

The St. Olavs Study - New Technology and Health (STUNTH)



Ellen Marie Bardal

The 5th Nordic Seminar on Technical Measurements of Physical Activity and Sedentary Behaviour,
Trondheim, June 2nd – 3rd, 2022

 **NTNU**
Kunnskap for en bedre verden

 **ST. OLAVS HOSPITAL**
TRONDHEIM UNIVERSITY HOSPITAL

The STUNTH study

- A cohort study of hospital employees

Overall aim to investigate and produce new knowledge about the relationship between work related factors and occupational health among hospital care workers in a time of digital and demographic change.



Demographic changes

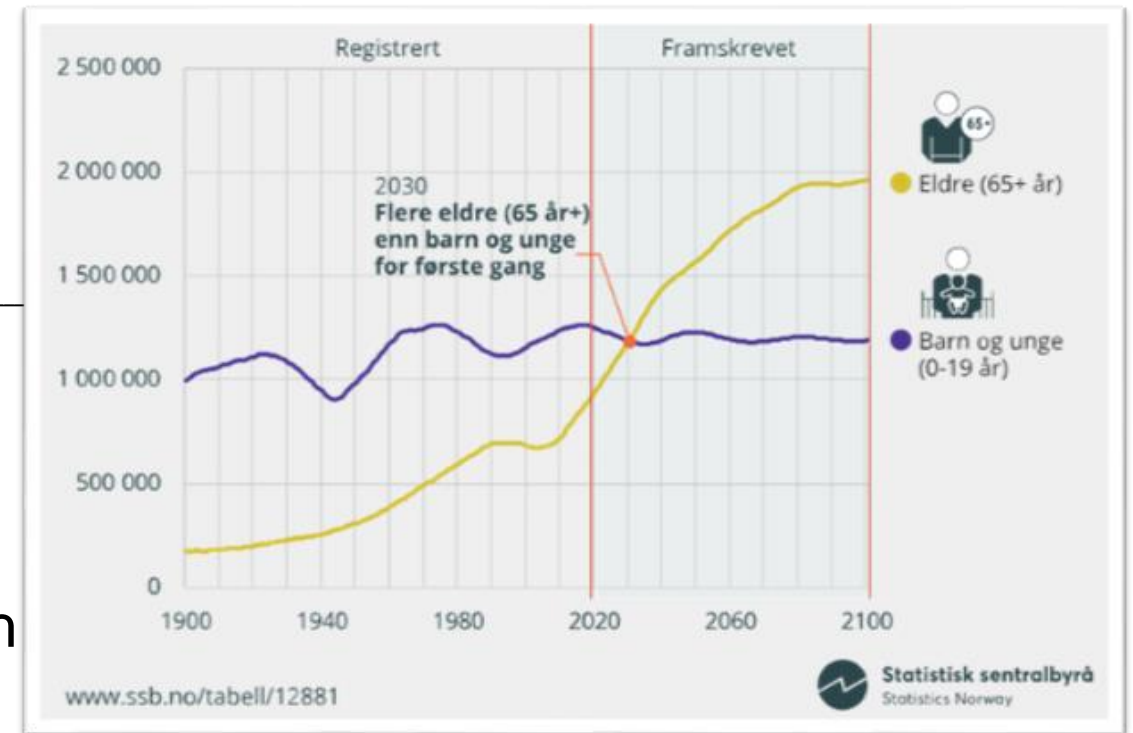
From 2030:

More people are retiring

+ Less people are entering the work force

= System ERROR

- More people that need health care services and less people to provide these services
- Needs to make changes to the existing health care services to secure sustainability in the future



New technology and digitalization

New technology may contribute to close the gap between the expected shortage of staff in the near future and the increased work demands


- New electronic health record system - Helseplattformen
- Implementation in Mid Norway fall 2022
- Delivered by Epic
- One common solution for the patient's health record across specialist health services, general practitioners, and the municipalities in Mid-Norway.




The European bureau for Safety and Health in Work suggest that new technology can pose a risk on workers' occupational health

International research,but no Norwegian cohort study of hospital employees





International Journal of Epidemiology, 2018, 1739–1740g
doi:10.1093/ije/dyy164
Advance Access Publication Date: 10 August 2018
Cohort Profile



Cohort Profile

Cohort profile: The Boston Hospital Workers Health Study (BHWHS)

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Editorial decision 2 July 2018; Accepted 10 July 2018

Why was the cohort set up?

Protecting and promoting the health of hospital workers is both an occupational health priority and a public health imperative. Health care workers are the fastest-growing segment of the US labour force.^{1,2} Their working conditions present many health risks, which can affect them, their families, their patients and their employees.^{3–6} Though hospitals routinely collect employee payroll, injury, health and survey data, these databases are seldom integrated with each other and are rarely available to researchers outside the organization. This disconnect impedes efficient and organizationally relevant occupational health research and evidence-based practice regarding this high-priority workforce.

To address that gap, the Boston Hospital Workers Health Study (BHWHS), established in 2006, integrates several employee databases with worker surveys in two large hospitals that are part of the same health system. BHWHS resulted from a partnership between the Harvard T.H. Chan School of Public Health [National Institute for Occupational Safety and Health (NIOSH)-funded Centre for Work, Health & Well-being (hereafter referred to as

‘the Centre’)] and two academic and teaching hospitals that are part of Partners HealthCare (hereafter referred to as ‘Partners’). The BHWHS is funded by NIOSH and is based in Boston, Massachusetts, USA.

BHWHS was created as a way for both the Centre and Partners to mutually advance their research and practice goals. At the study’s inception in 2006 (systematic enrolment of new employees into the database was not fully realized until 2009), Partners was adopting more data-driven practices to inform decision making on organizational change, including the occupational health department. As a result of the changing focus, Partners created sophisticated employee databases. Concurrently, the newly formed Centre aimed to increase the evidence for a more holistic approach to occupational safety and health, by integrating traditional worker health protection functions with other worker health promotion and disease prevention activities.⁷ Partners provided a rich source of data that could address the Centre’s core research questions around work organization, worker health and safety, and integration of health protection and promotion activities locally. The Centre provided Partners with the

ORIGINAL ARTICLE

Work-unit social capital and long-term sickness absence: a prospective cohort study of 32 053 hospital employees

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ABSTRACT
Objective: There is a lack of studies investigating social capital at the workplace level in small and relatively homogeneous work-units. The aim of the study was to investigate whether work-unit social capital predicts a lower risk of individual long-term sickness absence among Danish hospital employees followed prospectively for 1 year.
Methods: This study is based on the *Well-being in Hospital Employees* cohort. The study sample consisted of 32 053 individuals nested within 2182 work-units in the Capital Region of Denmark. Work-unit social capital was measured with an eight-item scale covering elements of trust, justice and collaboration between employees and leaders. Social capital at the work-unit level was computed as the aggregated mean of individual-level social capital within each work-unit. Data on long-term sickness absence were retrieved from the national payroll system and were operationalized as 29 consecutive days of sickness absence. We used a two-point difference in social capital as the metric in our analyses and conducted two-level hierarchical logistic regression analysis. Adjustments were made for sex, age, education, occupational group and part-time work at the individual, work-unit and work-unit size, the proportion of employees and the proportion of part-time work at the work-unit level.
Results: The OR for long-term sickness absence associated with a 12-point higher work-unit social capital was 0.73 (95% CI 0.68 to 0.78). Further, we found a significant association between higher work-unit social capital and lower long-term sickness absence across all work-units, compared with the lowest work-unit social capital (OR for long-term sickness absence in the lowest work-unit social capital was 0.51 (95% CI 0.44 to 0.60)). Our study provides support for work-unit social capital being a protective factor for individual long-term sickness absence among hospital employees in the Capital Region of Denmark.

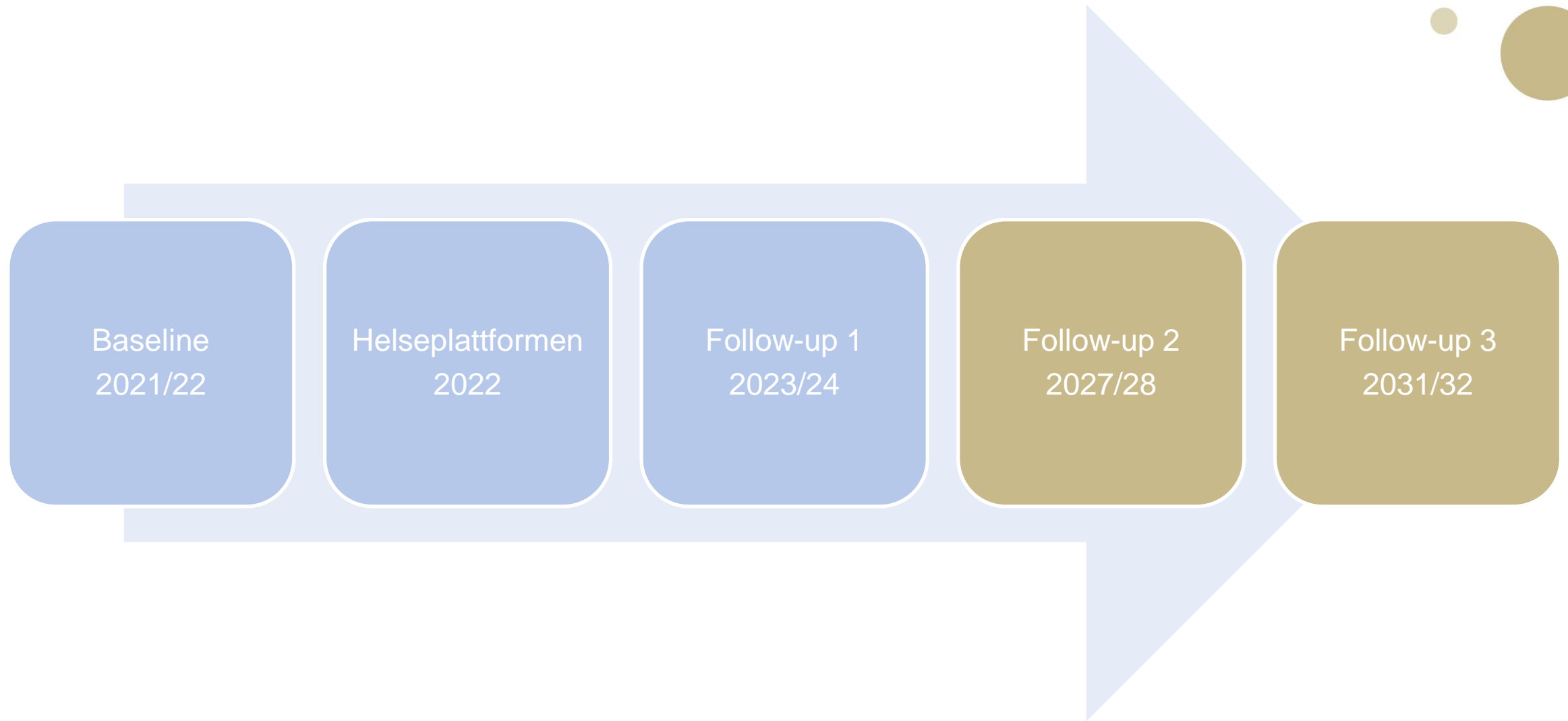
Key messages
What is already known about this subject?
• Previous studies have shown that a low level of workplace social capital, MEASURED AT THE INDIVIDUAL-LEVEL, is associated with negative health outcomes.
• However, the majority of these previous studies have only measured social capital at the individual level, although social capital is a quality of the collective.
• Also, to the best of our knowledge, only a few studies have investigated the association between social capital and sickness absence applying a multilevel analysis, which acknowledges that social capital relates to clustered work-units.
What are the new findings?
• The study consisting of 32 053 hospital employees nested within 2182 work-units demonstrated that higher level of work-unit social capital is related to a lower risk of individual long-term sickness absence in a dose-response manner after adjustment for individual and work-unit characteristics.
How might this impact on policy or clinical practice?
• Our results suggest that work-unit social capital is highly relevant in terms of preventing long-term sickness absence and that facilitating social capital in work-units could potentially promote employee health.
• Thus, there is a need for developing workplace policies targeting the improvement of social capital in work-units.

Long term goals

- 1) To identify factors that promote
 - a favorable work environment
 - sustainable workability after implementing Helseplattformen.
- 2) Develop interventions that promote
 - a healthy and engaged healthcare workforce
 - quality of care for the patients.



Timeline





Arboid

Hobae

Methods

Questionnaires

- Work related factors
- Self-reported health

Registry data

- Medical registries
- HR data

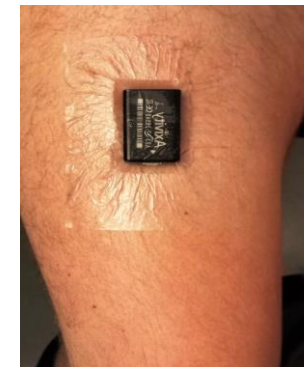
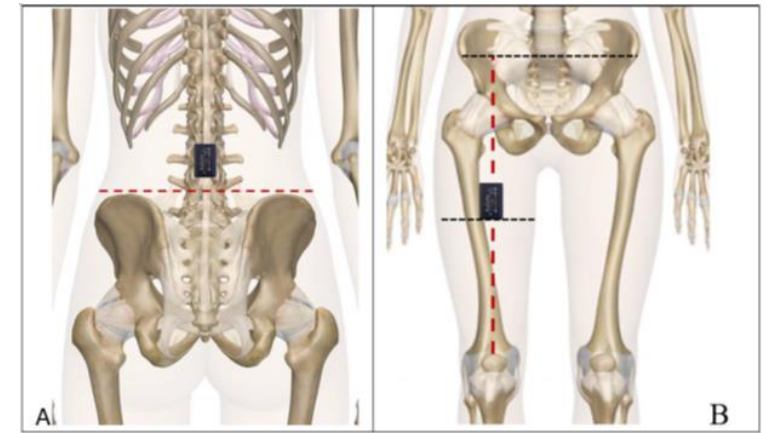
Objective measurements

- Physical activity and sleep
- Body composition



Objective measurements of physical activity (and sleep)

- HUNT4
- Axivity AX3
 - Low back
 - Mid thigh
- 50 Hz, $\pm 8g$
- All participants offered to wear activity sensors (AX3) for 7 days





Mobile research station



St. Olavs hospital HF

Øya



Østmarka



Lian



Nidelv DPS
Tiller



Orkdal
Hospital



Røros
Hospital



Status - June 2022

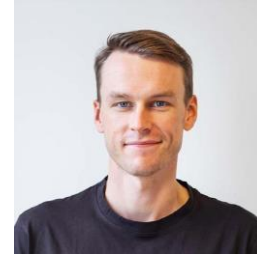
Completed baseline 20th of May!!



Key numbers

- Consented to participate: 3 697
- Completed questionnaire - Work related factors: 3 440
- Participated objective measures: 2 214
- Completed questionnaire – Health:

Thank you!



Signe Lohmann-Lafrenz



Ellen Marie Bardal



Gunn Hege Marchand



Sigmund Gismervik



Solveig Osborg Ose



Paul Jarle Mork



Eivind Skarpsno Schjelderup



Lene Aasdahl



Steinar Krokstad



Tom Ivar Lund Nilsen



Sindre Rabben Svedahl



Hilde Brun Lauritzen

