Reorganizing the specialist health services: what are the individual consequences for the employees?

Introduction

This project proposal addresses whether reorganizations in the specialist health care services result in exclusion from the labour market among the employees, and if so, what characterises the groups that are most severely affected? Special attention will be paid to groups with low socioeconomic status, low- and unskilled employees, women, non-western immigrants and people with a record of sickness.

This theme has high relevance for this research program and meets a number of the claims put forward in the report from the Plan Committee and in the Call. The report from the Plan Committee asks explicitly for new research that focuses on reorganization (p.7), on the public sector (p.11), and on the groups under study (p.9). Further, our proposal complies with the request for cooperation between individual researchers and research institutes (p.12), that research should be interdisciplinary (p.12), and that the project should include doctoral scholarships (p.12). Finally, since Oslo University College educates many of the employees in the specialist health services, the project is relevant for the education of the professions in this sector. New educational material will therefore be developed for future students based on the results from the project, and the doctoral students will be encouraged to teach lower grade students as part of their obligatory work.

Background

Norway has one of the highest employment rates in the Western world (Dahl and Lorentzen 2008). Still, at any point in time, about 700 000 persons (~25%) in their working ages, are outside the labour market for shorter or longer periods of time. There is a broad political consensus in Norway that more people in their working ages need to participate in the labour market, not only for the sake of the national economy but also because it is considered beneficial for the wellbeing of individuals (Lødemel and Trickey 2001). Important characteristics of the Norwegian labour market are high productivity of labour, high human capital, a high work intensity and flexibility, and high economic growth (for an overview, see Dahl and Lorentzen 2008). Dynamic and flexible labour markets may, however, cause problems for vulnerable segments of the workforce who may find it difficult to adjust and cope with such challenges.

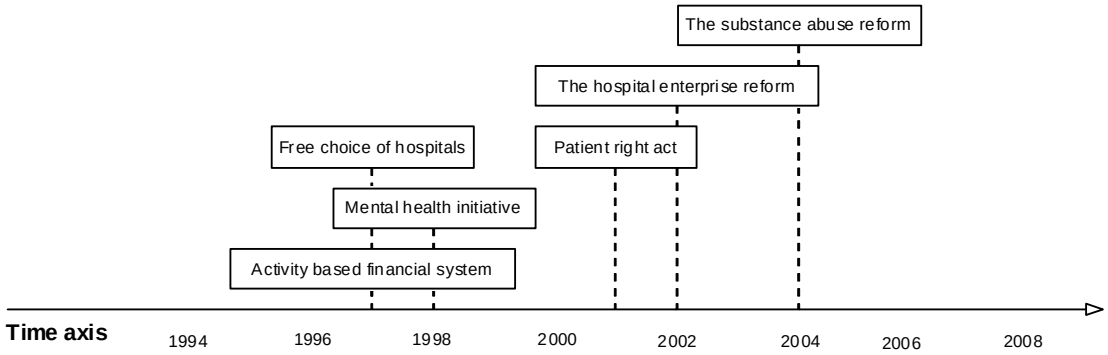
Private companies operating on international markets are subject to continuous and rapid changes in order to survive in a competitive climate. In contrast, the public sector has been considered a laggard when it comes to organizational changes and development. Recent research has demonstrated that this is a myth ripe for modifications (Trygstad et al. 2006). Since the beginning of the 1990s, there has been a fundamental change in the way public sector is organized. Also public enterprises and especially those in the social and health care sector have been subject to a variety of changes. These changes are driven by political forces rather than economic and aim at increasing productivity and improving the services for the users. Such politically generated reorganizations may have the intended positive effects, but may also have unanticipated and undesired side effects. Research does indicate that such processes of readjustment and reorganization have adverse psychosocial and health outcomes. However, there are few studies focusing on the psychosocial effects of work environments and on social

exclusion among different socioeconomic and sociodemographic groups (Bambra et al. 2007; McDonough and Amick 2001)

A common denominator of much of the restructuring taking place in public enterprises is the ideas found in "New Public Management" (NPM). Within NPM, beliefs in corporate profitability are transferred to the public sector as the most efficient means to run public services (Trygstad et al. 2006). However, what tends to be overlooked is the fact that there might be a discrepancy between what is profitable at a corporate level and what is profitable at a societal level. This paradox is especially conspicuous in situations where costs are transferred from public enterprises to public tax rolls as increased social security expenses.

As part of the public sector, the specialist health services have undergone extensive organizational changes over the past fifteen years and especially during the time period 1997-2002 (Møller Pedersen 2004). A survey of the most important national reforms is given in figure 1.

Figure 1 An overlook of some important national hospital reforms



Byrkjeflot and Neby (2005) suggest that these changes have developed along three dimensions: *autonomy and control*, *market-oriented solutions* and *uniform leadership*. The system for *uniform leadership* implemented in 2001 was intended to be an instrument for increased controllability by the owners as well as making managers more responsible (Byrkjeflot and Neby 2005). *Patient free choice of hospitals* were implemented in 1997 and the *Patient Right Act* were implemented in 2001 (Møller Pedersen 2002). These reforms may be seen as part of the *market-oriented solutions* (Byrkjeflot and Neby 2005). Increased governmental *autonomy and control* have been achieved through the *activity based financial system* in 1997 and the large *hospital enterprise reform* implemented in 2002 moving the ownership from the county council to the government, aiming to increase the governmental steering capacity, establishing five (now four) regional enterprises, each with a separate professional board (Byrkejflot and Neby 2005). After the hospital enterprise reform, the health enterprises implemented a steady stream of different internal reorganizations affecting different groups of employees, like decentralisation of responsibility, new communication systems and larger variability in the hospital organization (Kjekshus et al 2002, Kjekshus 2004, Harsvik and Kjekshus 2007)

A large body of research has documented that workplace reorganization has adverse effects on psychosocial work environment and individual health (for recent systematic reviews see Bambra et al. 2007; Egan et al. 2007). Also research applying Norwegian data has demonstrated that workplace reorganization, and especially downsizing, increase the outflow to sickness benefits, vocational rehabilitation and disability pension (Huttunen et al. 2006; Rege et al. 2005; Trygstad et al. 2006; Westin et al. 1989). Studies focusing more specific on the health services suggest similar findings: there is evidence of increased receipt of sickness benefits and disability pension after workforce downsizing (Fevang og Røed 2005; Røed og Fevang 2007). In a Swedish study, the researchers found a detrimental effect on mental health and increased

sickness absence due to organizational instability within health care organizations. In this study they also found associations between decreasing proportion of assistant nurses and job conditions (Petterson et al. 2005). Another Swedish study showed that downsizing were associated with health risks, and repeated exposure to rapid personal expansions predicted long term sickness absence and hospital admission (Westerlund et al. 2004).

As mentioned, only a fraction of these studies takes into account differential effects of socioeconomic status, gender and other sociodemographic characteristics (Bambra et al. 2007). Equally important, the present Norwegian studies do not address the massive changes after the ownership reform in 2002. Moreover, we know little about the effects of less "dramatic" forms of reorganization which can lead to increased workload pressure etc. Hence, we aim to expand the current knowledge base by: 1) utilising updated data, and adding more recent restructuring processes, 2) introducing a wider variety of types of restructuring processes to our analyses, and 3) identifying the impact of restructuring processes on selected vulnerable groups of employees.

Analytical approach and research questions

For years scholars and policy makers have attempted to explain and understand exclusion from the labour market, and the time varying patterns in use of welfare benefits, both those that are health related and those that are not (see Øverbye and Hammer 2006 for recent reviews and debates). The basic analytical idea of this project is that explanations should focus on the interaction between individual characteristics such as health, education, gender, social class and ethnicity on the one hand, and the functional requirements imposed by (changes in) the work environment and the labour market on the other (see the report from the Plan Committee p.11). Hence, the aim of the project is to contribute to new knowledge on how functional requirements are mediated by organizational changes and how such changes – in interaction with individual characteristics – influence sickness absence and exclusion from the workforce.

Figure 2 Analytical model

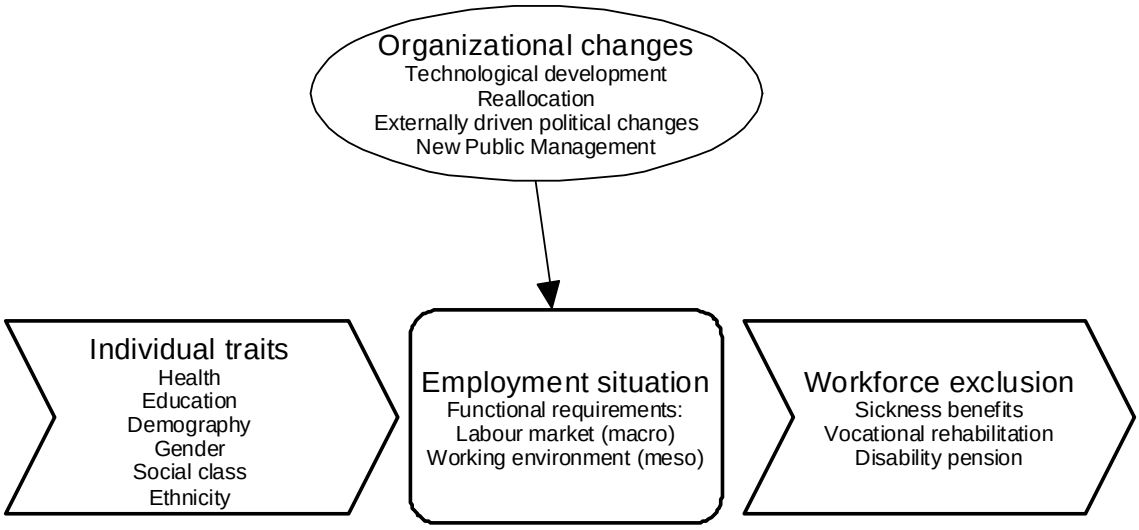


Figure 2 depicts the analytical model underlying the project. Individual characteristics (e.g. health, education, gender, social class and ethnicity) determine the recruitment into the labour force and what kind of occupations people obtain. In principle, as reasoned by Westin (1994), health related exclusion from the labour market may occur in three unadulterated forms. Firstly, it may occur as a consequence of *deteriorating health* where the functional requirements remain stable. Secondly, health related exclusion may occur without any changes in the individual health situation. In cases like this, *functional requirements* are altered in such a way that a

person's present health situation may be assessed inadequate for a job. Consequently, exclusion from the labour force may occur as a function of organizational changes without any change in individual health. Reorganization of public enterprises may for example result in demand for new educational qualifications, demand that the employee finds hard to meet (Trygstad et al. 2006). Thirdly, *poorer health*, possibly followed by health related exclusion, may occur as a consequence of changes in the psychosocial *requirements* posed by the employer. Each workplace has its own set of psychosocial and physical factors that workers are exposed to. Here, there are two supplementary approaches dominating the research field: the demand-control model (Karasek 1979) that hypothesises that low control combined with high demands have detrimental health effects, and the effort-reward imbalance model, that assumes that changes in the parameters regulating the effort-reward balance sets off stress and ill-health in the longer run (Siegrist 1996).[1] As demonstrated by the arrow in figure 2, organizational changes may affect one or more of the components included in the models and hence cause imbalances that might lead to ill-health, sickness absence and processes leading to social exclusion.

Research questions

Against this background, we formulate our research questions as follows:

1. What are the quantitative effects of organizational changes on sickness and workforce exclusion?
    a. For those remaining in the organization after restructuring processes.
    b. For those leaving the organization following restructuring processes.
2. Organizational changes occur in different forms; what are the effects of different types of organizational changes on sickness and workforce exclusion?

    Here we distinguish between:

    a. Merging of units, splitting of units, establishing new units, closing down of units, internal replacements and finally decentralization of medical and non-medical services.
3. What are the driving forces behind the restructuring and what are the effects when there are different initiatives and processes?
    a. Would we observe different effects when the restructuring is a result of external forced restructuring in the wake of larger mergers compared to bottom up restructuring?
4. Which groups are struck by restructuring; do the effects of restructuring affect various groups of employees differently?
    a. The impact of health, education, gender, social class and ethnicity.
5. Is there a selection of unhealthy workers into unskilled jobs within the specialist health services and are these unhealthy workers especially vulnerable to temporarily or permanent exclusion during reorganization processes.
    a. Is selection of unhealthy workers more pronounced in some unskilled occupational groups than others?
    b. Within these unskilled occupational groups does selection of unhealthy workers differ between 1) men and women, 2) different ethnical groups?

1 Johannes Siegrist is a member of the expert group participating in the project workshop.

A preliminary list of articles is given in the grant application form. One PhD student at the University of Oslo will focus on research question number 3, whereas one PhD student at Oslo University College will be devoted to research question number 4. The former project will explore the driving forces behind the restructuring and analyse the effects on workforce exclusion when the initiatives and trajectories of the restructuring differ. The latter project will look into processes of social inequality and workforce exclusion.

Data and methods

Former research has been criticised for being unable to separate between different forms of restructuring (Østhus 2007). In such cases, the effects of downsizing and other sources of organizational stress become blurred, and seen as effects of the same phenomenon.

Existing Norwegian studies of restructuring processes have mainly focused on one particular form of organizational change, namely downsizing of staff. In this study we are able to identify a wide variety of organizational changes within all Norwegian hospitals. This allows the description of quantitative effects from a variety of hospital reforms carried out under varying forms of cooperative climate.

Identification of restructuring processes in the specialist health services

Identifying organizational changes that have taken place several years back in time is a methodological challenge. Thus, a procedure of retrospective data collection would most likely be prone to recall bias and inaccuracy. Moreover, the need for comparability of processes across hospitals would be hard to meet.

Our solution to this challenge is to take advantage of a rich source of data collected by Health Economics Research Program (HERO), Health Organizational Research in Norway (HORN), Health Economics Bergen (HEB) and Autonomy, Transparency and Management (ATM). With the participation of Institute of Health Management and Health Economics at The Faculty of Medicine, University of Oslo, we have gained access to the INTORG-database (Organization and corporate management structure in Norwegian hospitals). This database contains detailed information on the internal organization of all Norwegian hospitals, for the years 1999[2], 2001, 2003, 2005 and 2007. The INTORG-database covers all Norwegian hospitals. A broad range of organizational hospital characteristics is available in the INTORG-database, thus allowing the construction of a framework of detailed organizational characteristics that are comparable across all Norwegian hospitals (for variable description, see http://frisch26.uio.no/helsedata/showEntry.asp?id=546). Comparability of units before and after the hospital enterprise reform is assured by the use of the original classification scheme prior to the reform.

Following the classification of Kjekshus and Westlie (2008), our main focus is on the following types of organizational changes: merging of units, splitting of units, establishing new units, closing down of units, internal replacements and finally decentralization of medical and non-medical services.

Quantitative effects of workplace reorganization

Our aim here is to analyse the effects of organizational changes on the receipt of health related social security benefits, (i.e. sickness benefit, rehabilitation benefit and disability pension), for workers within public specialist health services in the period from 1992 to 2008.

2 The 1999 data is collected retrospectively in the 2001 survey.

We focus on the transitions from employment status to: sickness benefit, vocational rehabilitation, disability pension, and benefit trajectories leading to workforce exclusion, Workforce exclusion is defined as receiving any kind of public benefit (not only health related benefits) and not being economically active. We analyse the receipt of sickness benefits in the initial phases of the restructuring processes (anticipation effect), during restructuring processes, and for the survivors; sickness benefits in the wake of organizational changes.

The linking of organizational and individual level data opens up for studies of more subtle forms of organizational changes than what has previously been studied. Thus, our study will contribute with policy relevant knowledge covering a large share of the actual restructuring processes that has taken place within the specialist health services.[3]

By utilising the multidisciplinary nature of the project, we will expand the current knowledge basis by also focusing on the role of socioeconomic factors, such as gender, education and social class. Moreover, we will focus on health by applying models from occupational medicine focusing on the unhealthy worker effect among unskilled employees (i.e. workers highly exposed for psychosocial and physical risk factors in earlier jobs or have a general poor health status, are recruited directly into jobs with low status jobs with low pay).

Application of data sources and analyses

The project will compile data from four different sources; FD-trygd, the PAI-register, Statistics Norway's register based employee statistics (RBES) and INTORG-data covering the restructuring processes in the hospitals under study. FD-trygd is a register database administered by Statistics Norway. The database covers the Norwegian population, and contains individual longitudinal information on demography, work, education, and benefit trajectories.

In order to identify all health workers affiliated with Norwegian hospitals, we use two sources of data. For the period from 1992 to 2001, we collect data from The Norwegian Association of Local and Regional Authorities (Kommunenes sentralforbund). Their register - PAI – contains accurate information of all employees in health and social services. For the period following 2001, we collect data from Statistics Norway (SSB), whose register based employee statistics (Registerbasert sysselsettingsstatistikk) quite recently has become available with information of health- and social services workers (Registerbasert helse- og sosialpersonell statistikk). The statistics is population based, and is possible to merge with the other register data sources by means of personal identification numbers. This provides us with a unique source of data covering the important ownership transition in 2002, and spanning over the period from 1992 to 2007/2008.

The fourth source of data is the INTORG-database described above. This database contains detailed information of the internal organization of all Norwegian hospitals, collected for the years 1999, 2001, 2003, 2005 and 2007. The units of analysis in the INTORG-database are Norwegian hospitals, thus allowing the merging of organizational data to individual records for all employed hospital workers in the years 1999, 2001, 2003, 2005 and 2007.

The project hinges on the merging of the above mentioned register based individual data (FD-trygd, PAI, RBES) and organizational hospital-data (INTORG), describing the organizational processes in the specialist health services. This will allow the identification of individual exposure to different restructuring processes, spanning from heavy downsizing of staff to minor organizational changes. Moreover, the availability of individual work and social security

3 Downsizing does not represent the typical type of restructuring process that has taken place in the specialist health services (Harsvik and Kjekshus 2007).

records from FD-trygd, allows us to follow individual trajectories before, throughout and after the exposure to restructuring processes.

A general problem in studies of restructuring processes is the problem of separating between restructuring effects and selection effects. This particular problem is part of a more fundamental problem of non-experimental research; the so called omitted variables bias. In practical terms, this is the possibility of biased estimates caused by the existence of unobserved individual characteristics that are correlated with probability of being exposed to the treatment variable, which in this study is reorganization processes.

Ideally, the best way to solve this issue is to perform an experiment with random assignment to the respective control and treatment groups. That is off course not a viable solution in the study at hand. Here, we take the following precautions to minimize potential problems of identification by:

1. Utilising available register data to create detailed accounts of individual traits and trajectories that influence positioning in the work life and health situation and, hence, also the potential selection effects into reorganization processes.
2. Applying statistical duration models that minimize the potential bias caused by unobserved selection processes, by 1) exploiting the availability of within-person change information, and 2) utilizing the availability of period effects (before-after restructuring), and 3) controlling for unobserved selection into the initial state (restructuring) (see Abbring and van den Berg 2003).

Project organization

The study will be carried out by a multidisciplinary and internationally experienced research team from four institutions; International Research Institute of Stavanger hosting the project, Work-Research Institute (AFI-WRI), Oslo University college (OuC) and University of Oslo (for details see attached CVs):

Senior research scientist *Thomas Lorentzen* at IRIS will be project manager. He has many years of experience within research on social policy. The project will also benefit from earlier and ongoing research within this field at IRIS on three areas 1) organization of work, 2) sickness absence and rehabilitation and 3) studies of health services including governance, management and organization. From Iris will also senior research scientist Kari Anne Holte contribute to the project.

Professor Espen Dahl has many years of experience within research on social policy. He is heading the interdisciplinary research program ”Health, Care and Welfare” and has an affiliation at GIV, Research group for inclusive social welfare policies at OuC, which has a six year grant from the Norwegian Research Council to develop research on social exclusion, poverty and social assistance receipt.

Senior researcher *Migle Gamperiene* at AFI-WRI is educated within occupational medicine, and has recently finished her PhD on a study of mental health among unskilled female workers (Gamperiene 2008). AFI-WRI is an interdisciplinary institute, performing studies and development of organizational working conditions and mastery at an individual and organizational level are central, as well as studies and development of measures for vulnerable groups in working life and cross-departmental cooperation. From AFI-WRI will also Bjørg Aase Sørensen contribute to the project.

Associate professor *Lars Erik Kjekshus*, the Institute for Health Management and Health Economics, has a background from political science and quantitative and qualitative research on effects of organizing in healthcare organizations. He has i.a. published several articles on organizing healthcare organizations (Kjekshus og Hagen 2007; Kjekshus og Hagen 2005; Kjekshus 2004). Kjekshus was appointed as Scientific Director at the Research Programme on Health and Care Services, The Research Council of Norway. Kjekshus is also a board member of the Nordic Network for Healthcare Management Research (NOHR) and editor of the NOHRnet.org website. The Institute for Health Management and Health Economics at the Medical faculty at Oslo University is a multidisciplinary university milieu providing both research and study programs within the fields of health policy, health economics, and health management..

In an early phase, the project will 1) organise a kick-off workshop with participation of experienced researchers (see dissemination plan and confirmation letters). 2) Further, we have an ongoing participation in an international, comparative project named: "Helping chronically ill or disabled people into work: what can we learn from international comparative analysis?" This is a research consortium headed by Professor Margaret Whitehead, University of Liverpool, UK, 3) established contact with researchers at Centre for Health Equity Studies (CHESS) http://www.chess.su.se/, 4) Nordic R&D network for reorganizations in the health care sector, called NOVO, focusing on work environment in increasingly more effective health care organizations.

Together, the four institutions IRIS, OuC, WRI and the University of Stavanger have formed a national centre for research on sickness absence, inclusion and vocational rehabilitation. The centre is part of a common initiative to strengthen the research on this field, develop a MD programme on vocational rehabilitation and worker health, and lastly, to develop a candidateship to become WHO's international research centre in this field.

Strategy for dissemination

Medium:	**Target groups:**	**Description:**
Articles in peer reviewed journals	Fellow researchers	A total of 12 articles. See application form for details.
Workshop for project network	Project participants and network participants	Johannes Siegrist, Eero Lahelma, Ossi Rahkonen, Mikko Laaksonen and other established researchers within the field that will participate in a project workshop to be arranged early in the project period.
Conference participation	Researchers	All involved researchers will at least present one paper each at international conferences
Fixed column in "Arbeidsliv i Norden" and "Nordic Labour Journal	Researchers and practitioners in the Nordic countries.	The editor of these journals has provided a fixed column for the communication of results from the project.
Web portal	Public administration, fellow researchers, and the general public.	Relevant information and publications from the project will be posted on a web portal hosted by IRIS.
Educational material	Students	Oslo University College will develop educational material from the study, targeted at future employees in the specialist health services. The results from the study will also be included in the education given at Institute for Health Management and Health economy, University of Oslo.

Gender perspective and ethical aspects

Long-term sickness absence in Norway is higher for women than for men, and since 1993/1994 the gender gap has been increasing (Blekesaune and West Pedersen 2006). Exactly the same pattern is found for disability pension (Blekesaune and Øverbye 2006). This trend is particularly conspicuous in the health care sector which is dominated by women. Moreover, the share of women is especially pronounced among the unskilled occupations (St.prp. nr.1 (2005-2006)). Research on restructuring effects in the public sector has demonstrated that that women represent a numerical majority of those leaving the workforce after being exposed to extensive downsizing (Trygstad et al. 2006). Against this background, there is reason to be particularly concerned with how women fare during and after reorganisations in the hospital sector. Hence, gender is of cardinal importance in the analyses of individual effects of health sector restructuring.

The overall project will need approval from the register owners. In addition, the project needs a license from the Data Inspectorate. The whole project will also be reviewed by the Norwegian Social Science Data services. Current law and less strict rules for the identification of public enterprises allow the identification of the specialist health enterprises in the study.

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