Evaluation of a new integrated care pathway on fall prevention among the elderly in the municipality of Oslo

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Abstract

Falls among the elderly is a serious problem in modern days. Norway, and in particular its capital Oslo, are greatly affected by this issue, as they report of the highest incidences of falls in the world. A solution to this problem is found in a new fall prevention initiative translated into practice through a care pathway. The care pathway includes three different services in order to prevent future falls among the population over 65 years and those are: the emergency ward at Oslo University Hospital ('Skadelegevakten' in Norwegian), patient's GP and the home care services in the boroughs. The care pathway requires increased collaboration and coordination between these three services in order to deliver multidisciplinary assessment and decrease the number of future falls. The fall notifications exchange between the three services is of essential importance in the intervention. The aim of this study was to evaluate the implementation of the information flow proposed by the new integrated care initiative and the surrounding knowledge it entails.

Surveys were sent to the GPs and the home care workers in the boroughs in order to get their perceptions on the new initiative. Data from Oslo University Hospital on distributed fall notifications from Skadelegevakten to the GPs and HCW was also obtained. The survey data was used to test for significant differences between the GPs and HCW on various aspects on the initiative. There were 31 respondents on the GP's survey and 220 respondents on the HCW's survey. Statistically significant differences were observed between the GPs and HCW when it comes to receiving fall notifications from Skadelegevakten ($p < 0.01$). The collaboration between the GPs and HCW appears not to be established, as significant proportions of GPs and HCW (74.2% and 74.6%, respectively) are reporting that they have not received fall notifications from the other primary care service. The distribution of fall notifications from Skadelegevakten to GPs and HCW is not equal ($p < 0.01$).

This study indicates that the awareness of the fall notifications needs to be improved, in particular for the GPs. The delivery of fall notifications from Skadelegevakten to the HCW needs to be improved. Distribution of fall notifications across boroughs needs to be looked more closely.

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On a personal level, I would like to express my profound gratitude to my family Dolgoski, my father Ilija, my late mother Zhaneta, and my sister Eleonora with her family for all the support I have received during the years. None of my achievements would be possible without the foundation I got from home. I would also like to thank the Brekke family, who have provided me with unconditional support throughout my journey in Norway.

Sincerely,
Filip

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List of Abbreviations and Acronyms

A&E	Accident and Emergency department
GP	General practitioner
HCW	Home care workers
NSD	Norwegian Centre for Research Data
OUS	Oslo University Hospital
ProFANE	Prevention of Falls Network Europe
WHO	World Health Organization

1. INTRODUCTION

Falls among the elderly is a salient issue in the healthcare sector. The salience of this issue is expected to increase in the future with aging populations. The number of elderly that had a fall is a serious concern in Norway, and especially in its capital city Oslo, as they have reported some of the highest incidences in the world (Cauley, Chalhoub, Kassem, & Fuleihan Gel, 2014; Hektoen et al., 2016). Oslo has fall rates of more than 20 per 100 person-years, compared to, for instance Rotterdam, with 5 per 100 person-years (Cauley et al., 2014). Therefore, in order to decrease the risk of falling, a fall prevention initiative has been conducted in the city of Oslo. The goal of this initiative is to tackle the number of falls among the population of people above the age of 65. The intervention is designed as an integrated care approach which includes various types of services collaborating together providing better follow up for people that already experienced a fall. The main actors included are the acute emergency ward at Oslo University Hospital ('Skadelegevakten' in Norwegian), GPs and the borough's home services. The intervention is the following: when a person over 65 had suffered a fall and asked for help at the emergency ward Skadelegevakten, they send out an electronic notification to the patient's general practitioner (GP), borough's home services and a letter to the patient's family. The proper follow up and establishing diagnosis should be conducted by a joint effort from the GPs and the home care services. This action has been taking place for a few years now in the boroughs in the municipality of Oslo, starting from a couple of boroughs first and gradually increasing the number of boroughs included in the initiative. Therefore, an evaluation is needed. We do not know if the initiative has established itself in the working environment for the key actors as intended, and their perspectives on the implementation and usefulness of the new care pathway.

In this Master's thesis I will be focused on evaluating the information flow proposed by the initiative. The information flow is in the core of the intervention and if not functioning properly would represent a significant obstacle in fulfilling the objectives of the new care pathway. In addition, the knowledge and the usage of the implemented intervention will be analyzed, from

the vantage point of the GPs and the home care workers (HCW) who work in the borough's home services. They are vital parts of the intervention and without them the success of the new care pathway would not be possible. This evaluation will provide better insight in the processes taking place and the possible need for improvement. The evaluation will be conducted by looking at some intermediate variables such as the frequency of the fall notifications between the three different services, emergency ward, GPs and HCW, the use of checklists provided for the GPs and home care workers, as well as the distribution of fall notifications amongst the boroughs in Oslo.

In order to investigate the information flow and the knowledge on the fall prevention initiative two surveys have been sent out. One went to the GPs in the municipality of Oslo and the other to the home care workers in the municipality of Oslo. This will allow us to better understand the process from the GP's and HCW's vantage point and provide us with some important information about the usefulness of the new integrated care approach so far, and provide guidelines for improving it if the results are unsatisfactory. The two surveys have joint questions on the obtainment of fall notifications from Skadelegevakten, obtainment of information from the counterpart service as well as information on the sent information to the other service. This presents the opportunity to compare the mutual collaboration between the services from different aspects in terms of information exchange. In addition to this, data from the Oslo University Hospital (OUS) on the sent fall notifications to the GPs and HCW was obtained. The analysis will show the frequency of fall notifications and variation across boroughs. This provides the foundation on which the main goal of the initiative will be achieved, that is reducing the risk of falls among the frail elderly. The level of awareness and knowledge on fall prevention and follow up, the collaboration between the GPs and the borough's home services and the usage of tools such as fall notifications and checklists is expected to be high in both groups, as a result of the Oslo initiative. If it is the case that these results are not obtained, this would give an indication that the intervention does not yield the desirable effects and outcomes, and provide the opportunity to identify areas for improvement in the information flow between the different providers of care.

2. BACKGROUND

2.1 Falls among elderly

Falls among elderly is a serious issue in today's healthcare systems. There are a few variations of the definition for what a fall is. One of them is "an unexpected event in which the participant comes to rest on the ground, floor or lower level" which is created by the Prevention of Falls Network Europe (ProFANE) (Ambrose, Paul, & Hausdorff, 2013). Another one is created by the World Health Organization (WHO) and it states: "A fall is defined as an event which results in a person coming to rest inadvertently on the ground or floor or other lower level" (World Health Organization, 2018). With the trend of aging populations that is present in most of the western world this problem will increase in importance.

The incidence of falls is increasing substantially with age. People above the age of 65 are the ones that are heavily impacted. One third of the people 65 and above fall annually, and this proportion increases and reaches one half in people over the age of 80 (Ambrose et al., 2013). According to the WHO, on a global scale the percentage of people aged 65 and above who are experiencing a fall is between 28% and 35% (Vieira, Palmer, & Chaves, 2016). In Scotland, 34% of the people aged 65 and above experienced a fall in a year (Craig et al., 2013). In an older study by (Bergland, Pettersen, & Laake, 1998) the six months incidence of falls among people above 67 years of age in Norway was 24.1% and 9.5% who had more than one fall.

Falls are commonly resulting in fractures. 90-95% of all hip fractures are a direct consequence of a fall (Vieira et al., 2016). In Norway, the incidence of age-standardized hip fracture is reported to be the highest in the world (Stoen et al., 2012). Out of all nursing home admissions about 40% are attributed to falls (Ambrose et al., 2013; Bjerk, Brovold, Skelton, & Bergland, 2017; Vieira et al., 2016). When the fall has caused a hip fracture, the number of patients admitted to a nursing home increases to 95% (Vieira et al., 2016). The incidence of falls is often underreported (Ambrose et al., 2013; Vieira et al., 2016). This phenomenon is mainly dependent on the fact if the falls resulted in a moderate or serious injury or not.

The costs emerging by an episode of a fall in the elderly is substantial. The costs are widely distributed and are borne by individuals, their families, society in general and especially by the budgets of the health systems. By conservative estimations the costs in Scotland were estimated at £471 million in year 2010/11 (Craig et al., 2013). Dispersed costs on an individual level gives us cost of £700 without and £1,721 with social care included. The hospital admissions related to a fall are extremely costly, estimated at £21,960 and soaring to £39,490 if the hospital admission includes a hip fracture (Craig et al., 2013). The direct costs of fall-related incidences in the US in 2008 was US$23.3 billion and up to US$1.6 billion in the UK (Ambrose et al., 2013). A proof that these costs are rising is the fact that these numbers in 2012 and 2013 were higher and reached US$30 billion and £2.3 billion in the US and UK respectively (Vieira et al., 2016). The case of Norway is not differentiating much, as the costs in the first year for people experiencing a hip fracture are estimated at 540,000 NOK (Hektoen, 2014). This cost is estimated for the years 2008 to 2011. The expenditures are expected to grow even further on the basis of increased proportion of elderly in the society and the trend of having more elderly in the highest age brackets, because of the prolonged longevity old people are experiencing these days.

Several risk factors are associated with falls. Mainly the risk factors can be divided into two groups defined as person specific (intrinsic) or environmental (extrinsic) (Ambrose et al., 2013). The reviews on the most common risk factors attributed to a fall among the elderly (Ambrose et al., 2013; Vieira et al., 2016) identifies impaired balance and gait, polypharmacy and history of previous falls as the biggest. In addition to these, other noticeable risks are comorbidity, increasing age, visual impairments, cognitive decline and environmental factors. Often, a few risk factors combine and result in a fall. For instance, as people are getting older their motoric abilities are reducing and people are not agile as before, multimorbidity predetermines taking additional medications (polypharmacy) and their vision usually worsens. As seen, all of these conditions are considered as important risks that can lead to a fall.

The mortality that occurs when elderly are experiencing a fall is not to be neglected. As reported by (Craig et al., 2013), in Scotland the overall mortality is 7% and further increasing at 12% at 1 year post-discharge. When it comes to people who suffered a hip fracture the one

year mortality rate is around 25% (Ambrose et al., 2013). In another study the mortality for hip fracture patients is calculated to be around 20% (Vieira et al., 2016). In a Norwegian study the mortality of hip fracture patients is recorded to be 21.3% at 1 year and 59% after five years (Diamantopoulos, Hoff, Skoie, Hochberg, & Haugeberg, 2013). Other less serious consequences of experiencing a fall are also extensive. The following are known but the list is not exhaustive: fear of falling, not coming back to the same functional level as before, loss of independence, loss of mobility, increased need of assistance, social isolation and more (Bergland et al., 1998; Bjerk et al., 2017; Vieira et al., 2016). All of these consequences are contributing for decreasing quality of life for the elderly.

2.2 Actions for preventing falls

2.2.1 Integrated care

The healthcare system is one of the most complex constructs in a country. The field of health and care is continuously expanding in scope, both in terms of knowledge and specialization, which in turn gives the patients and consumers of services better outcomes and results. However, this breadth of the healthcare systems means that there is a lot of specialization in different fields. Services are provided by various service providers, and many healthcare professionals with different education and background are included in this process. For many years the healthcare systems have had their focus on acute and episodic care. Nevertheless, this approach has suffered some criticism. The modern trends of aging populations, multimorbidity, increased number of people with chronic conditions and many more are forcing for a change. A different approach whose main idea is integrating various services in order to achieve the best possible outcomes for the patients has widespread around the globe in the last few decades. There are many different names under which this concept is known such as integrated care, managed care, shared care, transmural care, comprehensive care (Kodner & Spreeuwenberg, 2002), but they all revolve around the same ideas. Various definitions for integrated care are in use, depending on the viewpoints and expectations of the actors in the healthcare system (WHO, 2016). In (WHO, 2016) there are three distinguished definitions for

what integrated care is and those are a process-based definition, a user-led definition and a health system-based definition. The process-based definition is presented next.

Integration is a coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for people by cutting across multiple services, providers and settings. Where the result of such multi-pronged efforts to promote integration leads to benefits for people, the outcome can be called integrated care (WHO, 2016).

The fundaments of integrated care are that the treatment and care should collaborate and be coordinated and revolve around the patient's need, which makes it a patient-centered care. In addition, there are different types of integration and those can be focused on taxonomies like types, breadth, degree and process (Hakkinen, Hagen, & Moger, 2019). The type of integration can be horizontal or vertical. It is considered horizontal integration when activities on the same level are being put together, for instance integration between primary care services and long-term care. The vertical integration takes place when activities on different levels are collaborating or joined together, i.e. acute hospital services and primary care.

2.2.2 Actions for preventing falls - The Oslo initiative

One of the ways to transfer the concept of integrated care into practice is through pathways. The municipality of Oslo has created a new integrated patient pathway in order to reduce the number of falls among the elderly. The focus group is people over the age of 65 who have had a fall and ended up using the local emergency care center. The reasons behind choosing this target group is because prioritizing high-risk groups is more effective strategy than a more general approach. These people are high-risk mainly because of two reasons, the first being that the incidence of falls is increasing with age and the second is that having a fall is a predictor for another fall (Ambrose et al., 2013; Vieira et al., 2016). This integrated care approach is a type of integration that introduces integration between the acute services which is a specialist

health service and the GPs and health care workers from the municipality which are the primary care services.

Previous studies on the topic of using interdisciplinary teams to curb falls among the elderly return mixed results. There are a variety of trials for prevention of falls among the elderly, but following are some with similar study settings as the Oslo initiative. The similarities are in the selection of the study population, the previous falls the patients had, the use of the emergency services etc.

The prevention of falls in the elderly trial (PROFET) in the UK was one of the first that echoed in the field of prevention of falls among the elderly (Close et al., 1999). It included interdisciplinary assessment by a GP and an occupational therapist to people aged 65 or older that presented themselves with a fall at the accident and emergency department (A&E). This study has shown that the intervention has led to a decreased risk of falling as well as the risk of recurrent falls. It is highlighted that the risk factors causing the falls were various, thus underlining the importance of an interdisciplinary assessment.

Another study in the UK was focused on the similar group of patients with 65+ years that presented themselves in the A&E with a fall or fall injury (Davison, Bond, Dawson, Steen, & Kenny, 2005). The intervention consisted of medical assessment and physiotherapy and occupational therapy assessment. After the multidisciplinary assessment individualized list with prioritized risk factors were created for each patient. This intervention has proven to have an effect on the reduction of subsequent falls, but not on the number of people falling.

A study in the Netherlands rooted in and adapted from the PROFET study did not show effectiveness of the multidisciplinary fall assessment approach (Hendriks et al., 2008). The British and the Dutch healthcare systems are quite different, so an adaptation was made from the original trial. This included some changes in the assessment as well as adding GPs in the picture. Namely, the assessment performed by a geriatrician and an occupational therapist might result in referrals and recommendations. In the UK these referrals can be effective immediately, but on the other hand in the Netherlands they have to go through the patient's GP. Adding this extension has contributed with additional time for the referrals to take place

and increased lack of adherence, and this is mentioned as one of the possible explanations for the lack of effectiveness of this study.

In a similar study in the Netherlands, the ineffectiveness of a multifactorial program is proven again (de Vries et al., 2010). This study does not detect significant differences between the intervention and the control group when it comes to preventing new falls. Even though the adherence to the intervention was increased in comparison to the (Hendriks et al., 2008) study, the results are missing. However, in one of the recommendations in the study it is mentioned that bigger use of the of the primary care services could potentially have a positive effect on the prevention from falls in the elderly.

The Oslo initiative has taken in consideration some of the previous experiences with this types of prevention studies and has implemented them to the Norwegian healthcare system. The initiative starts with the accident and emergency department (Skadelegevakten) which is part of Oslo University Hospital (OUS) when patients who experienced a fall are asking for help. The fall can result in a fracture or cause other consequences. The pathway sets in motion a notification system from Skadelegevakten to the GPs, the care services in the boroughs and the patient/patient's relatives. The fall notification from the A&E department to the GPs and the borough's service apparatus is done electronically by using the already existent network Helsenett and to the patient's relatives who are informed by a letter.

The digital fall notification consists of a medical record of the fall alongside an evidence-based checklist. The checklists are used to ensure standardization and increase the efficiency of the fall prevention examinations, in order to make a risk profile of the patient. The healthcare staff included in the examinations are coming from different backgrounds, with different level of specialization and knowledge. For example, the HCW from the borough's care services that are undertaking home visits can be physiotherapists, occupational therapists, nurses etc. and that coupled with the GPs leaves a lot of room for different interpretation and a complicated field to be oriented in. People tend to focus on the field of study they have experience and knowledge in and pursue the examination in that manner. That leaves the patients with different follow-up procedures depending on the healthcare personnel they are being investigated by. In addition,

healthcare professionals care more for acute problems rather than doing preventive work, which in a case for fall prevention is much needed. This is why the checklists are implemented in order to standardize the patient's processes.

The GPs asses the need for further examination e.g. osteoporosis, or offer some support e.g. physical exercises. The borough's care services are offering a home visit, with the same protocol as the GPs using a checklist to assess the risk profile of the patient regarding the hazards of the home environment along with the offer for physical exercise and medical follow-up. After the initial risk assessment both parts of the primary services are collaborating together to stratify the patient and make a personalized follow-up plan with clearly defined roles between the services. According to previous research the most effective fall prevention programs consists of interdisciplinary risk assessment and individually fitted solutions and measures (Davison et al., 2005; Gates, Fisher, Cooke, Carter, & Lamb, 2008).

Better interaction between the specialist services and the primary care services is assumed to be established through this Oslo initiative. This should be topped with establishing new routines for mutual information sharing about their risk-assessment and recognizable responsibilities for the follow-up procedure.

The expected benefits of the initiative are manifold. Taking the patient's vantage point, this should allow for standardized and better procedures, improved experience throughout the process. Moreover, this intervention should increase the number of elderly that are receiving fall prevention measures which would hopefully lead to more active and healthy years. If the goal of reduced number of falls is achieved, and with that a reduced number of hip-fractures, it would offer huge monetary savings to the municipality and the healthcare system. The checklists would be used as a support for more evidence-based approach. The better coordination and collaboration offers more effective services, both for the patients and the employees in these services. A "spillover" effect could also be expected regarding the increased knowledge of the healthcare workers that would aid to spot more patients that are in risk of fall and offer them fall prevention measures.

The initiative started initially with two boroughs out of the 15 in the municipality of Oslo, and then gradually expanded. Five more boroughs were included in late 2019, and further five more in 2020.

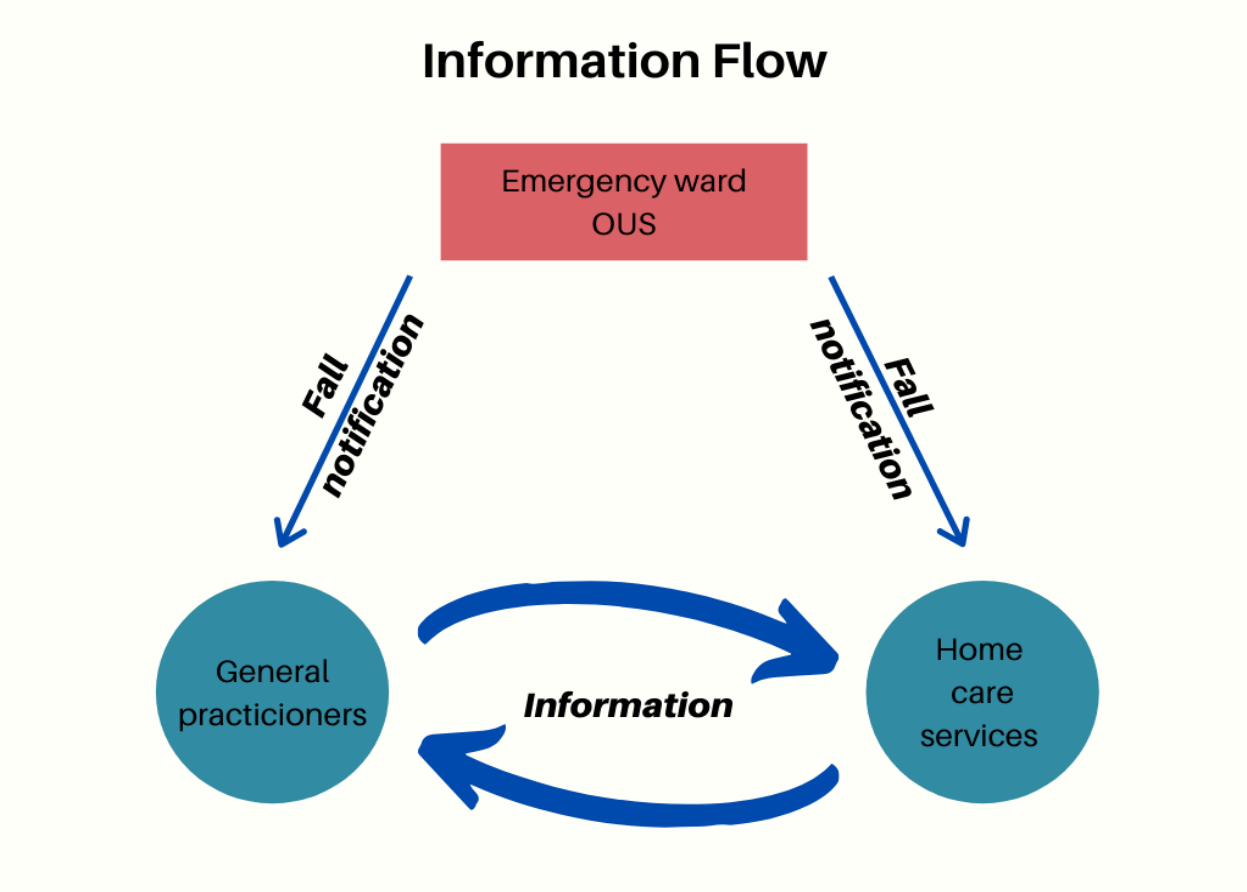
3. DATA AND METHODOLOGY

The aim of this thesis is to evaluate the intervention for preventing falls among the elderly in Oslo. This will be done by looking at the usage of the information flow created with the purpose of increased collaboration between the different services in the process, in addition to the knowledge about the new care pathway and routines for detecting people with high-risk of experiencing a fall. The relevance why focusing on these parts is important, is summarized by the following definition "Something (A) is relevant to a task (T) if it increases the likelihood of accomplishing the goal (G), which is implied by T." (Hjørland & Christensen, 2002). The goal here (G) is to reduce the number of falls among the elderly, by introducing the new care pathway project (T) in which the information flow and the knowledge around the pathway (A) are an inevitable stepping stone.

The data on which the analysis of this thesis is based on comes from two sources. The first source is questionnaires that were sent to the GPs and the home care workers in the municipality of Oslo (Appendix A, Appendix B) and the other is data obtained from the Quality registry at Oslo University Hospital. For better understanding of how the information flow is supposed to work, a visual representation is presented below in Figure 1.

Patients present themselves at the accident and emergency care ward at Oslo University Hospital where they are being treated after experiencing a fall. After that, the A&E ward sends fall notifications to two instances: the patient's GP and the borough's home care services. This is carried out for with purpose to inform them that the patient had experienced a fall and in that fall notification the medical record of the patient and a checklist is included. Afterwards, the responsibility falls on the GPs and HCW from the boroughs to assess the situation and perform a proper follow up. During this process, the GPs and the HCW should inform each other about their findings and alert one another for the need of their services. The GPs should inform the borough for the need to carry out a visit in the patient's home and make a risk assessment of the living arrangement and the borough's HCW should inform the GPs about the need for medical examination.

Figure 1 Information flow across the actors in the initiative



3.1 Research design

The research design used in order to collect the data is a cross-sectional study. The cross-sectional study implies that the data for a study are collected at only one point in time, on one or few variables, and those are then examined for patterns of association (Chambliss & Schutt, 2019; Kumar, 2005). The biggest downside when using this type of research design is that cross-sectional studies do not measure change, for the reason that for changes to be detected we need at least two measures at different time points (Kumar, 2005). However, taking in consideration that this initiative was only implemented in the municipality of Oslo, and if in the future this continues and expands on a national level throughout Norway, this study could provide the foundations on which the knowledge can be built up on. This study mainly has a retrospective point of view, but some elements of prospectiveness are included as well (as in

the questions for suggesting improvements). The dataset obtained from the Oslo University Hospital is a longitudinal, as the data was continuously collected throughout the years.

3.2 Data

3.2.1 The surveys

The surveys were sent out to the GPs and HCW in the municipality of Oslo via e-mail correspondence. Both of the surveys were Web-based questionnaires sent out through Nettskjema, which is a tool for designing and conducting online surveys developed by the University of Oslo. The respondents were contacted vie e-mail in order to get access (a link) for answering the surveys. The surveys were of non-obligatory nature and anonymity to the persons answering the questionnaire was guaranteed. The study and surveys were approved by the data protection officer NSD, reference no. 775451.

One of the sub-goals in the original fall prevention initiative which is the foundation of this new integrated care approach, was to investigate the experiences of the users that included the GP's, home care workers and the patients. The evaluation of the user experiences was meant to be comprehensive about the knowledge of the initiative, including the risk assessment for the falls, the checklists included, follow-up procedures, cooperation between the services, etc. Also, the evaluation was supposed to point out the frail parts and determine the need for future quality improvements. This was the source of inspiration that motivated the questions asked in the questionnaires. The questions were created in collaboration with staff working on the initiative from the municipality of Oslo. During the creation, distribution and obtainment of the surveys I have been kept in the loop, providing me with a valuable insight of the whole process. As a note here it should be added that the questions were not based on previous studies or previously used questionnaires, but they were designed specifically for this project. This provides the opportunity for designing precise questions that would provide the true representation of what the care pathway has achieved in the setting that it was placed, but with an evident downfall of not using already validated questions or full questionnaires.

The types of questions used were a mix of multiple choice questions and open answer questions, out of which the multiple choice ones dominated. The open answer questions were used only to aid when approximation of numbers was needed and when asked about suggestions about improvements. The questions used for the purpose of this thesis are the common questions in the two surveys. This evaluation is part of a larger study, with other studies looking into other aspects of the fall prevention initiative.

GP's survey

The questionnaire created for the GPs was sent out to eight boroughs out of 15 in Oslo. The reason why this was not sent out to all the boroughs, was that the team responsible for the distribution of the questionnaires did not get access to all of the e-mail addresses from the Chief Medical Officers in all boroughs of Oslo. The boroughs to which the survey was distributed to were Alna, Bjerke, Frogner, Grorud, Grunerløkka, Sagene, Stovner and Østensjø. In these boroughs the questionnaire was sent to all practicing GPs, excluding temps.

The survey was sent out on 28th of January 2021 to some boroughs and those were complemented continuously with other boroughs as more e-mail lists were obtained. The data collection was closed on 19th of March 2021. Two reminders were sent during this time period with intention to motivate the respondents to answer the questionnaire and increase the response rate at the same time. Total number of recipients that had received the questionnaire on their e-mail addresses was 329 and 31 of those delivered answers, which is equivalent to a response rate of 9.4%.

The survey consisted of 11 questions in which the goal was to obtain information about a few variables.

Firstly, the questionnaire obtained some background information about the experience of the GP and the borough in which the practice was located. The question for the location of the practice is of value so that the intervention and control groups can be appropriately appointed.

Secondly, information about the receivement of fall notifications was acquired. This is an important variable representing one part of the information flow from the vantage point of one

of the actors. In connection with this, because the checklist is an integral part of the fall notification, information about their opinions on the checklist were collected.

On the subject of information flow through the questions asked, two additional variables were included. One is about sending information to the borough for the need of home visits for patients with high risk of falling. This is when the GPs should take initiative and inform the home care services, so they can perform a risk assessment on their part. The other variable is similar, but with the difference that information comes in the opposite direction. Information is gathered if the GPs are being informed by the home care services for the need to undertake a medical examination concerning falls. This is a pre-determinant for the success of reducing the number of falls among the frail elderly.

In the questionnaire there were also questions related to practices of investigating increased risk of falling and performing fall examinations. Question on referrals for training to a specialized service was also asked, as this is an important part of the fall prevention strategy. These questions were proposed in order to find out if systematization of fall examinations and follow up is achieved.

The relevance of this survey to the study is that it offers the perspectives of the GPs and serves as a source of information needed to investigate the information flow and awareness about fall prevention.

Home care workers's survey

The questionnaire designed for the HCW was sent out to 14 boroughs in Oslo. The only borough that the questionnaire was not sent to was Nordstrand. The e-mail addresses were obtained by contacting the assistant project leader for the initiative responsible for the boroughs and other leaders holding appropriate positions in the boroughs. The e-mail lists received from the boroughs were not created in an identical way, since the boroughs do not have digital registers with the e-mails from the employees. Therefore, some discrepancies in the number and composition of the e-mails included in the e-mail lists are to be expected. This can lead to some boroughs be more represented than others, or some occupation groups more represented than others, if the e-mail lists were more extensive in that regard.

The survey started with distribution on the 16th of February 2021 to most of the boroughs and it was updated with new boroughs as more e-mail lists were received. It was closed on the 19th of March 2021. Two reminders were also sent to the recipients during this period, the first after the first week and the second reminder after the third week since the invitation to participate in the evaluation. A total of 1091 persons working in the home care services received the survey. 220 answers were received, indicated by a 20.2% response rate.

The survey consisted of 16 questions, structured within the following blocks. Background information about in which borough they work at, years of experience, years of experience in the current borough, occupational group they are in and type of employment (full-time or less) were collected. The background information provides us with the possibility of in-deep analysis and understanding of what the possible differences can be attributed to.

Concerning the information flow, a question on the experience of receiving fall notifications from the emergency ward was included. In connection with the fall notifications, opinions on the checklists were requested as well.

Other aspects of the information flow were investigated too. Question on the outgoing information from HCW to GPs, informing them about the need for medical examination of the concerned patients, was included. In addition, the reverse stream of information was investigated, receiving notifications from the GPs about the need for performing a home assessment and examination.

The final block of questions captured the overall knowledge of the initiative including routines for follow-up and exercise offers to patients. The exercise offer means that the HCW are referring the patients to specialized services which would help them with their strength and balance in order to prevent new falls. These variables show the level of awareness that the HCW possess about fall prevention among the elderly.

The relevance of this survey to the study is in that it represents the perspectives of the home care workers on the initiative and offers insights for exploring the information flow, alongside their knowledge on fall prevention.

3.2.2 OUS data

Data from the Quality registry at Oslo University Hospital was also obtained. This data consists information about the fall notifications that were sent from Skadelegevakten at OUS to the GPs and the HCW for the patients that experienced a fall. As previously mentioned, the fall notification not only informs the primary services of the fall, but it includes the checklists needed for follow up of patients. The data includes information for 2019 and 2020, so the time period is comparable with the data obtained by the questions from the surveys. The date recorded for the fall notification is the date when the fall notification was sent out from the acute services to the primary services, not necessarily the date the fall has occurred. Usually, this date is no later than one week from the date the fall has taken place. This could cause some misinterpretations, especially around the cutoff points (beginning of 2019 and end of 2020), because of the delay in the sending of the notification. Some patients have experience more than one fall, so every fall notification has been recorded separately.

Possible glitches are plausible during the data entry process. This is emphasized with the fact that the recording of the fall notifications received an electronic solution in late May 2019 and it was done on paper before this period. Hence, in the transcribing process some mistakes may have been made. However, all the data was checked to ensure quality and accuracy by the staff at Oslo University Hospital.

The OUS data provides us with factual information from which we can scrutinize one segment of the information flow, arguably one of the most important parts in the care pathway.

3.3 Analysis

The sources of information (the two questionnaires and the data from the Quality Registry at Oslo University Hospital) provide the possibility to create variables in order to explore and answer the research questions posed in the introductory section. The OUS data coupled with the variables derived from the questionnaires about the sending, receiving and estimated number of notifications will be applied to investigate how well the information flow is

established and how accurately it is being used. The set of variables derived from the questionnaires which inquire into the overall knowledge about the checklists, investigations, follow up, will give the ability to explore the question on the overall knowledge and opinions on the usefulness of the initiative, presented from the two vantage points of the GPs and HCW.

Data were analyzed with the statistical software STATA 16, and a 5% significance level was applied throughout. The survey data was grouped by the questions that were common in both surveys, and the data was analyzed by the Chi-square and Wilcoxon Rank Sum (Mann-Whitney U) tests. For all the variables that stem from the multiple choice questions, the number as well as the percentage of each category is presented. Then to make the comparison and see if the answers of the GPs are different from the answers of the HCW, a Chi-square test was performed and the *p* value was presented. The "no answer" observations were treated as missing and therefore not included in the calculation of the *p* values, while all other answers are treated as separate categories. The questions were similarly formulated in the two surveys, however slight differences can be observed. The survey delivered to the HCW did unfortunately not include options for "don't know" answers, in contrast to the survey for the GPs. Also, the question on training offer was posed slightly differently, as the GPs were asked if they refer the patients for training, while the HCW were asked if they are familiar with the training offer in existence. The types of challenges potentially arising from these deviances are examined in the Discussion section. For the numerical variables, the means were calculated as well as their standard deviations (SD). Then for detecting the differences between the means a Wilcoxon Rank Sum test was performed and *p* values were presented.

For the questions in the surveys that require numerical estimate from the respondent, in cases where the answer was stated as a range of numbers, the higher value of the reported number was consequently included in the analysis (e.g. 8-10, 10 was included). If a number was proposed in the answer with a crude estimation (e.g. around 10), then that number was used. In cases where estimation was requested and the answer was given with words (e.g. all), then it was converted manually to the appropriate numerical value. It is to be acknowledged that this approach might present a skewed perception and present a higher number than the factual.

Before doing the analysis, the data was manually checked for any inconsistencies and non-logical answers.

The OUS data was ranked in descending order to show the rankings of the boroughs which received highest number of fall notifications. It is to be expected that some boroughs will receive more fall notifications than others because the population in question (older than 65 years) could be more prevalent in some boroughs than others. Therefore, the absolute numbers of fall notifications were standardized by the population size over 65 in each borough. The population data used was for year 2020, as this year is most suitable for this analysis. The data is publicly available and retrieved from "Statistikkbanken Oslo Kommune". Chi-square test was used to asses if there are differences in the distribution of sent fall notifications from Skadelegevakten towards the GPs and HCW. This provided information on whether the distribution of fall notifications by Skadelegevakten follows the intentions of the care pathway. Spearman's rank correlation coefficients and their corresponding *p* values were calculated in an attempt to look into the distribution of fall notifications across boroughs. This provided insight in how the starting point of the information flow is established across the different constituents in the municipality of Oslo, whether the pathway is better established in some boroughs than others. The correlation coefficients were calculated both between the two groups in question, the GPs and HCW, together with an analysis within the groups. Possible explanations on the variation and discrepancies between the boroughs on the fall notifications sent from OUS are considered in the Discussion section of this thesis.

As a simple check of the validity and representativeness of the survey results, a Spearman's rank correlation coefficient between the responses on fall notifications by borough from the survey and the fall notifications sent by OUS per borough to HCW was computed. As mentioned above, the survey was created specifically for this evaluation and no validated measures were being used in its creation. A validity criterion is defined as "the type of validity that is established by comparing the scores obtained on the measure being validated to those obtained with a more direct or already validated measure of the same phenomenon (the criterion)" (Chambliss & Schutt, 2019). In this case, the survey results on one item from the questionnaire are being validated by the data from the Quality Registry at OUS which contains

information on the total number of fall notifications sent by the OUS divided by borough. In this case, the data from OUS is considered to be the more direct measure. Fundamentally, the reasoning is the following: the OUS sends the fall notifications to the boroughs and this is represented in the OUS data. On the other hand, the HCW are responding on whether they have received fall notifications in the survey. If the sample is fully representative, we should expect the highest number of positive answers on the survey in the boroughs OUS have sent the most fall notifications to. This, represented through a high Spearman's correlation coefficient would mean that the responses from the HCW on the survey match with the actual fall notifications distribution conducted by OUS. The correlation coefficient for these two variables was calculated only for the HCW, because of the small sample size on the survey received from the GPs. The analysis included 14 boroughs, because of the fact that no answers on the survey for HCW were collected from the Nordstrand borough.

4. RESULTS

Table 1 Background characteristics of the GPs and HCW

Background characteristics	GPs (n=31)		HCW (n=220)		*p* value
	n	%	*n*	%	
Practice years					< 0.01[a]
Less than 3 years	0	0	43	20.4	
3-10 years	8	25.8	90	42.7	
More than 10 years	23	74.2	78	36.9	
Missing	0		9		
Practice in the current borough					0.01[a]
Less than 3 years	8	22.6	82	37.4	
3-10 years	7	51.6	83	37.9	
More than 10 years	16	25.8	54	24.7	
Missing	0		1		

[a] Chi-squared test

4.1 Comparison of Background characteristics

In Table 1 we can see some background characteristics about the experience of the healthcare professionals, data derived from the questionnaires. Most of the GPs have long experience, with more than 10 years being the most common response and none with a relatively low working experience of between 0-3 years. On the other hand, the distribution of experience years for the HCW is more equal, with most of the study population having a mid-level experience of 3-10 years, but also substantial proportions on the lower and higher end of working experience. The *p* value calculated with Chi-square test shows statistically significant differences, that is the distribution of working experience of the GP and the working experience of the HCW is not the same. When it comes to the working experience in the current boroughs the healthcare professionals work in, the *p* value of 0.01 gives us the same conclusions that the study populations of the GP and the HCW are significantly different.

Table 2 Intervention characteristics

Intervention characteristics	GPs (n=31)		HCW (n=220)		*p* value
	n	%	*n*	%	
Fall notifications from Skadelegevakten					< 0.01[a]
Yes	20	64.5	137	62.6	
No	6	19.4	82	37.4	
Don't know	5	16.1	0	0	
Missing	0		1		
Outgoing fall notifications					< 0.01[a]
Yes	17	54.8	160	76.9	
No	13	41.9	48	23.1	
Don't know	1	3.2	0	0	
Missing	0		12		
Incoming fall notifications					< 0.01[a]
Yes	4	12.9	54	25.4	
No	23	74.2	159	74.6	
Don't know	4	12.9	0	0	
Missing	0		7		
Usage of checklist					0.22[a]
Haven't seen the checklist	13	48.1	91	42.1	
Have seen it but have not used it	3	11.1	56	25.9	
Have used it and it is a good aid	11	40.7	62	28.7	
Have used it and it has deficiencies	0	0	7	3.2	
Missing	4		4		
Knowledge and referral to training programs					< 0.01[a]
Yes	13	41.9	168	78.5	
No	10	32.3	46	21.5	
Don't know	8	25.8	0	0	
Missing	0		6		
	Mean	SD	Mean	SD	
Outgoing fall notifications patients percentage	65.9	29.6	29.7	24.4	< 0.01[b]
Number of received fall notifications from Skadelegevakten	4.6	4.9	9.0	9.7	0.03[b]

SD, Standard deviation.

[a] Chi-square test

[b] Wilcoxon Rank Sum Test

4.2 Survey results

Table 2 presents varying intervention characteristics of the pathway, divided by the answers on the survey from the GPs and HCW. The information flow starts with the fall notification sent from Skadelegevakten at Oslo University Hospital to the GPs of the patients and HCW in the borough's care services. With the variable "fall notifications from Skadelegevakten" we are trying to capture to what extent the information flow is set in motion from the viewpoint of the GPs and HCW. Both GPs and HCW are confirming that they are receiving the fall notification from the acute services with 64.5% and 62.6% respectively. When asked to estimate the number of fall notifications received from the acute services, rather than only answering whether they have or have not received fall notifications, presented with the variable "number of received fall notifications from Skadelegevakten" in Table 2, the answers differ between the two groups as seen by the *p* value comparing the means they have reported.

The next step in the information flow is the follow-up by the GPs and HCW themselves, meaning that they need to prepare and share their findings of the assessment with the counterpart. This is captured with the "outgoing fall notification" variable in which a higher proportion of HCW (76.9%) in comparison with the GPs (54.8%) are saying that they are sending out the notifications. The negative response is nearly double for the GPs than for the HCW (GPs 41.9% vs HCW 23.1%). When it comes to the percentage of patients for which the healthcare professionals are sending this kind of notifications, given by "outgoing fall notifications patients percentage", the general practitioners are reporting a higher mean number of 65.9 comparably to 29.7 estimated by the home care workers. Even though more HCW are reporting sending out fall notifications to the other services, they are doing it so for a lower percentage of all their cases that experienced a fall.

"Incoming fall notifications" shows that the perceptions of received fall notifications from the other services are low, with only 12.9% of the GPs reporting obtainment of this kind of information and 25.4% of the HCW. Subsequently, the "no" answers are quite high with 74.2% and 74.6% for GPs and HCW respectively. This is in contrast to the previous variable where

most of the respondents declare that they are sending out fall notifications to the other services.

With the first fall notification sent out from Skadelegevakten, checklists on how to perform and what should be emphasized during the assessment are included. With the "usage of checklist" variable we capture information on the usefulness and opinions how the checklists are perceived by the GPs and HCW. Here, there is no difference in the frequency distribution between the groups, indicated by the statistically insignificant *p* value. This could partly be due to lack of statistical power, as the point estimates diverge quite a bit for the category "Have seen it but have not used it". The proportion of respondents who cannot remember to have seen a checklist is similar across the groups, being 48.1% and 42.1% for GPs and HCW respectively.

If we collapse the categories into total proportions of the GPs and the HCW using the checklists, we get numbers of 40.7% for the GPs and 31.9% for the HCW. Generally, out of those health professionals that have used the checklist the opinion is positive, with just 7 out of 69 HCW thinking the checklist has deficiencies. No GPs are criticizing the quality of the checklists.

One part of the question on how well informed and knowledgeable are the health professionals is captured by the variable "knowledge and referral to training programs". From the answers received, we can notice that the GPs overall have a significantly lower knowledge about the training offer in existence, with 41.9% acknowledging their familiarity with the training offer in comparison with 78.5% of the HCW answering positively on the same question.

Table 3 Frequency of fall notifications sent from OUS to HCW and OUS to GPs

Frequency of fall notifications	Sent		Not sent		*p* value
	n	%	*n*	%	
OUS to HCW	738	59.1	511	40.9	< 0.01[a]
OUS to GPs	1234	98.8	15	1.2	

[a] Chi-square test

4.3 OUS data results

Table 3 presents the evidence on whether the fall notifications were equally distributed to the GPs and the HCW. Out of all fall notifications sent from OUS, as per the data retrieved from the Quality Registry at OUS, a significant percentage of 40.9% were not addressed to the HCW. On the other hand, fall notifications were sent to the GPs in almost all cases. According to the pathway, Skadelegevakten should send fall notifications to both the GPs and HCW without any reservations. However, this is in line with the result on the question "fall notifications from Skadelegevakten" in Table 2, where 37.4% of the HCW have answered that they have not received fall notification from Skadelegevakten, significantly higher than the 19.4% reported by the GPs.

Table 4 Distribution of fall notifications sent from OUS across boroughs, to HCWs and GPs respectively

Borough HCW	Sent fall notifications from OUS		Sent fall notifications per 65+ inhabitant (1000 individuals)	Borough GPs	Sent fall notifications from OUS		Sent fall notifications per 65+ inhabitant (1000 individuals)
	n	%			*n*	%	
1. Østensjø	86	11.7	11.34 [1][a]	1. Østensjø	137	11.1	18.06 [1][a]
2. Nordstrand	77	10.4	8.92 [6][a]	2. Nordstrand	129	10.5	14.94 [7][a]
3. Nordre Aker	70	9.5	9.70 [4][a]	3. Frogner	114	9.2	13.08 [10][a]
4. Frogner	68	9.2	7.80 [11][a]	4. Nordre Aker	114	9.2	15.79 [5][a]
5. Alna	59	8.0	8.30 [8][a]	5. Vestre Aker	88	7.1	10.08 [15][a]
6. Vestre Aker	58	7.9	6.65 [14][a]	6. Alna	84	6.8	11.82 [13][a]
7. Gamle Oslo	40	5.4	9.54 [5][a]	7. Ullern	81	6.6	11.76 [14][a]
8. Ullern	40	5.4	5.81 [15][a]	8. Gamle Oslo	69	5.6	16.45 [4][a]
9. Sagene	39	5.3	10.87 [2][a]	9. Bjerke	65	5.3	17.58 [2][a]
10. Bjerke	37	5.0	10.01 [3][a]	10. Stovner	64	5.2	12.56 [12][a]
11. Stovner	36	4.9	7.07 [13][a]	11. Sagene	60	4.9	16.72 [3][a]
12. Søndre Nordstrand	35	4.7	8.00 [10][a]	12. Grunerløkka	58	4.7	15.09 [6][a]
13. Grorud	33	4.5	8.50 [7][a]	13. Grorud	57	4.6	14.69 [8][a]
14. Grunerløkka	31	4.2	8.06 [9][a]	14. Søndre Nordstrand	57	4.6	13.03 [11][a]
15. St. Hanshaugen	25	3.4	7.41 [12][a]	15. St. Hanshaugen	48	3.9	14.22 [9][a]
Out of town	2	0.3		Out of town	5	0.4	
Missing info	2	0.3		Missing info	4	0.3	

[a] Rank of borough per sent fall notification per inhabitant 65+

Table 4 offers us the data on sent fall notification from Skadelegevakten towards the GPs and HCW and the distribution across boroughs. To assess the relationship between the absolute number of fall notifications sent from OUS to GPs and the absolute number of fall notifications sent from OUS to HCW across boroughs, a Spearman's rank correlation coefficient was calculated. This resulted in a very high positive correlation of (r_s= 0.97, p < 0.01). The results can be interpreted as that there is a high and significant correlation between the boroughs that are receiving the highest number of fall notifications, both for HCW and GPs. Equally, the boroughs that are receiving the lowest number of fall notifications are the same for HCW and GPs. Significant positive association between the boroughs on received fall notifications per inhabitant basis over 65 years for the GPs and HCW was observed as well (r_s= 0.90, p < 0.01). In other words, the boroughs that have the highest received fall notification from OUS per individual over 65 years of age are fundamentally the same for the two groups.

Analysis within the groups provides us with different perspectives on the case. Within the group of HCW, a Spearman's rank correlation coefficient was computed between the rankings of boroughs on sent fall notifications per inhabitant basis versus the rankings on absolute numbers of fall notifications sent. The results yielded a non-significant correlation between the two rankings (r_s= 0.33, p = 0.24). Thus, it does not seem to be the case that the higher number of elderly in some boroughs explains the higher number of fall notifications.

Within the GPs, a Spearman's rank correlation coefficient between the rankings of boroughs on sent fall notifications per inhabitant versus the rankings on absolute numbers of fall notifications sent resulted in a correlation coefficient of 0.09 (p = 0.75). This also indicates that the number of fall notifications sent from OUS does not correlate with the number of fall notifications sent per elderly in the borough. To some extent, sending fall notifications is random and not related to the number of elderly in the borough.

Table 5 Comparison of fall notifications as responded by HCWs in the survey, ranked per borough, to the rankings of fall notifications sent from OUS to HCW per borough

Borough HCW	Answers from survey				OUS data rankings (Table 4)
	yes	no	*% of yes answers per borough*	% of overall yes answers	
1. Bjerke	3	0	100%	2.2%	9
2. Sagene	5	0	100%	3.6%	8
3. Frogner	15	3	83%	10.9%	3
4. Stovner	4	1	80%	2.9%	10
5. Ullern	10	3	77%	7.3%	7
6. Alna	20	7	74%	14.6%	4
7. Gamle Oslo	12	5	71%	8.8%	6
8. Grorud	12	6	67%	8.8%	12
9. Søndre Nordstrand	10	7	59%	7.3%	11
10. Østensjø	13	10	56%	9.5%	1
11. St. Hanshaugen	9	9	50%	6.6%	14
12. Vestre Aker	7	7	50%	5.1%	5
13. Nordre Aker	10	11	48%	7.3%	2
14. Grunerløkka	7	13	35%	5.1%	13

4.4 Validity of survey and sample representativeness

Table 5 contains information on how the HCW responded on the question whether they have received a fall notification from OUS on the survey and the ranks of the dispatched fall notifications from OUS (from Table 4). The data is divided by boroughs and sorted in descending order to show the percentage of HCW in each borough responding positive to the question. In the last column the ranks on the dispatched fall notifications from OUS from Table 4 are presented. As mentioned in the Analysis part, this is an attempt to validate the survey results by using a more direct measure, in this case the distribution of fall notifications represented by the OUS data. The Spearman's rank correlation coefficient was calculated between the rank of boroughs on the survey that have answered positively for receiving fall notifications from Skadelegevakten and the rank of boroughs according to the total number of sent fall notifications from OUS. The Spearman's rank correlation coefficient was 0.09 (p =

0.76), thus not showing any correlation between the rankings of fall notifications as responded by the HCWs in the survey and the rankings of total number of fall notifications to the boroughs. Hence, the rankings of responses received on the survey for the HCW are not similar to the rankings of fall notifications sent from OUS per borough.

5. DISCUSSION AND LIMITATIONS

5.1 Discussion

The new integrated care pathway was implemented in the municipality of Oslo with a goal to reduce the number of falls among the elderly through the means of integration between the three services, Skadelegevakten, GPs and HCW. The results in this study suggest that the GPs are less familiar with the information flow and the overall knowledge of the fall prevention initiative, indicated by the significantly different answers compared to the HCW. The fall notifications are not equally distributed to the GPs and HCW from Skadelegevakten. The correlation between the boroughs concerning high number of received fall notifications is not explained by the size of the elderly population residing in that borough.

The GPs seem less certain on whether they have received fall notifications from Skadelegevakten. This is captured by their answers to the question if they have received fall notifications from Skadelegevakten, as well as by the significantly lower reported number of received fall notifications compared with HCW, among GPs who state they have received fall notifications from Skadelegevakten. The latter is slightly surprising, given that the OUS data show that fall notifications are sent to GPs much more frequently than to HCW. However, we cannot be conclusive on this interpretation because a challenge arises following the questionnaire setup. The GPs had an option to select a “don’t know” answer when asked about the obtainment of fall notifications from Skadelegevakten, whereas this was not possible for the HCW. Thus, this can be a cause for the significant differences observed. The same issue pertains in the questions for incoming/outgoing fall information with the counterpart service and the question concerning the training offer.

A conflicting finding is that the HCW are reporting that they are receiving fall notifications from Skadelegevakten at the same rate as the GPs. This is in dissonance with the OUS data presented in Table 3, in which it is noticeable that the HCW are receiving significantly less fall notifications than the GPs. Inconsistency in this sense, can also be seen in the number of fall notifications

HCW report they receive from Skadelegevakten, which is significantly higher than the number GPs report. Even though the factual number of fall notifications sent to the HCW from Skadelegevakten is lower than the one for the GPs, the HCW are showing surprisingly high awareness about the fall prevention.

An interesting discovery is captured with the variable “incoming fall notifications”. The percentage for receiving notifications from the other service are low for both GPs and HCW. This is in contrast to the variable “outgoing fall notifications” where most of the respondents declare that they are sending out fall notifications to the other services. GPs are reporting receiving less fall notifications from the counterpart even though the HCW are reporting a higher percentage of sent notifications. It is possible that this disparity can be attributed to coincidence, e.g. the GPs or HCW in the sample happen to have patients that have few falls as the GPs and HCW in the sample are not linked in any way, but considering the results from the other variables (many received fall notifications from Skadelegevakten and sent out fall notifications themselves) this does not seem very likely.

If we divide the information flow into two segments, the first one including the fall notifications from Skadelegevakten towards the GPs and HCW and the second one including the information exchange between the primary care services (GPs and HCW), slight differences can be observed. The first segment seems to be better established than the second one. This is supported by the fact that more than 60% of both GPs and HCW are reporting receivement of fall notifications from Skadelegevakten, despite the fact that the distribution of fall notifications by Skadelegevakten is not the same for GPs and HCW (evidence in Table 3). On the other hand, the information exchange between the GPs and the HCW looks not so well established considering the high number of negative answers given by both GPs and HCW when asked about the information exchange with the other primary care service. However, differences between the GPs and HCW still pertain, as it seems that the GPs are less informed.

If we take into account that this new fall prevention care pathway is constructed on the integrated care principle in which the cooperation between different services is a staple, and we take in consideration the findings about the unsound information sharing system we

encounter in this analysis, then we have the foundations to be doubtful whether the pathway will yield the desired effects. However, the questionnaires offer us limited information (i.e. one or two questions are not enough for a whole segment of the information flow to be assessed) and that coupled with the low response rate on both surveys decreases the strength of this remark.

From the results, we can see that there is no difference between the GPs and HCW in terms of the checklists. In any case, a high percentage of respondents have said that they have not seen a checklist. One would expect that this proportion would be lower and more healthcare workers would have seen and used the checklist, considering the fact that the checklist is an integral part of the fall notification they receive from Skadelegevakten, in a case where both GPs and HCW are confirming in high numbers that they have received these notifications.

In order to improve the low awareness of the checklists, some possible solutions can be found in the open questions where the healthcare professionals give their comments on the checklists. The most mentioned one is that they are unaware of where they can find the checklist and state that the checklist should be easily reachable and visible. Maybe a print version alongside the digital version could provide a solution which would increase the awareness and use of the checklist. Other constructive comments include that the checklist is not really user friendly and should be made less difficult to fill out. Even if the healthcare professionals decide to use the checklist during their assessment, and this proves to be challenging and time-consuming, it is probable that the checklists will not be seen as aid in the process. If the checklist is more user-friendly, then the percentage of healthcare workers who have seen but haven't used the checklist should decrease.

As previous studies suggest, referring the patients for physical exercise greatly improves the chances for less falls in the future. This is one of the staples in this pathway and is incorporated in the checklist as well. Both GPs and HCW should be aware of the existence of the training programs, however, the acknowledging answers from the HCW are almost twice higher than the ones from the GPs. The discrepancies here could be connected to the fact that the question about the training offer was slightly different in the two surveys. The GPs had to answer to the

question whether they have given out referrals to their patients for training in contrast to the question for the HCW where they were asked whether they are aware of the training program that they can refer their patients to. Noticeably, the GPs could be aware of the existence of the training program but not referred the patients. In any case, the high percentage of no/don't know answers from the GPs on the survey should not be neglected.

In general, from the variables presented in Table 2, the GPs seem less familiar with the overall knowledge about this fall prevention initiative. The goal of the care pathway is that both the GPs and the HCW should demonstrate knowledge about the different parts of the pathway to approximately the same extent. However, with all the challenges we encounter here, the significant differences between the GPs and HCW suggest that this appears not to be the case. There seems to be potential for increasing awareness of fall prevention among the GPs.

We also see that there is high and significant correlation between the boroughs in the distribution of sent fall notifications from OUS, both in absolute numbers and per inhabitant over 65 years for GPs and HCW. This can be seen as an indication that part of the information flow works as intended by the care pathway. Nevertheless, a slightly surprising finding is the low correlation between the absolute and standardized numbers within the groups of GPs and HCW. One would expect that the number of fall notifications would be in consonance with the proportion of elderly in a borough.

According to the Spearman's correlation coefficients calculated in order to study whether the higher number of fall notifications in some boroughs can be attributed to a higher proportion of elderly inhabitants, the indication is that this does not seems to be the case. However, there is not a big difference between the numbers in the means per 1,000 inhabitants over 65 years, so some of the variation in rankings between the absolute and standardized numbers could be random.

There may be other possible explanations for the marked difference. The first one would be that the fall prevention program is better established in some boroughs than others and this results in the discrepancies in the numbers. This is plausible if we take in consideration the fact that some boroughs were included at a much earlier date than others in the fall prevention

initiative and therefore had more time to work with and adjust to it. Another argument on the discrepancies would be that the elderly in the boroughs which are receiving the most fall notifications are more frail and/or are falling more often than the elderly in the boroughs with less fall notifications. Thirdly, it seems that the western boroughs have lower fall notification rates in comparison to the eastern boroughs. Nordstrand borough can be seen as an exception here. Some socio-economic characteristics might have had effect, or the different density of population present in the borough. A more in-depth analysis is required for proving these hypotheses, which is outside the scope of this study.

Fall prevention programs are designed and delivered in a number of ways in different settings, but there is limited information on factors explaining the implementation and evaluation of these programs (Morris et al., 2019).

The difference between research trials and real world everyday practices, like the one we are examining in this evaluation, is brought up in other studies (Elley et al., 2008; Hendriks et al., 2008). The challenges pertain because research teams are focused on a single purpose and are highly motivated and enthusiastic about developing new initiatives. While on the other side, the healthcare workers might be less eager to implement the research into practice or are simply burdened with a numerous of different initiatives and cannot put enough emphasis on all of them. The initiative in the municipality of Oslo seems to be well designed, based on good evidence based practices, but the implementation part in which the healthcare workers are the key appears to be not as strong.

The findings in a process evaluation on a fall prevention initiative by (Bleijlevens et al., 2008) indicate that one of the main causes of the ineffectiveness of the program are the low number of referrals and recommendation from the assessments. These findings are in consonance with the findings in this evaluation and could be an indication to similar results in terms of effectiveness of the program.

The overall knowledge of the fall prevention program seems not to be on the highest level. This could be insightful as the results in another study (Morris et al., 2019) are showing that the healthcare professionals are more comfortable in delivering services they have knowledge of or

previous experience with. The lack of knowledge is a threat that can lead to hesitancy or even avoidance of the new care pathway by the leading actors in the delivery of services, the GPs and HCW.

The findings suggest that information exchange between healthcare professionals could to be a hurdle. This has also emerged in another study (Amacher et al., 2016), where the information flow between the GPs and other healthcare professionals turned out to be an important implementation barrier. A possible explanation of this phenomenon could be the lack of time healthcare professionals face during their workdays. The results from a systematic review on factors influencing the implementation of fall-prevention initiatives states that the lack of time seems to influence the decision made by the staff to undertake the fall prevention assessment or not (Child et al., 2012). If the patient has not been examined and the fall assessment is not carried out, it is highly unlikely that sharing information with other services would be conducted.

5.2 Study Limitations

The questionnaire setup and the OUS data is suitable for dividing the groups into control and intervention boroughs based on the time they implemented the new care pathway. However, because of some data limitations, specifically low response rate received, this was not done. If the number of respondents was higher, one could have studied if the fall notifications received and sent, the knowledge and use of checklists and training offers was greater in boroughs having been part of the initiative for a longer period of time.

This evaluation is conducted in real-life conditions without extracting outside influences. This provides us with the basis that some outside factors could have affected the intervention and distorted the intended results. One big outside factor that influenced the whole process is the global pandemic that started in year 2020 caused by Covid-19 and had an affect worldwide. With the lockdown that was introduced in Norway on 12th of March 2020, both patients and healthcare workers have been vastly influenced. The mobility for people has decreased substantially and that could have an impact on the number of falls. People were mostly

stationed at home so the possibilities to experience a fall were considerably decreased. On the other side of the spectrum, the healthcare professionals were preoccupied with the pandemic and had to follow a variety of protocols while performing their jobs. Therefore, the information flow that supposed to be in the core of the intervention may have suffered significantly. Because they were having many responsibilities in relation to the global pandemic, GPs could avoid initiating collaboration with the home services and vice versa, as well as not being incentivized to do the needed examinations and proper follow-up procedures. All of these factors could affect the measurements used in this study, in a way that it distorts the results and the detectable differences.

The two surveys were sent separately from one another. This means that there is no linkage between the GPs and the HCW. Therefore, the answers provided on the survey, particularly the ones concerning the information exchange between the two primary care services, are not directly comparable and the remarks that were made about the quality of the information flow should be taken in consideration with caution. For instance, the notifications sent by the respondents on the GP survey may have reached other HCW than the ones responding the HCW survey. In this regard, the slightly different formulation of the questions and the proposed answers in the surveys, e.g. not having a “don’t know” option for the HCW, might have caused some bias and it has caused difficulties in the process of making exact interpretations of the results.

The correlation analysis that includes standardization on the number of fall notification per inhabitant over 65 per borough is dependent on the hypothesis that the elderly have GPs and use the care services in the borough they reside in. The data we have at disposal shows the distribution of fall notifications per borough where the GPs or the borough’s care services office is located. The patient could potentially reside in one borough and be enrolled with a GP in another borough. Therefore, even if the patient that experienced a fall resides in one borough, the fall notification will be sent to another, where the GP is located. So, the analysis could be unsuitable if a large proportion of elderly have GPs or use care services in a borough different that the one they reside in. Then, the high number of fall notification in some boroughs could

be explained with the fact that the GPs in those boroughs have more patients that are elderly, and not dependent on the population of elderly in the borough itself.

Validity and representativity

Validity is a concept which tries to give the answer if an indicator really measures what it is supposed to measure (Bryman, 2012; Chambliss & Schutt, 2019). In terms of the questionnaires, the validity of this study can be to a certain degree valid according to the definition by (Kumar, 2005) "establishing validity through logic implies justification of each question in relation to the objectives of the study…". This justification has been provided in the Methods section of this thesis, while explaining the contents of the questionnaires.

Internal validity is concerned with the issue of causality, whether a link between two variables exist or not (Bryman, 2012; Kumar, 2005). The internal validity of this study is not strong. The causality issues pertain, as it cannot be concluded with certainty that a causal relationship persists. This is derived from the research design itself, as cross-sectional design produce associations rather than causal inferences (Bryman, 2012). Another serious threat to the internal validity is the selection bias, which is discussed further bellow. It is highly possible that a selection bias problem had occurred in this study. In addition, an effect of external events can also harm the internal validity "A problem that occurs in an experiment when not the treatment itself, but rather some unknown or unidentified intervening process, is causing the outcome" (Chambliss & Schutt, 2019). Noticeably, the global pandemic caused by Covid-19 was in full swing and could have affected the results of this study.

In order to increase the internal validity of this study as a whole, in addition to the surveys sent to the healthcare professionals, another source of information (the data gathered by Oslo University Hospital) was included. The surveys provide self-reported estimations by the healthcare staff, whilst the OUS data provide us a more concrete measure what has been recorded and collected over time and it is not subjected to recollection of memories and subjectiveness. Thus, the data obtained from the GPs, HCW and OUS covers all the instances included in the information flow process and should provide us with enough variation for objectively assessing the information flow. However, the Spearman's rank correlation

coefficient calculated on this matter, a cross-check on the distribution of fall notifications sent by Skadelegevakten to the HCW per borough, returned unsatisfactory results. The representativeness of the survey sample could be a factor that had an influence. It is difficult to assess whether the small sample of HCW who answered the survey could be representative for the whole population of HCW in the municipality of Oslo.

External validity is achieved when the findings of the study can be generalized to the broader population (Bryman, 2012). Because this study is an evaluation of a specific initiative, and the evaluation is focused on informing and improving policy rather than generating knowledge, the knowledge produced by this evaluation is specific to the initiative in question (Smith, Smith, & Larimer, 2017). There is a low participation rate in the surveys which makes it difficult to assess the representativeness of the samples. The low participation rate coupled with the fact that some boroughs were not included in the analysis, specifically in terms of GPs, makes the generalizations for the whole municipality of Oslo problematic. This leaves us with a very limited applicability of the findings to the general population. "… Cross-population generalizability-generalizing across subgroups and to other populations and settings" (Chambliss & Schutt, 2019) is hard to achieve in this case. Settings-wise, the generalizability must be cautiously discussed outside the borders of the municipality of Oslo. However, in the national framework of Norway this could be a good starting point in case it is decided that the initiative should expand on a national level. There could be some potential difficulties on a national scale as well, like the geographical dispersion throughout the country, information sharing systems implemented in each municipality, service provision and more.

Other limitations

A self-selecting bias is probable to occur. People when presented with a questionnaire have the opportunity to take the time and answer it or just simply avoid it. Those who decide to finish the questionnaire may have different motives, attitudes or attributes than those who do not take it (Kumar, 2005). Simply put, the answers can come from a group that has bigger interest in the subject matter. On this particular case, osteoporosis and hip fracture are more common in women, so that could motivate the female proportion of the participants to return more

questionnaires than the male population because they are more interested in the issue (Blazkova et al., 2010). The same logic could apply to health workers that are older, or if they are working with a population of patients that are older and more affected by falls.

The participants in the survey may have given socially desirable answers. This was tried to be avoided by collecting data anonymously and by not having any repercussions after the completion of the survey, notes clearly stated in the distribution of the surveys. If this is the case and the results are biased and presenting a more optimistic representation than the reality, the interpretation of the findings above may not be valid. However, taking in consideration that there was considerable amount of negative answers, this should not pose a substantial threat to this study.

The opportunity to clarify issues when using questionnaires as a data collecting tool is non-existent (Kumar, 2005). Some people may not understand what is it meant by some questions and the lack of providing explanations to them is a downfall from using this type of data collection. In the open-ended type of questions, some respondents have stated that they have been confused by some of the questions and therefore did not know what to answer.

And lastly, low response rates are also a big issue when it comes to questionnaires. A number of factors can influence the number of people returning the questionnaires such as the topic of interest, the design of the questionnaire, the deliver methodology of the questionnaire and more (Kumar, 2005). With this, the sample size available for analysis would be reduced. The findings of a study with a low response rate have a limited applicability to the population that is being studied. With a response rate of 9.4% and 20.2% for the GPs and HCW respectively, this became a reality in this study. Most of the healthcare workers have busy workdays and are trying to be as productive as they can. A survey, even one that does not take a big proportion of their time, is not in their focus. The low response rate decreases the strength of the findings in this evaluation and therefore they should be taken in consideration with attentiveness.

Apart from the many limitations listed here, the responses on the survey are collected from people that are working on this matter on a day to day basis. This offers insights that hold true

representation on the outlook from individuals that are most concerned and representative in this sense.

5.3 Conclusion

The purpose of this study was to evaluate the implementation of the new care pathway in the municipality of Oslo. The results show significant differences between the GPs and HCW when it comes to the information flow and the overall knowledge on fall prevention. The analysis shows that the boroughs receiving the highest number of fall notifications from Skadelegevakten are the same for both GPs and HCW, but the correlation is not dependent on the elderly population in the borough.

It should be taken in consideration that this is the first assessment of one part from the integrated care initiative. It has filled the gaps of knowledge about the scope of implementation in real-world settings. Potential inconsistencies are discovered and plausible explanations are given. Following are some areas on which some refinement can be done. First and foremost, mechanisms need to be found that would raise the awareness of the GPs on the fall notifications they receive from and send to the home care services. Related to this, improving awareness of the checklists for both GPs and HCW should be considered. Thirdly, the interesting circumstance why both groups claim to send many more notifications to the other actor than they receive needs to be analyzed. And finally, an in-depth analysis on whether the access to care is equal across boroughs would be useful. This originates from the correlation analysis which showed no correlation between the rankings of boroughs with regard to the total numbers of fall notifications sent and fall notifications sent per 1000 elderly. The positive qualities of some boroughs could be applicable to the others. These factors should be taken in consideration in order to improve the quality of the initiative, so the end result would achieve the intended outcomes. This would be of particular importance in potential further implementation and expansion of this fall prevention initiative.

In research sense, this study adds knowledge on the perception of healthcare professionals on the fall prevention program. Most of the focus of previous research is on the interaction of

healthcare professionals with the patients, how to perform the assessments, what should be included in the assessments and the surrounding issues, rather than the more system side of things. This evaluation takes the practical vantage point of healthcare professionals and the intervention in question.

Further research should be focused on investigating the patients included in this fall prevention initiative, in particular their adherence to the referrals and recommendations received from the healthcare professionals. Without the input from the patients, even if all other factors are functioning seamlessly, the desired outcomes would be unattainable. In addition to this, an investigation on the delivery of the interventions by all three services (specialist care, GPs and HCWs) would be valuable, to assess the timeliness and exactness of the assessments performed.

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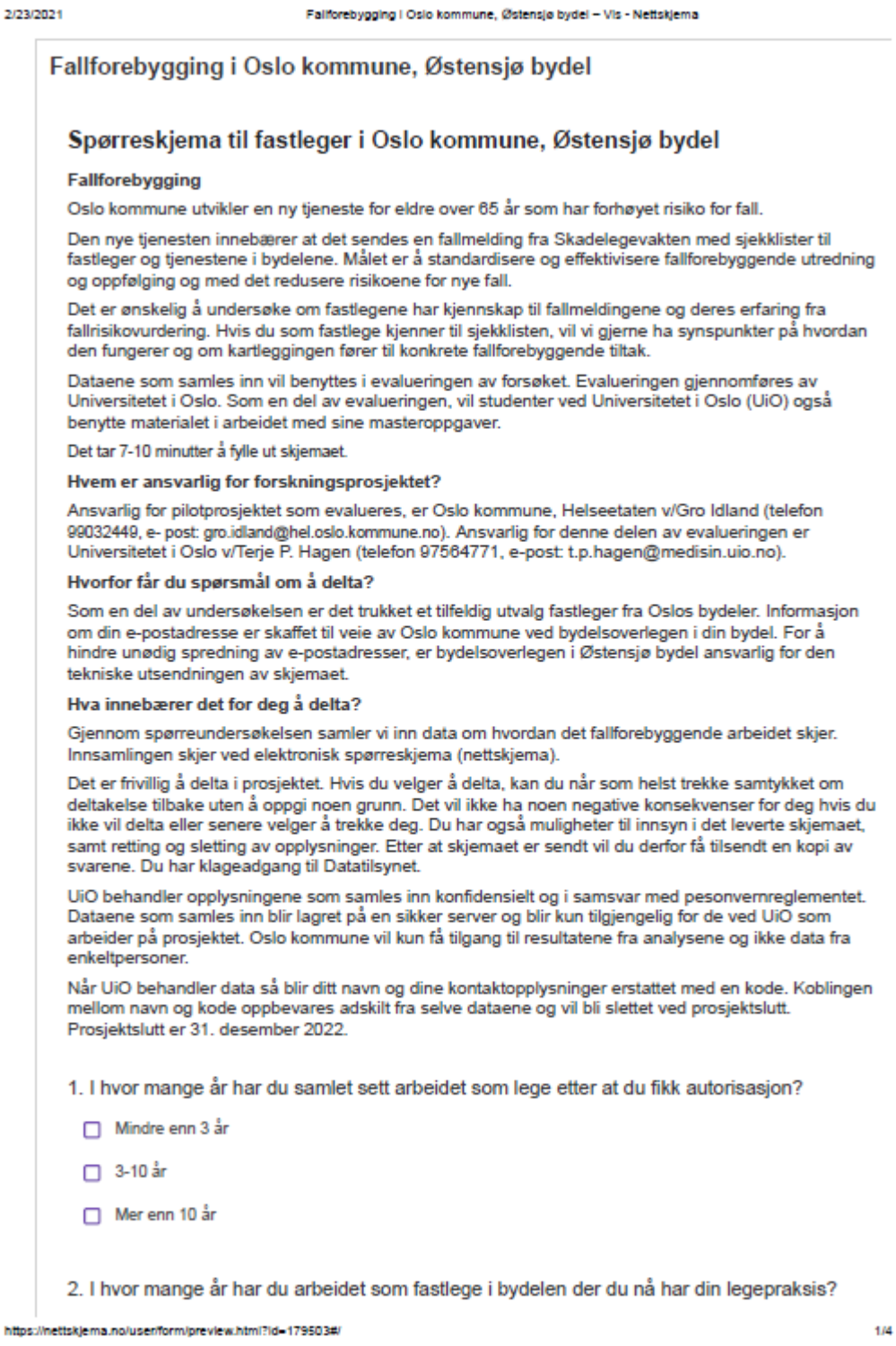
Appendix A

GP's survey



2/23/2021 Fallforebygging i Oslo kommune, Østensjø bydel – Vis - Nettskjema

Fallforebygging i Oslo kommune, Østensjø bydel

Spørreskjema til fastleger i Oslo kommune, Østensjø bydel

Fallforebygging

Oslo kommune utvikler en ny tjeneste for eldre over 65 år som har forhøyet risiko for fall.

Den nye tjenesten innebærer at det sendes en fallmelding fra Skadelegevakten med sjekklister til fastleger og tjenestene i bydelene. Målet er å standardisere og effektivisere fallforebyggende utredning og oppfølging og med det redusere risikoene for nye fall.

Det er ønskelig å undersøke om fastlegene har kjennskap til fallmeldingene og deres erfaring fra fallrisikovurdering. Hvis du som fastlege kjenner til sjekklisten, vil vi gjerne ha synspunkter på hvordan den fungerer og om kartleggingen fører til konkrete fallforebyggende tiltak.

Dataene som samles inn vil benyttes i evalueringen av forsøket. Evalueringen gjennomføres av Universitetet i Oslo. Som en del av evalueringen, vil studenter ved Universitetet i Oslo (UiO) også benytte materialet i arbeidet med sine masteroppgaver.

Det tar 7-10 minutter å fylle ut skjemaet.

Hvem er ansvarlig for forskningsprosjektet?

Ansvarlig for pilotprosjektet som evalueres, er Oslo kommune, Helseetaten v/Gro Idland (telefon 99032449, e- post: gro.idland@hel.oslo.kommune.no). Ansvarlig for denne delen av evalueringen er Universitetet i Oslo v/Terje P. Hagen (telefon 97564771, e-post: t.p.hagen@medisin.uio.no).

Hvorfor får du spørsmål om å delta?

Som en del av undersøkelsen er det trukket et tilfeldig utvalg fastleger fra Oslos bydeler. Informasjon om din e-postadresse er skaffet til veie av Oslo kommune ved bydelsoverlegen i din bydel. For å hindre unødig spredning av e-postadresser, er bydelsoverlegen i Østensjø bydel ansvarlig for den tekniske utsendningen av skjemaet.

Hva innebærer det for deg å delta?

Gjennom spørreundersøkelsen samler vi inn data om hvordan det fallforebyggende arbeidet skjer. Innsamlingen skjer ved elektronisk spørreskjema (nettskjema).

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket om deltakelse tilbake uten å oppgi noen grunn. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg. Du har også muligheter til innsyn i det leverte skjemaet, samt retting og sletting av opplysninger. Etter at skjemaet er sendt vil du derfor få tilsendt en kopi av svarene. Du har klageadgang til Datatilsynet.

UiO behandler opplysningene som samles inn konfidensielt og i samsvar med pesonvernreglementet. Dataene som samles inn blir lagret på en sikker server og blir kun tilgjengelig for de ved UiO som arbeider på prosjektet. Oslo kommune vil kun få tilgang til resultatene fra analysene og ikke data fra enkeltpersoner.

Når UiO behandler data så blir ditt navn og dine kontaktopplysninger erstattet med en kode. Koblingen mellom navn og kode oppbevares adskilt fra selve dataene og vil bli slettet ved prosjektslutt. Prosjektslutt er 31. desember 2022.

1. I hvor mange år har du samlet sett arbeidet som lege etter at du fikk autorisasjon?

- ☐ Mindre enn 3 år
- ☐ 3-10 år
- ☐ Mer enn 10 år

2. I hvor mange år har du arbeidet som fastlege i bydelen der du nå har din legepraksis?

https://nettskjema.no/user/form/preview.html?id=179503#/ 1/4

- [ ] Mindre enn 3 år
- [ ] 3 - 10 år
- [ ] Mer enn 10 år

3. Har du i løpet av 2019 og 2020 mottatt fallmeldinger fra legevakten?

- [ ] Ja
- [ ] Nei
- [ ] Vet ikke

3b. Hvis ja på forrige spørsmål, anslagsvis hvor mange fallmeldinger mottok du samlet i 2019 og i 2020?

4. Dersom du har mottatt fallmeldinger fra Skadelegevakten, har du også mottatt en sjekkliste. Vi er interessert i din vurderingen av nytteverdien av denne sjekklista.

- [ ] Jeg kan ikke huske å ha mottatt en sjekkliste
- [ ] Jeg har mottatt sjekklista, men ikke benyttet den
- [ ] Jeg har benyttet sjekklista og betrakter den som et godt hjelpemiddel
- [ ] Jeg har benyttet sjekklista og mener den har mangler

4b. Hvis du mener sjekklista har mangler, hva kan eventuelt forbedres?

5. Hvordan identifiseres pasienter med risiko for fall oftest i din fastlegepraksis? Kryss av for de to viktigste mekanismene.

- [ ] Ved symptomer rapportert av pasienten eller pårørende (ustø gange, redsel for å falle, svimmelhet, gjennomgåtte synkoper, etc)
- [ ] Ved kjente tilstander som påvirker fallrisiko (Parkinson, MS, demens, rusmisbruk, etc.)
- [ ] Ved kunnskap om at pasienten tidligere har gjennomgått fall eller brudd
- [ ] Gjennom meldinger om fall fra legevakten eller hjemmetjenestene

- [ ] Gjennom kunnskap om medikamenter som bidrar til ustøhet
- [ ] Andre måter

6. Med fallutredning mener vi her en medisinsk gjennomgang med tanke på å forebygge fallskader hos eldre. Anslagsvis hvor mange fallutredninger gjennomførte du samlet i løpet av 2019 og 2020 i din fastlegepraksis?

7. Henvises pasienter som har hatt fall til opptrening?

- [ ] Ja
- [ ] Nei
- [ ] Vet ikke

7b Hvis ja på spørsmål 8, anslagsvis hvor stor prosentandel av fall-pasientene gjelder dette?

8. Varsler du som fastlege bydelen om behov for fallforebyggende hjemmebesøk for pasienter med fallrisiko??

- [ ] Ja
- [ ] Nei
- [ ] Vet ikke

8b Hvis ja på spørsmål 8, anslagsvis hvor stor prosentandel av pasienter med fallrisiko gjelder dette?

9. Mottar du som fastlege systematisk informasjon fra bydelen om pasienter som har behov for fallutredning?

- [ ] Ja
- [ ] Nei
- [ ] Vet ikke

10. Ta utgangspunkt i de pasientene du hadde i 2019 og 2020 med antatt forhøyet fallrisiko. Omlag hvor stor andel av disse ble det gjennomført utredning om osteoporose for?

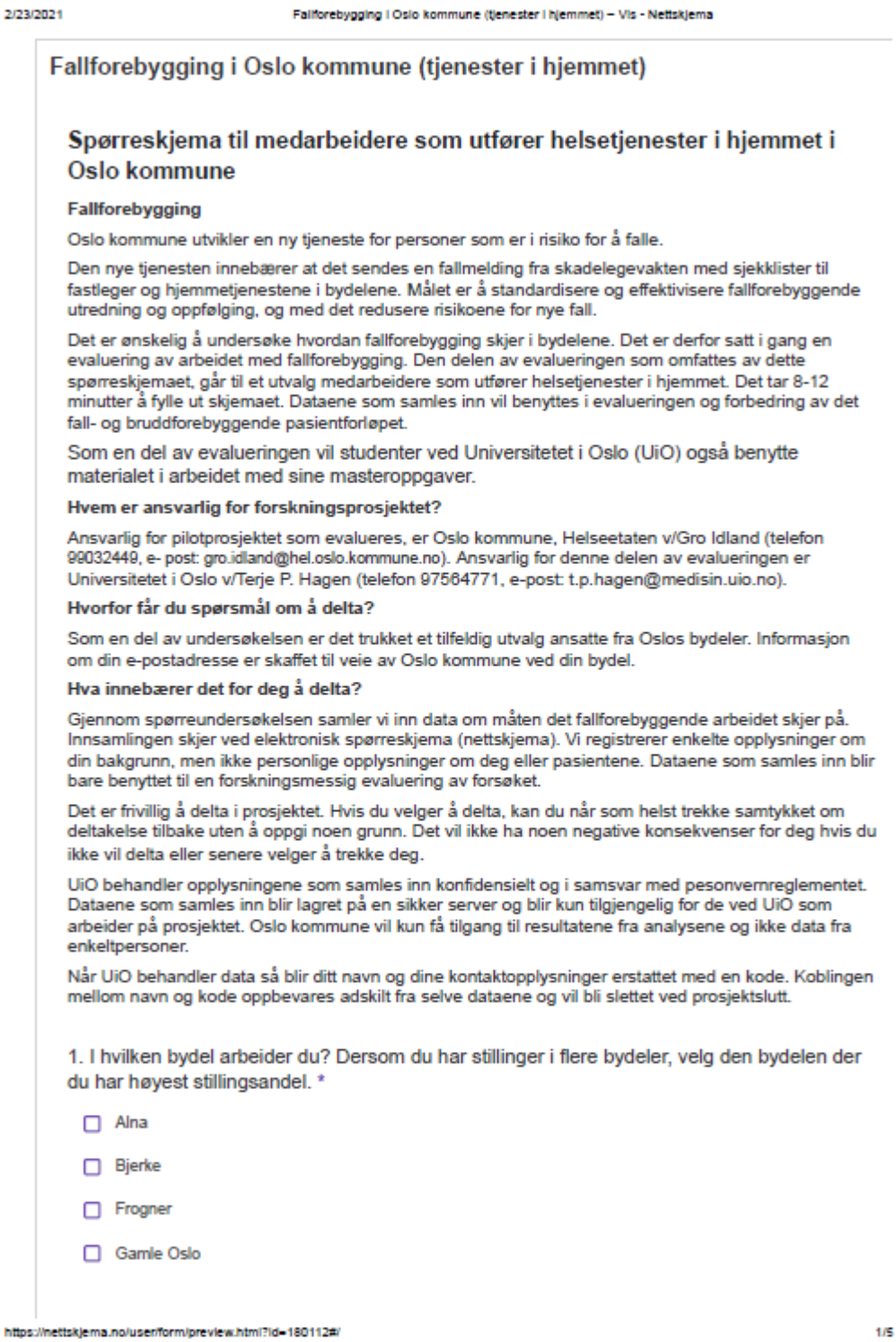
- [ ] < 20 prosent
- [ ] 20 - 39 prosent
- [ ] 40-59 prosent
- [ ] 60-80 prosent
- [ ] > 80 prosent

11. Hvilke kriterier anser du som tilstrekkelige for å sette i gang osteoporose-behandling hos eldre? Flere svar er mulig.

- [ ] T-score < -2,5 på bentetthetsmåling
- [ ] Gjennomgått ett lavenergibrudd, samt T-score < -1,5
- [ ] Gjennomgått flere lavenergibrudd
- [ ] Kompresjonsfraktur i rygg med mer enn 25% sammenfall
- [ ] Hoftebrudd etter lavenergitraume
- [ ] FRAX-score > 20
- [ ] FRAX-score >20, samt tilleggsrisiko ved flere lavenergibrudd og/eller generell høy fallrisiko

Appendix B

HCW's survey



2/23/2021 Fallforebygging i Oslo kommune (tjenester i hjemmet) – Vis - Nettskjema

Fallforebygging i Oslo kommune (tjenester i hjemmet)

Spørreskjema til medarbeidere som utfører helsetjenester i hjemmet i Oslo kommune

Fallforebygging

Oslo kommune utvikler en ny tjeneste for personer som er i risiko for å falle.

Den nye tjenesten innebærer at det sendes en fallmelding fra skadelegevakten med sjekklister til fastleger og hjemmetjenestene i bydelene. Målet er å standardisere og effektivisere fallforebyggende utredning og oppfølging, og med det redusere risikoene for nye fall.

Det er ønskelig å undersøke hvordan fallforebygging skjer i bydelene. Det er derfor satt i gang en evaluering av arbeidet med fallforebygging. Den delen av evalueringen som omfattes av dette spørreskjemaet, går til et utvalg medarbeidere som utfører helsetjenester i hjemmet. Det tar 8-12 minutter å fylle ut skjemaet. Dataene som samles inn vil benyttes i evalueringen og forbedring av det fall- og bruddforebyggende pasientforløpet.

Som en del av evalueringen vil studenter ved Universitetet i Oslo (UiO) også benytte materialet i arbeidet med sine masteroppgaver.

Hvem er ansvarlig for forskningsprosjektet?

Ansvarlig for pilotprosjektet som evalueres, er Oslo kommune, Helseetaten v/Gro Idland (telefon 99032449, e- post: gro.idland@hel.oslo.kommune.no). Ansvarlig for denne delen av evalueringen er Universitetet i Oslo v/Terje P. Hagen (telefon 97564771, e-post: t.p.hagen@medisin.uio.no).

Hvorfor får du spørsmål om å delta?

Som en del av undersøkelsen er det trukket et tilfeldig utvalg ansatte fra Oslos bydeler. Informasjon om din e-postadresse er skaffet til veie av Oslo kommune ved din bydel.

Hva innebærer det for deg å delta?

Gjennom spørreundersøkelsen samler vi inn data om måten det fallforebyggende arbeidet skjer på. Innsamlingen skjer ved elektronisk spørreskjema (nettskjema). Vi registrerer enkelte opplysninger om din bakgrunn, men ikke personlige opplysninger om deg eller pasientene. Dataene som samles inn blir bare benyttet til en forskningsmessig evaluering av forsøket.

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket om deltakelse tilbake uten å oppgi noen grunn. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

UiO behandler opplysningene som samles inn konfidensielt og i samsvar med pesonvernreglementet. Dataene som samles inn blir lagret på en sikker server og blir kun tilgjengelig for de ved UiO som arbeider på prosjektet. Oslo kommune vil kun få tilgang til resultatene fra analysene og ikke data fra enkeltpersoner.

Når UiO behandler data så blir ditt navn og dine kontaktopplysninger erstattet med en kode. Koblingen mellom navn og kode oppbevares adskilt fra selve dataene og vil bli slettet ved prosjektslutt.

1. I hvilken bydel arbeider du? Dersom du har stillinger i flere bydeler, velg den bydelen der du har høyest stillingsandel. *

- [ ] Alna
- [ ] Bjerke
- [ ] Frogner
- [ ] Gamle Oslo

https://nettskjema.no/userform/preview.html?id=180112#/ 1/5

- [ ] Grorud
- [ ] Grünerløkka
- [ ] Nordre Aker
- [ ] Nordstrand
- [ ] Sagene
- [ ] St. Hanshaugen
- [ ] Stovner
- [ ] Søndre Nordstrand
- [ ] Ullern
- [ ] Vestre Aker
- [ ] Østensjø

2. Hvilken yrkesgruppe tilhører du?

- [ ] Fysioterapeut
- [ ] Ergoterapeut
- [ ] Vernepleier
- [ ] Sykepleier
- [ ] Helsefagarbeider
- [ ] Annet

3. I hvor mange år har du samlet sett arbeidet i hjemmetjenestene?

- [ ] Mindre enn 3 år
- [ ] 3-10 år
- [ ] Mer enn 10 år

4. I hvor mange år har du arbeidet i bydelen der du nå er ansatt?

- [ ] Mindre enn 3 år
- [ ] 3 - 10 år
- [ ] Mer enn 10 år

5. Hvor stor stillingsbrøk har du? Sett ett kryss.

- [ ] Mindre enn 20 prosent stilling
- [ ] Mellom 20 og 50 prosent stilling
- [ ] Mellom 50 og 80 prosent stilling
- [ ] Mer enn 80 prosent stilling

6. Kjenner du til om bydelen i løpet av 2019 og 2020 har mottatt fallmeldinger fra Skadelegevakten?

- [ ] Ja
- [ ] Nei

6b. Hvis ja på forrige spørsmål, anslagsvis hvor mange fallmeldinger ble du samlet sett involvert i 2019 og 2020?

7. Foreligger det rutiner for oppfølging av fallmeldinger/ personer med høy fallrisiko i din bydel?

- [ ] Ja
- [ ] Nei
- [ ] Vet ikke

8. Det er utarbeidet en sjekkliste som kan benyttes tverrfaglig for oppfølging av personer med høy fallrisiko. Vi er interessert i din vurdering av nytteverdien av sjekklista.

- [ ] Jeg kan ikke huske å ha sett en sjekkliste
- [ ] Jeg har sett sjekklista, men ikke benyttet den
- [ ] Jeg har benyttet sjekklista og betrakter den som et godt virkemiddel
- [ ] Jeg har benyttet sjekklista og mener den har mangler

8b. Hvis du mener sjekklista har mangler, hva kan eventuelt forbedres?

9. Anslagsvis hvor mange brukere har du benyttet sjekklisten på i 2019 og 2020?

10. Hvor ofte fører kartleggingen til konkrete tiltak for bruker?

- [ ] Sjelden eller aldri
- [ ] I noen tilfeller
- [ ] Ganske ofte
- [ ] Svært ofte eller alle tilfeller

11. I hvilken grad har du fått opplæring i kartlegging av fallrisiko?

- [ ] I liten eller ingen grad
- [ ] I noen grad
- [ ] I høy grad
- [ ] I svært høy grad

12. Er du kjent med fallforebyggende treningstilbud som du kan henvise brukerne til?

- [ ] Ja
- [ ] Nei

13. Varsler du eller din bydel pasientens fastlege dersom det er behov for medisinsk-faglig fallutredning?

- [ ] Ja
- [ ] Nei

13b. Hvis ja på spørsmål 13, anslagsvis hvor stor prosentandel av pasienter med fallrisiko gjelder dette?

14. Mottar du som medarbeider systematisk informasjon fra pasientens fastlege om pasienter som har behov for fallforebyggende hjemmebesøk?

- [ ] Ja
- [ ] Nei

15. Hvor ofte etterspør din leder utredning av brukere som er definert med fallrisiko?

- [ ] Sjelden eller aldri
- [ ] Nokså ofte
- [ ] Ganske ofte
- [ ] Svært ofte eller alltid

16. Hva mener du kan være viktige grep som Oslo kommune kan ta for å bedre det fallforebyggende tilbudet til eldre personer?