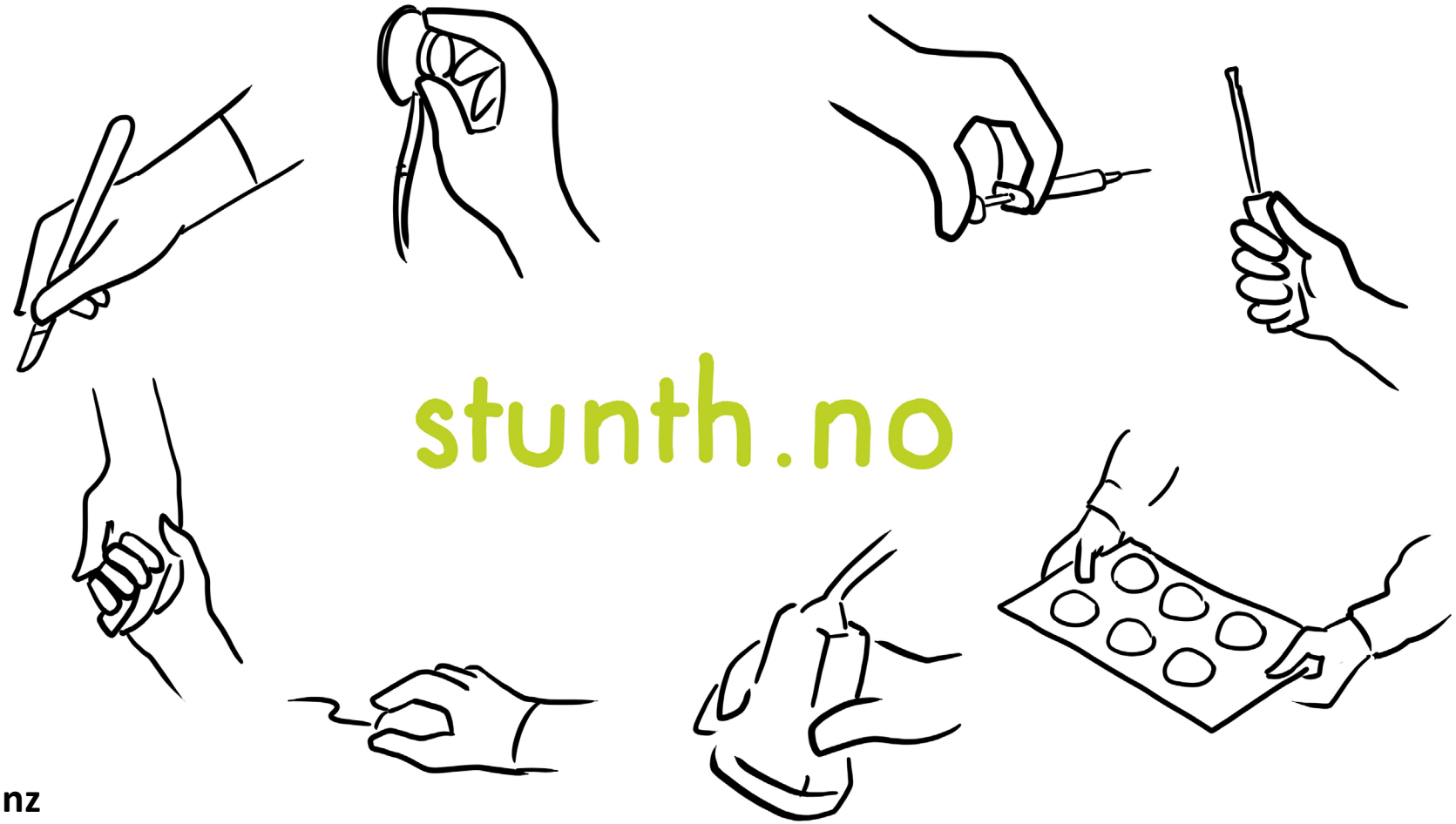
The St. Olavs Study - New Technology and Health



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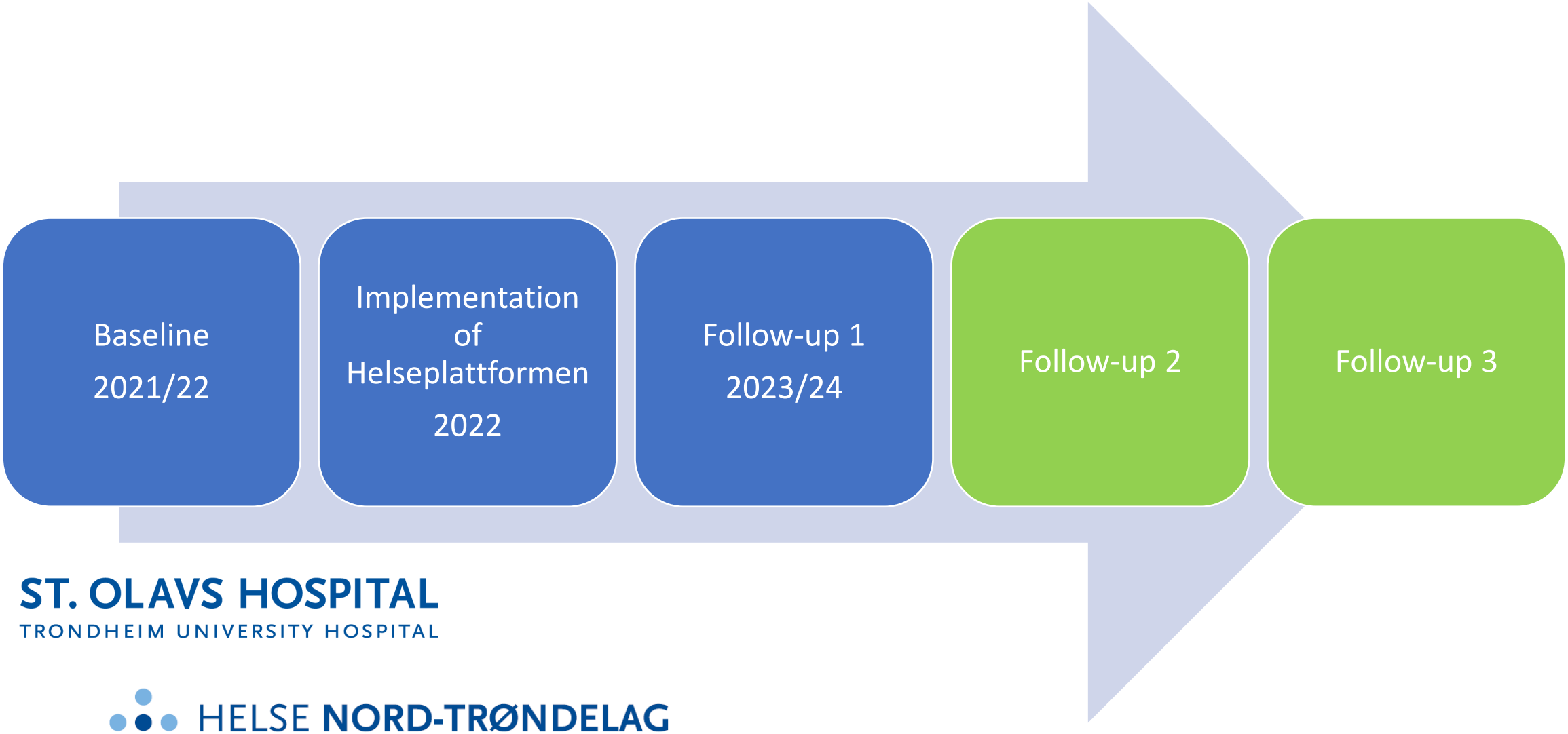
A cohort study of hospital workers

Overall aim is to acquire knowledge about the relationship between work-related factors and health among hospital workers to provide sustainable healthcare services in a decade of large digital and demographic transformations

Timeline: the STUNTH-study



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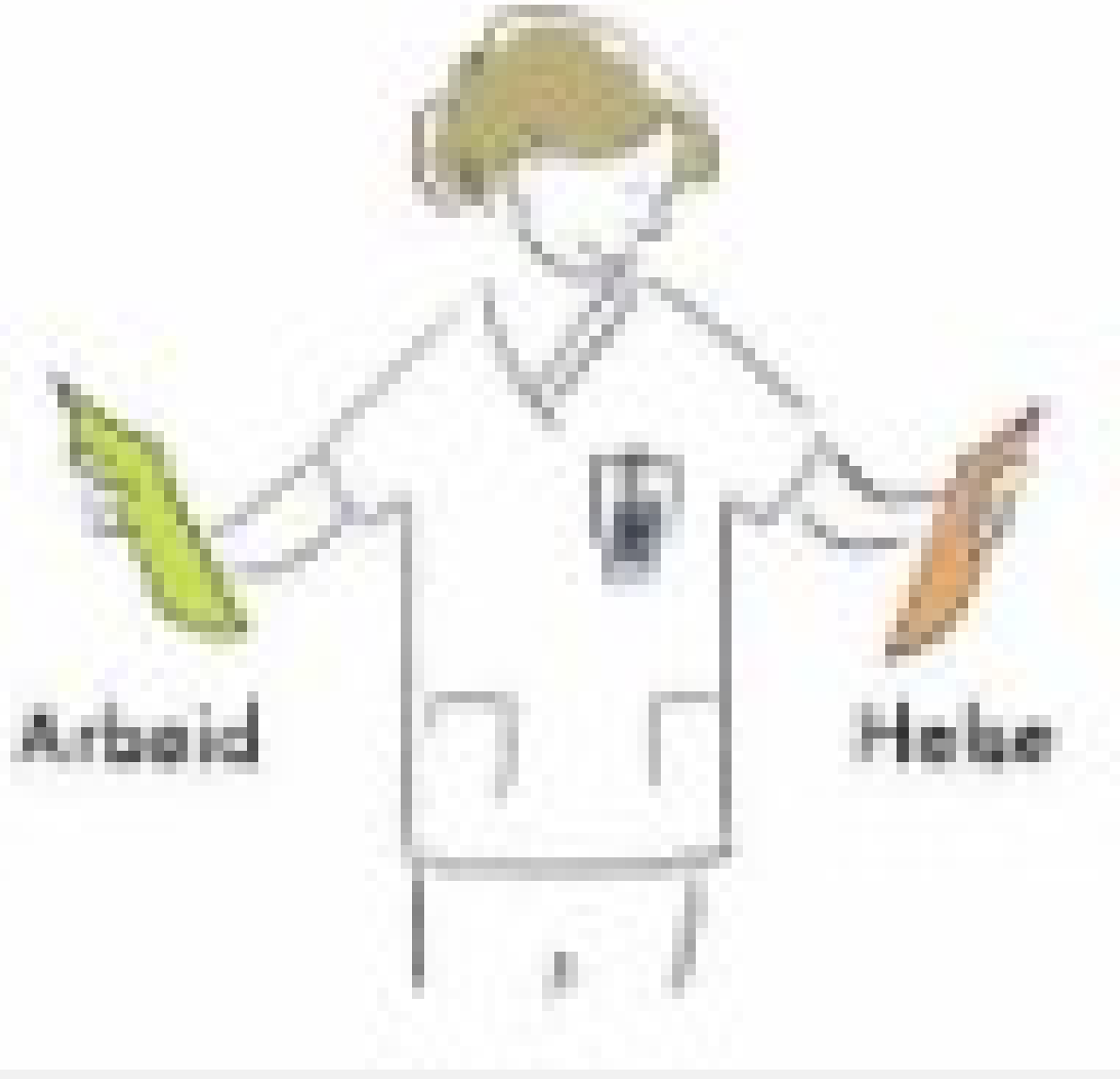
HELSE NORD-TRØNDELAG

Work-related factors

Main category	Sub category	Instrument
Organizational factors	Working hours, work demands and work pace. Training and development of skills.	COPSOQIII Hospital administrative data
Digital/technological factors	Self-efficacy towards using new technology Appropriatneness of introducing new technology User-friendliness/usability	Hospital Change readiness Usability Questionnaire
Emotional factors	Working with humans Violence, threats and unwanted sexual attention Cyberbullying	COPSOQIII
Cognitive and ethical factors	Making difficult desicions Ethical dilemmeas Making clinical mistankes	COPSOQIII Others
Ergonomic factors	Repetitive work Sitting, standing and walking at work	COPSOQIII mm. Objective measurements
Psychososial factors	Meaning and quality of work Illegitimate tasks Social support from colleagues and leader Leadership	COPSOQIII NASA-TLX Illegitimate factors (Semmers)
Other factors faktorer	Biological, chemical and physical exposures	NOSQ M.fl.

Health-related factors

General health (COPSOQ III/HUNT)
BAT (Burnout assesment tool)
Sleep (ISI, Horne-Østberg mm)
GAD7 (anxiety)
PHQ9 (depression)
NOSS-MISF (pain – muscolosceletal)
Life events, ICD-diagnosis
National registry data


Arbeid
Hobo

Digital transformation in hospital

- New technology may contribute to close the gap between the expected shortage of staff soon and the increased work demands
- New electronic health record system - Helseplattformen (EPIC) is to be implemented in Mid Norway
  - St. Olavs hospital HF, fall 2022
  - Helse Nord-Trøndelag HF, winter 2023
- The European bureau for Safety and Health in Work suggest that new technology can pose a risk on workers` occupational health

Preliminary questionnaire results – satisfaction with the old health record

In general todays health record supports my clinical work

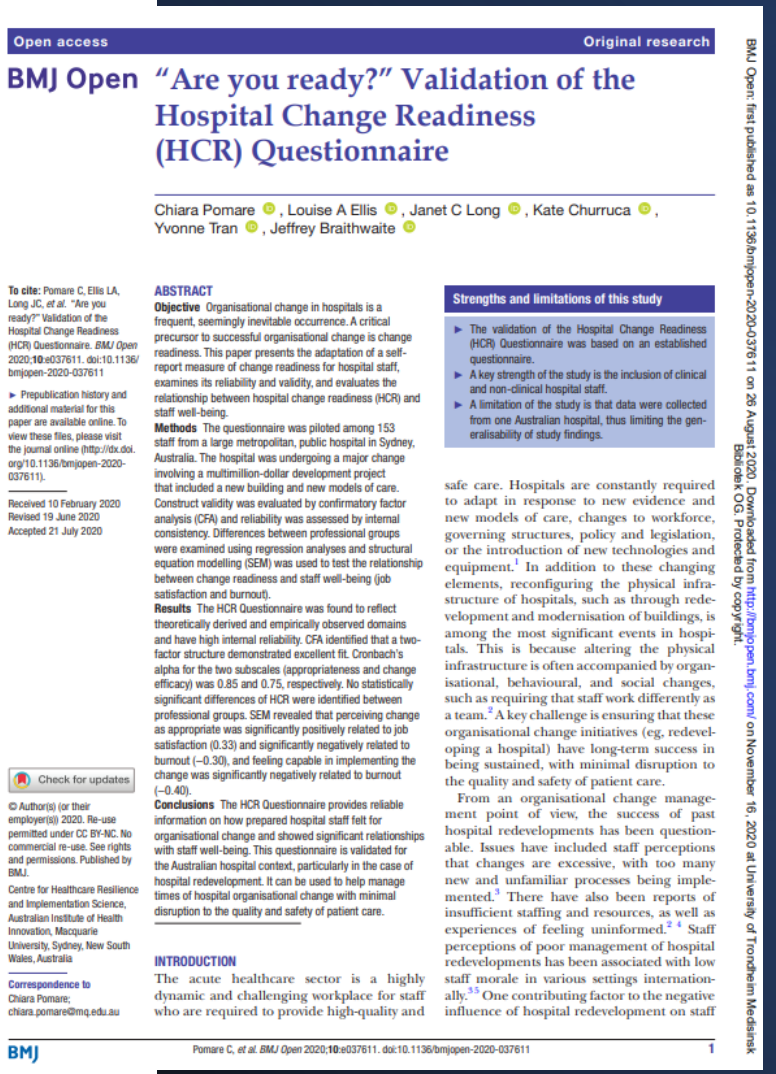
Strongly disagree	44	(1.59%)
Disagree	174	(6.30)
Neither/nor	521	(18.87%)
Agree	1606	(58.17%)
Strongly agree	416	(15.07%)
Total	2761	(100%)

Todays health record is user friendly – i.e. easy and intuitive to use

Strongly disagree	103	(3.71%)
Disagree	549	(19.78)
Neither/nor	685	(24.68%)
Agree	1230	(44.32)
Strongly agree	208	(7.50%)
Total	2761	(100%)

How ready were the hospital workers to use Helseplattformen in 2021/22?

- 3766 workers from St. Olavs hospital HF have consented to participation in STUNTH
- "Are you ready"- questionnaire was used to measure if hospital workers
  - find the digital change (Helseplattformen) appropriate
  - self-efficacy in their own abilities to use a new digital tool
- The questionnaire was translated back and forth from English into Norwegian
- It will be validated based on results from STUNTH



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BMJ Open

"Are you ready?" Validation of the Hospital Change Readiness (HCR) Questionnaire

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ABSTRACT

Objective Organisational change in hospitals is a frequent, seemingly inevitable occurrence. A critical precursor to successful organisational change is change readiness. This paper presents the adaptation of a self-report measure of change readiness for hospital staff, examines its reliability and validity, and evaluates the relationship between hospital change readiness (HCR) and staff well-being.

Methods The questionnaire was piloted among 153 staff from a large metropolitan, public hospital in Sydney, Australia. The hospital was undergoing a major change involving a multimillion-dollar development project that included a new building and new models of care. Construct validity was evaluated by confirmatory factor analysis (CFA) and reliability was assessed by internal consistency. Differences between professional groups were examined using regression analyses and structural equation modelling (SEM) was used to test the relationship between change readiness and staff well-being (job satisfaction and burnout).

Results The HCR Questionnaire was found to reflect theoretically derived and empirically observed domains and have high internal reliability. CFA identified that a two-factor structure demonstrated excellent fit. Cronbach's alpha for the two subscales (appropriateness and change efficacy) was 0.85 and 0.75, respectively. No statistically significant differences of HCR were identified between professional groups. SEM revealed that perceiving change as appropriate was significantly positively related to job satisfaction (0.33) and significantly negatively related to burnout (−0.30), and feeling capable in implementing the change was significantly negatively related to burnout (−0.40).

Conclusions The HCR Questionnaire provides reliable information on how prepared hospital staff felt for organisational change and showed significant relationships with staff well-being. This questionnaire is validated for the Australian hospital context, particularly in the case of hospital redevelopment. It can be used to help manage times of hospital organisational change with minimal disruption to the quality and safety of patient care.

Strengths and limitations of this study

- The validation of the Hospital Change Readiness (HCR) Questionnaire was based on an established questionnaire.
- A key strength of the study is the inclusion of clinical and non-clinical hospital staff.
- A limitation of the study is that data were collected from one Australian hospital, thus limiting the generalisability of study findings.

INTRODUCTION

The acute healthcare sector is a highly dynamic and challenging workplace for staff who are required to provide high-quality and safe care. Hospitals are constantly required to adapt in response to new evidence and new models of care, changes to workforce, governing structures, policy and legislation, or the introduction of new technologies and equipment.[1] In addition to these changing elements, reconfiguring the physical infrastructure of hospitals, such as through redevelopment and modernisation of buildings, is among the most significant events in hospitals. This is because altering the physical infrastructure is often accompanied by organisational, behavioural, and social changes, such as requiring that staff work differently as a team.[2] A key challenge is ensuring that these organisational change initiatives (eg, redeveloping a hospital) have long-term success in being sustained, with minimal disruption to the quality and safety of patient care.

From an organisational change management point of view, the success of past hospital redevelopments has been questionable. Issues have included staff perceptions that changes are excessive, with too many new and unfamiliar processes being implemented.[3] There have also been reports of insufficient staffing and resources, as well as experiences of feeling uninformed.[2 4] Staff perceptions of poor management of hospital redevelopments has been associated with low staff morale in various settings internationally.[3 5] One contributing factor to the negative influence of hospital redevelopment on staff

Preliminary results – Appropriateness for change

	Strongly disagree	Disagree	Neither/nor	Agree	Strongly agree	Total
A1. I think the St. Olavs hospital HF will benefit from this change	36 (1,16%)	102 (3,29%)	599 (19,34%)	1606 (51,84%)	755 (24,37%)	3098 (100%)
A2. There are legitimate reasons for us to make this change	37 (1,20%)	94 (3,04%)	600 (19,41%)	1566 (50,66%)	794 (25,69%)	3091 (100%)
A3. This change will improve our St. Olavs hospital HF overall efficiency.	59 (1,92%)	168 (5,47%)	924 (30,06%)	1388 (45,15%)	535 (17,40%)	3074 (100%)
A4. This change will increase the overall quality of patient care.	45 (1,46%)	130 (4,21%)	960 (31,10%)	1462 (47,36%)	490 (15,87%)	3087 (100%)

Preliminary results – Self-efficacy

	Strongly disagree	Disagree	Neither/nor	Agree	Strongly agree	Total
C1. I do not anticipate any problems adjusting to the work I will have when this change occurs.	324 (10,40%)	1029 (33,33%)	681 (22,06%)	839 (27,18%)	214 (6,93%)	3087 (100%)
C2. There are some tasks that will be required when we change that I do not think I can do well.	197 (6,40%)	802 (26,05%)	1481 (48,10%)	498 (16,17%)	101 (3,28%)	3079 (100%)
C3. When we implement this change, I feel I can handle it with ease.	56 (1,82%)	314 (10,20%)	793 (25,76%)	1562 (50,73%)	354 (11,50%)	3079 (100%)
C4. I have the skills that are needed to make this change work.	32 (1,04%)	132 (4,29%)	526 (17,11%)	1809 (58,83%)	576 (18,73%)	3075 (100%)

Next

- We look forward to connect questionnaire data to hospital administrative data in order to look into the distribution on:
  - Age
  - Occupational groups (health secretaries, nurses, physicians, laboratory workers i.e.)
  - Clinical setting (surgery, psychiatry, internal medicine i.e)
  - Type of employment/position size
  - Other

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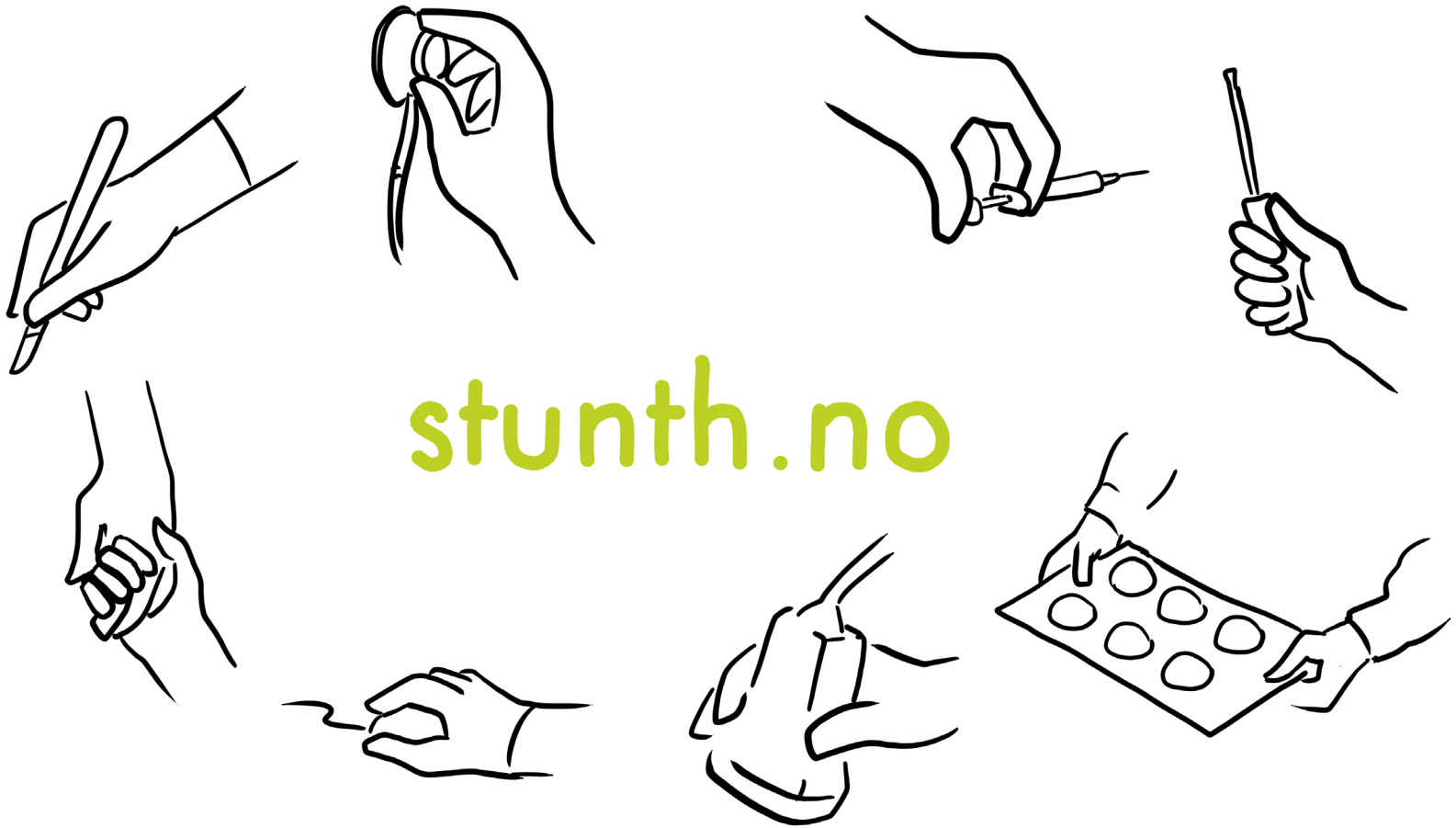
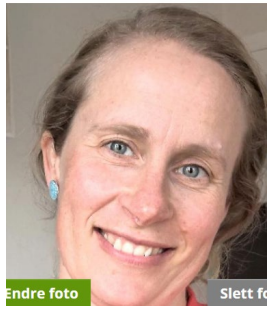


Thank you for listening!
Questions?

Sigmund Gismervik



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