

# A Tool to Ensure Appropriate Drug Use and Maintain Patient Safety When Administering Pro Re Nata Medications: Healthcare Providers' Experiences With Medicine Lists in Sheltered Housing for Older People

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**Abstract:** Residents living in sheltered housing may need assistance with the administration of medications, including medications used as needed. Healthcare providers can then administer medications based on the resident's medication list. The aim of this study is to expand our understanding of how healthcare providers utilize medication lists in managing pro re nata medications. Based on a secondary analysis of qualitative data, we found that medication lists are important tools to ensure appropriate medication use, and to maintain patient safety in sheltered housing. The results show that the interviewees expected updated and unambiguous medication lists in order to safeguard uniform practice, and maintain confidence in the administration of pro re nata medications. However, they often experienced ambiguous medication lists, putting a strain on quality of care. To manage updated medication lists and provide safe administration of pro re nata medications, the

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interviewees asked for closer collaboration with general practitioners, in which case medication reviews could be a solution.

**Keywords:** Residential care facilities, as-needed medication, aged, medicine list, Norway

The aim of this chapter is to expand our understanding of how healthcare providers utilize medication lists in medication management, focusing on managing *pro re nata* medications. Medications used as needed, also referred to as *pro re nata* medications (PRNMs), are given as a response to symptom(s) that occur, without the need for regular medication. In long-term care services these medications are given based on healthcare providers' professional judgment (Stokes et al., 2004). Residents living in residential aged care services have on average four PRNMs on their lists (Lenander et al., 2018; Stasinopoulos et al., 2018), however, the use of PRNMs varies (Stokes et al., 2004). A variety of different PRNMs seems to be included on the medication lists of many sheltered housing patients, while those used the most are mild painkillers and laxatives (Stasinopoulos et al., 2018).

When living in residential aged care services some residents get help with their medication management. Healthcare providers then have the responsibility to ensure correct treatment. Medication management is the process involving judging the patient's situation and need for medication, including all steps from prescribing to administration and evaluation of use (Regulations on medication management for services and health professionals providing healthcare, 2008). Studies show that the healthcare provider's role is significant in terms of PRNM management (Murray, 2017; Rønningen et al., 2013). Registered nurses have the overall responsibility for medication management in sheltered housing, however, the task may be delegated to other healthcare providers, such as nursing assistants. The head of the unit is responsible for delegating medication administration, and for verifying that providers have the competence required to carry this out (Regulations on medication management for services and health professionals providing health care, 2008).

Sheltered housing is part of long-term residential care for older people in Norway; by law the residents live in their own apartment and health-care is provided by home healthcare (Daatland et al., 2015; The act on municipal health care services, 2011). In Norway, general practitioners (GPs) are responsible for providing general healthcare for the sheltered-housing residents including prescribing medications. The GPs are by law (Regulations of general practitioners in the municipalities, 2012) entitled to keep an updated medication list available at all times to the health-care providers at the sheltered housing. The GPs are seldom colocated at the sheltered housing, and one location might communicate with several GPs, depending on which GP follows up each resident. Healthcare providers are not allowed to administer medications that are not on the medication list (Regulations on medication management for services and health professionals providing healthcare, 2008).

Inappropriate polypharmacy is a major public health challenge, and a threat to patient safety. Older people living in sheltered housing are particularly at risk (Davies & O'mahony, 2015; Payne & Avery, 2011; World Health Organization, 2019). Polypharmacy generates the use of PRNMs (Dörks et al., 2016; Stasinopoulos et al., 2018), however, PRNMs may not significantly increase the medication burden (Stasinopoulos et al., 2018). Drug-related problems (DRP), such as side effects, inappropriate use, and errors are threats to patient safety, and may reduce quality of life, cause morbidity, death, and increase healthcare costs (World Health Organization, 2017). Inadequate medication lists are an obstruction to safe medication management (Tariq et al., 2013), especially when patients are transferred between levels of care, when medication lists are of utmost importance in ensuring appropriate medication use and maintaining patient safety (Manskow & Kristiansen, 2021). The current systems in Norway for maintaining medication lists are perceived as fragmented, complex, risky, time-consuming, and causing uncertainty (Manskow & Kristiansen, 2021). Lack of communication and information flow across levels of healthcare, in relation to medications in use, causes medical errors (Frydenberg & Brekke, 2012; Manskow & Kristiansen, 2021). A patient's current medication list can potentially affect medication safety and quality of care when the information is not correct (Berland & Bentsen, 2017;

Devik et al., 2018; Manskow & Kristiansen, 2021). In addition, safety issues and adverse events are shown to be under-recognized for PRNMs, according to a systematic review (Vaismoradi et al., 2018)

The importance of medication lists in medication management led to this study with the aim of expanding knowledge on how healthcare providers utilize medication lists in medication management. The following research question guided the study: What are the experiences of healthcare providers regarding medication lists in sheltered housing for older people, when administering pro re nata medications?

## Methods

This chapter is based on a secondary analysis of qualitative data (Heaton, 2008; Ruggiano & Perry, 2019). Data were collected from two studies focusing on pro re nata decision making, by using focus groups or individual in-depth interviews, respectively (Nilsen et al., 2020, 2021). The first author conducted the two primary studies, and is well acquainted with the data material and the data gathering context.

The focus group study aimed to describe factors affecting PRNM management in sheltered housing, while the individual in-depth study aimed to expand knowledge on healthcare providers' experiences relating to decision making for PRNMs. All interviewees were licensed to administer PRNMs. The sample is described in Table 1.

A secondary analysis used existing data collected for a previous study, analyzed to explore new questions (Heaton, 2008; Ruggiano & Perry, 2019). The approach used in this article was to analyze data from the parent study that appeared crucial, and which were not sufficiently focused on in the original articles (Ruggiano & Perry, 2019). An amplified analysis in which the two datasets were combined for purposes of secondary analysis was used (Heaton, 2008). The focus of the secondary analysis was to explore healthcare providers' experiences related to the residents' medication lists.

The secondary analysis was performed by using systematic text condensation (Malterud, 2012). This is an iterative four-step process, searching for similarities and differences in the data material. In the first step,

**Table 1.** The Sample: Interviewees' Characteristics

	<b>Focus group study</b>	<b>In-depth interview study</b>
Context	5 interviews 5 sheltered housing 4 different municipalities (mid Norway)	8 interviews 5 sheltered housing 5 different municipalities (mid Norway and east Norway)
Number of interviewees	22 (3-6 in each group)	8
Gender	Female n = 22 Male n = 0	Female n = 8 Male n = 0
Education	Registered nurse n = 11 Social educator n = 1 Nurse assistant n = 8 Apprentice in health and social work n = 2	Registered nurse n = 4 Nurse assistant n = 4
Average years of work experience as healthcare provider (min-max)	14,3 (1-32)	17,5 (2-30)
Average number of years employed in this housing (min-max)	10,5 (1-30)	12,9 (1-22)
Number of residents in the sheltered housing	15-35	10-60

both authors read the transcripts, and preliminary themes were identified and discussed. Secondly, the transcripts were coded according to these themes by identifying units of meaning, and the main themes were adjusted. In the third step, the units of meaning were arranged into sub-themes, and a condensate was made of each theme and subtheme. In the last step, an analytic text was synthesized based on the condensates of each theme and subtheme.

Both authors frequently discussed the steps to ensure the interpretation of our findings. Disagreements were discussed until agreement was reached. Throughout the whole process the authors returned to the transcripts to make sure their analysis was in line with the whole. The authors are pharmacists with supplementary experience. Both have experience with qualitative methods, and work experience from pharmacies and universities. Additionally, the second author is presently working as a municipal pharmacist. The authors have no clinical experience from sheltered housing.

## Ethical Considerations

Ethical issues have been raised surrounding the use of secondary analysis (Heaton, 2008; Ruggiano & Perry, 2019). These issues relate particularly to obtaining informed consent from interviewees for retaining data, sharing data, and re-using data for another purpose than the original one. Written consent and approval from the Norwegian Centre for Research Data (NSD) [reference 57803] were collected for both of the primary interview studies. New consent or approval for this secondary analysis was not obtained. This could be considered to be a limitation. The strength of a secondary analysis is, on the other hand, that it relieves the burden for interviewees, and heads of units who collaborated with us, to identify, access, and recruit research participants. The research question guiding this secondary analysis is close to the original studies' research questions.

## Results

The analysis showed that healthcare providers experience the resident's medication list as a tool for ensuring appropriate medication use, and for maintaining proper patient safety, but also to help them feel confident in their actions when managing medications. An updated list was perceived as essential to safeguard uniform practice, and when communicating with other healthcare personnel and residents. However, encountering outdated and unrevised medication lists was common. In these situations, healthcare providers had to rely on their experience and thorough knowledge of the resident to guarantee appropriate medication use. To be able to maintain proper patient safety when handling incorrect lists, the healthcare providers said they requested medication reviews. There appear to be differences between different sheltered housing locations regarding how updated the lists are, and how healthcare providers collaborate with the prescriber, revealing how well the list works as a tool for the healthcare provider. The analysis identified the medication lists functioning as a tool for the healthcare provider within two main themes, with two subthemes, respectively, as shown in Table 2.

**Table 2.** Overview of Results: Main Theme, Themes and Subthemes

Main theme	Theme	Subtheme
Resident's medication list as a tool	Tool to ensure appropriate medication use	Ensure uniform practice
		Communication tool
	Tool to maintain patient safety	Influence distribution of responsibility
		Initiator of medication reviews

## Tool to Ensure Appropriate Medication Use

The medication list is actively used as a tool in everyday practice, because it provides the basis for the scope of the healthcare worker's practice. A reconciled medication list with unambiguous PRNMs was said to safeguard more uniform practice, since it limited the available options. Lists containing several PRNMs, especially with the same indication (e.g., pain), could create insecurity and thus differences in practice. The interviewees were skeptical to medication lists left unchanged for several years, and also to when new medications were added without old ones being removed. They also spoke of PRNMs not being removed when the indication was no longer present, influencing their professional judgement. "The lists contain pro re nata medications they no longer use ... Maybe we do not always assess whether to administer or not. They just get it." (Interview (I) A, registered nurse)

When facing complex and ambiguous medication lists, assessing the resident was more demanding, and therefore susceptible to variations related to persons and resources. In contrast, some interviewees followed the medication list strictly, and thus always administered the PRNM when asked. The argument given was that the GP had assessed a need, and it was not within the healthcare provider's scope to question this decision.

In addition to thorough knowledge of the resident, confidence, competence and experience were mentioned as necessary skills when dealing with medication lists of uncertain validity. This was particularly the case when the resident was cognitively impaired or struggling to communicate. The interviewees therefore questioned whether appropriate medication therapy could be performed when residents with ambiguous

medication lists were handed over to new employees or temporary staff. The majority of the interviewees emphasized the importance of not interpreting the medication list literally, but of actively using their observational and medication knowledge skills in guiding their decisions when navigating in this arena. One example was a resident who had been prescribed both a laxative and an anti-diarrhea medication as PRNM. Here proper competence was decisive in ensuring appropriate medication use. “We do have residents prescribed both Lactulose and Imodium as pro re nata (laughter), and who were administered both simultaneously.” (Focus group (FG) A person (P) 6, nurse assistant)

The medication list was also used as a starting point for dialogue and communication when interacting with the resident, their next of kin, or between healthcare providers or other healthcare professionals. Knowing that the medication list was updated and in line with the resident’s need was important to ensure confident reasoning. The interviewees spoke of residents who knew very well which medicines they were prescribed, and therefore perceived themselves as entitled to have them administered when requested. These could be elderly residents able to consent, yet with a predominance of psychiatric or addiction issues. These situations were described as challenging.

You have to assess ... your own security ... when handling, for example, drug addicts who can act unrestrained, those who are demanding. You do not fight or wage war or sacrifice your health for a blister card of oxazepam. Then you open the lock and say, “Here you are, go home and enjoy”, even though you know you shouldn’t. (FGE P1, registered nurse)

Residents who are eloquent and able to consent, who plead their right to be administered their PRNMs, were difficult to argue against when the medication in question was on the list. In these situations, the healthcare provider may doubt what the GP had communicated to the resident, and whether this deviated from what had been communicated to them. They also experienced an expectation by some residents to receive PRNMs every day at fixed times. In these situations, they used the medication list in discussion with the resident in order to explain the rationale behind PRNMs. However, in the aftermath of such a discussion, if the resident



no longer requested the medication in question, they wondered whether the resident had not dared to ask for it. The interviewees were conscious of their position and appurtenant power, and therefore articulated a fear that a resident might repress a request despite having a need.

We have had situations where the resident has been at war with us because of a tranquilizer, especially one person rang the alarm constantly and demanded medication ... Such discussions can be intense. (FGC P1, registered nurse)

## Tool to Maintain Patient Safety

An ambiguous medication list was perceived as an assurance for both resident and healthcare provider. The healthcare providers expressed concern as to whether the GPs had full control over their patients' medication lists, since they often experienced GPs not following up their responsibilities. Therefore, they said they had to step up beyond their legal liability, and take responsibility for the lists' validity, creating a shift in responsibility between nurse and GP. The majority of the interviewees said that following up the medication lists was the responsibility of the GP, however, there were nurses who claimed their profession also possessed a certain responsibility through their knowledge of the patient and their needs. "It's kind of our responsibility also if the medication list is very long.... I think it is the general practitioner's responsibility." (FGB P2, registered nurse, and P3 nursing assistants, in discussion) The GP seldom knew the resident as well as the healthcare providers. The nurses therefore often took the initiative and contacted the GP to cease medications that were never used, and in this way contributed to validating the list. This also included switching medications from regular to pro re nata, and vice versa.

The interviewees also substantiated their skepticism to the list's content by pointing out that the resident had used the same medication in the same dose for several years. Through their knowledge of the resident, they questioned whether the medical indication was still relevant.

The nurses also experienced variations in interest when contacting the GP about medication lists. Some of them were described as closing their ears, forcing the healthcare providers to use their own judgement

navigating through unambiguous medication lists. Others experienced the GP as asking for advice, giving the impression of wanting the nurses to decide. The interviewees understood to some extent the GPs' struggle to stay updated, since they were aware that different journal systems in primary and secondary care do not communicate.

Despite the urge to cease medications without indications, the interviewees admitted to not always being very eager to remove medications from the list. One interviewee said they were reluctant to remove strong pain killers from the list in case the resident once again suffered severe pain and a prescriber was not available. They justified this choice by the fact that GPs are often inaccessible, and they were confident that the resident would tolerate the medication due to prior use.

I often think that if they use something strong, I am sure it is wrong, but that it is ok that it is on the list in case something happens. ... so for example, someone breaks an arm or something, ... I then let it be on the list, even though the arm is healed ... It should be removed, I know that." (FGC P1, registered nurse)

"Regular medication reviews are important to improve patient safety." This was stated by many of the interviewees, since reviews ensured that medication lists could be trusted, and contained only medications the resident really needed. The number of GPs the healthcare providers in the different sheltered housing locations had to relate to varied greatly. In some municipalities, there was even a shortage of GPs. How close each GP followed up their patients also varied. There were units that had regular meetings with the GPs. This direct contact led to healthcare providers feeling confident in the medication list being updated and in line with the resident's needs.

It's really good that we have started with the annual report and doctor's rounds. ... We take blood samples in advance and perform a real check. Then the general practitioner can assess whether these are the right medications. It is a reassurance, both for us and the resident. (IF, registered nurse)

To have such a doctor's round was, however, the exception. The main rule was to be forced to communicate with the GP through e-messages or phone, something that could be frustrating, since they were not able to

discuss the resident's consecutive needs to the same extent. They felt they had to wait patiently for an answer, if it came at all.

Many of the interviewees expressed a desire for regular medication reviews. Those who experienced regular drug reviews claimed it was economical, and did not take much time. They perceived the GPs to be of the same opinion, and therefore appreciated this follow-up of their patient.

Medication reviews are important I have to say ... because there are many who are listed with an awful lot of medicines ... They have reduced the number of medications. They now use what they need and nothing else. (IC, registered nurse)

## Discussion

PRNM prescriptions and administration may increase efficiency of care since they allow frequent and intermittent medicine use, without having to contact the prescriber for new prescriptions. Nurses' involvement in decision making and patient care may therefore increase (Haw & Wolstencroft, 2014). The premise for optimal use of PRNM is, however, that prescriptions must be monitored continually to ensure appropriate medication use (Barr et al., 2018). The main results from this study show that reality may not agree with the premise. Medication lists are important tools for the healthcare provider, ensuring appropriate medication use and maintaining proper patient safety. The interviewees in this study expected updated and unambiguous medication lists, contributing to uniform practice and improving confidence when communicating with residents, next-of kin, or colleagues about the administration of PRNM. However, the nurses more often experience ambiguous medication lists, which result in a perceived shift in the distribution of responsibility between nurses and GPs, resulting in nurses requesting regular medication reviews.

## Quality of Care Under Pressure

Our findings present evidence for quality of care being put under pressure when medication lists are not continually monitored, creating insecurity

among healthcare providers, and also affecting patient safety. Ambiguous and unrevised drug lists lead to non-uniform practice, which depends too much upon each healthcare provider's experience and competence, in addition to their knowledge of the patient, also known as relational continuity (Haggerty et al., 2013). This is in line with a systematic review on patient safety and PRNM prescriptions and administration, which indicated that safety issues and adverse events were under-recognized for PRN administration and prescription (Vaismoradi et al., 2018). PRNM widens the healthcare provider's scope, and increases their involvement in decision making (Haw & Wolstencroft, 2014). However, when these issues are not dealt with, insecurity results. In this insecure situation, healthcare providers were found to regard their responsibilities being stretched beyond their legal liability.

Our interviewees worried about safe practice when managing PRNMs from incorrect and outdated medication lists. Medication management consists of several steps, and medication errors can occur at each step (Carayon et al., 2006; Odberg et al., 2019). The importance of updated and correct medication lists for patient safety is emphasized in patient safety programs (The Norwegian Directorate of Health, 2020; World Health Organization, 2017). Medication lists are known to be important tools to ensure appropriate medication use and maintain patient safety when patients are transferred between healthcare services levels (Manskow & Kristiansen, 2021). Here inadequate medication lists are an obstruction to safe medication management (Tariq et al., 2013). Our findings show that even for patients not being transferred between levels of care, the nurses' uncertainty affects their ability to provide safe practice, and is also perceived as a threat to patient safety. This is because insufficient information causes stress and risky workarounds with a perceived risk of errors (Manskow & Kristiansen, 2021). Our study shows, however, that correct medication lists are also of utmost importance as a tool for healthcare providers in everyday care in the unit. To achieve appropriate medication treatment, access to the required information when needed is essential. Obstacles to safe practice and the risks to patient safety when medication lists not are updated are also known from other studies (Lindblad et al., 2017; Manskow & Kristiansen, 2021).

Our study indicates that the medication list was the basis for communication with the resident when assessing the need for PRNM. The interviewees mentioned residents who knew very well which medicines they were on, and when managing PRNM for this group, they felt more confident reasoning with them if they had updated lists. Patients use medication lists as a communicative device (Seidling et al., 2019), and patients are an important source of information about medications actually in use (Kim et al., 2018). In patient-centered care, involving the resident in decision making is central, and if the resident is able to communicate, the list could be a starting point for discussing why and which PRNM to use. Patients' right to be involved in decision making is essential in today's healthcare services, and should be positive for patient safety (Longtin et al., 2010; World Health Organization, 2017). Patients, involved in shared decision making, state that they are more satisfied with decisions and experience fewer conflicts, even when there is no evidence that shared decision making correlates with patient safety (Shay & Lafata, 2015). Our results show, however, that this is challenging in practice, such as when patients' demands are in conflict with the nurses' professional views. This was the case particularly when patients requested PRNM at a set time every day, and the nurses ended up discussing the concept of PRNM with the patient. A uniform medication list, containing only those medications thought to be in line with the patient's needs, could then help to avoid such situations. This practice was, however, not uniform, since there were interviewees who claimed it was not their task to assess whether to give medicine or not. The concept of PRNM indicates that the GP has already verified the patient's need for the medicine. When residents have the cognitive capacity to communicate about their medication use, they will be able to correct a medication list if healthcare providers discuss this matter with them. On the other hand, when healthcare providers must make decisions solely based on the list, an updated list becomes even more important.

The healthcare providers have a crucial role when it comes to making PRNM decisions (Murray, 2017; Rønningen et al., 2013). If medication lists consist of several medications that have allegedly stopped, the healthcare provider's judgement requires more competence. Medication

management will then not be straightforward, and the risk of medication errors increases. Systems independent of the individual healthcare provider are therefore important in avoiding errors, and are important for secure medication management (Kohn et al., 2000; Reason, 2000).

## Collaboration With the General Practitioner

Updated medication lists were perceived to be important in maintaining adequate patient safety. The distribution of responsibility between the GP and the nurse was said to be affected when the lists were not reconciliated, that is perceived as not in line with the resident's needs. In order to solve these challenges, the healthcare providers wished to establish closer collaboration with the GP. A regular systematic follow-up including the GP, such as a medication review, was therefore preferred by the healthcare providers.

Interviewees in this study experienced GPs as not following up their responsibilities, forcing the healthcare providers to step up and take more responsibility for the medication list. Going beyond their responsibilities in medication management in order to cope in everyday work life has also been found in other studies (Devik et al., 2021; Odberg et al., 2019). Studies involving physicians have found that they regard themselves as responsible for the medication list, but how they perceive this responsibility varies (Hammar et al., 2014; Rahmner et al., 2010).

How close the GP followed up their patients varied in our study, from those interviewees experiencing doctors' rounds, to those being forced to communicate with the GP through e-messages or phonecalls and patiently having to wait for an answer. In Norway, interprofessional medication reviews are not fully established in primary care. Since 2013 the legislation for GPs states that for patients prescribed four or more drugs, the GP should perform medication reviews, if this is perceived as necessary from a medical point of view (Regulations on general practitioners in the municipalities, 2012). However, this requires that the GP either regularly meets with the patient, or accepts clinical input from other healthcare personnel, which was desired by our interviewees. Even though the nurses in our study requested medication reviews, they

experienced being without power to initiate them. This echoes a recent qualitative study of nurses' experiences, which showed that nurses felt they have the knowledge and will to participate in interprofessional medication reviews (IMRs), but little authority (Devik et al., 2021). In that study the nurses' knowledge and good intentions for improvement met resistance in interprofessional collaboration, especially from physicians, resulting in the nurses perceiving their role as lonely and without authority. They perceived their own professional and moral responsibility to be overridden by the physicians, who expressed the nurses' initiatives for IMR as interfering with the physicians' tasks. The nurses in our study, however, did not express an explicit wish to participate in the medication review, as much as they just wanted it done. Those who experienced close collaboration with GPs viewed the collaboration as economical and not taking much time. There were, however, organizational differences between the sheltered housing locations represented in this study, where some had to relate to several GPs, complicating the issue. Studies of healthcare services in sheltered housing are rare (Melby et al., 2019). Studies from nursing homes show that a physician who is well integrated in the nursing home has a great impact on the healthcare service, and is a support for other healthcare providers (Melby et al., 2019). Having a physician allocated to the sheltered housing, like in nursing homes, may ease the healthcare provider's burden following up medication use in sheltered housing.

The interviewees felt it was time-consuming and exhausting to navigate without a correct medication list. Medication reconciliation and medication reviews were therefore believed to be important both to improve patient safety and ease their own workday. The literature shows several reasons why medication reconciliation should be prioritized, in line with some of our findings (Rose et al., 2017), such as, a substantial potential to improve patient outcomes, avert crises and readmissions, in addition to initiating deprescribing. IMR are shown to reduce drug-related problems and improve quality of prescribing in primary healthcare (Modig et al., 2016). When new medications are added to the list, and there is never a review, the result is confusing lists. Moreover, the longer residents live in sheltered housing the more PRNMs they will supposedly

get (Dörks et al., 2016). This highlights the importance of updated medication lists to maintain safe everyday practice.

There are, however, no rules without an exception. To make everyday work as feasible as possible, the nurses admitted to not always taking their time to nag the prescriber to update the medication list. They spoke of using medications, which supposedly should have been removed from the drug list, for new indications, which they did reflect upon as being a potential threat to patient safety. When drug lists were not updated, it was possible to use medications without consulting the GP. They justified this practice with the knowledge that the resident previously tolerated the drug in question. However, they did not reflect on this practice in terms of the possibility that the resident's health may have changed since last time, or the risk of drug-drug or drug-disease interaction. Another study, from Norwegian nursing homes, also found that deviation from guidelines in medication management was a conscious choice, adjusting the practice to fit the circumstances (Solberg et al., 2022).

## Conclusion

Healthcare providers in this study experience drug lists to be important for daily practice. The lists are used as tools to maintain appropriate drug use and maintain patient safety when administrating PRNMs in sheltered housing. Several of the healthcare providers experience today's practice as being put under pressure to achieve the goal of safe management of PRNMs. The interviewees in this study want closer collaboration with the GP to cope with their experienced challenges, such as systematic medication reviews. Medication reviews could contribute to updated medicine lists, and at the same time contribute to closer collaboration between healthcare providers in sheltered housing and the GP.

## Implications

Based upon the findings in this study, there is a need to connect the GP closer to the sheltered housing to ensure that medication lists work as appropriate tools for healthcare providers. At present, legislation is an



obstacle. However, the authorities need to consider whether sheltered housing should follow the same legislation as nursing homes, where one prescriber is responsible for all residents. In addition, systematic inter-professional medication reviews are resource intensive. We therefore suggest a division of labor, in which nurses in sheltered housing take the responsibility to identify candidates for medication review, based upon their knowledge of the resident, and an updated assessment of the resident's clinical status. The nurses choose residents for whom they perceive the medication list does not operate as an appropriate tool, and substantiate their choice through a comprehensive geriatric assessment of the resident. A request for medication review could then be communicated to the GP, who thereafter is responsible for arranging a medication review together with the nurse.

## References

- Barr, L., Wynaden, D., & Heslop, K. (2018). Nurses' attitudes towards the use of PRN psychotropic medications in acute and forensic mental health settings. *International Journal of Mental Health Nursing*, 27(1), 168–177. <https://doi.org/10.1111/inm.12306>
- Berland, A., & Bentsen, S. B. (2017). Medication errors in home care: A qualitative focus group study. *Journal of Clinical Nursing*, 26(21–22), 3734–3741. <https://doi.org/10.1111/jocn.13745>
- Carayon, P., Hundt, A. S., Karsh, B., Gurses, A. P., Alvarado, C., Smith, M., & Brennan, P. F. (2006). Work system design for patient safety: The SEIPS model. *BMJ Quality & Safety*, 15, i50–i58. <https://doi.org/10.1136/qshc.2005.015842>
- Davies, E., & O'mahony, M. (2015). Adverse drug reactions in special populations: The elderly. *British Journal of Clinical Pharmacology*, 80(4), 796–807. <https://doi.org/10.1111/bcp.12596>
- Devik, S. A., Alteren, J., & Olsen, R. M. (2021). Kunnskap og vilje, men uten myndighet? [Knowledge and will, but no authority?]. In M. Hedlund, K. Ingstad, & A. Moe (Eds.), *God hels: Kunnskap for framtidens kommunehelsetjeneste* [Good health: Knowledge for future primary healthcare] (pp. 45–67). <https://doi.org/10.18261/9788215042985-2021-03>
- Devik, S. A., Olsen, R. M., Fiskvik, I. L., Halbostad, T., Lassen, T., Kuzina, N., & Enmarker, I. (2018). Variations in drug-related problems detected by multidisciplinary teams in Norwegian nursing homes and home nursing care. *Scandinavian Journal of Primary Health Care*, 36(3), 291–299. <https://doi.org/10.1080/02813432.2018.1499581>

- Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To err is human: Building a safer health system*. National Academy Press.
- Dörks, M., Schmiemann, G., & Hoffmann, F. (2016). Pro re nata (as needed) medication in nursing homes: The longer you stay, the more you get? *European Journal of Clinical Pharmacology*, 72(8), 995–1001. <https://doi.org/10.1007/s00228-016-2059-4>
- Daatland, S. O., Høyland, K., & Otnes, B. (2015). Scandinavian contrasts and Norwegian variations in special housing for older people. *Journal of Housing for the Elderly*, 29(1–2), 180–196. <https://doi.org/10.1080/02763893.2015.989778>
- Frydenberg, K., & Brekke, M. (2012). Poor communication on patients' medication across health care levels leads to potentially harmful medication errors. *Scandinavian Journal of Primary Health Care*, 30(4), 234–240. <https://doi.org/10.3109/02813432.2012.712021>
- Haggerty, J. L., Roberge, D., Freeman, G. K., & Beaulieu, C. (2013). Experienced continuity of care when patients see multiple clinicians: A qualitative metasummary. *The Annals of Family Medicine*, 11(3), 262–271. <https://doi.org/10.1370/afm.1499>
- Hammar, T., Ekedahl, A., & Petersson, G. (2014). Implementation of a shared medication list: Physicians' views on availability, accuracy and confidentiality. *International Journal of Clinical Pharmacy*, 36(5), 933–942. <https://doi.org/10.1007/s11096-014-0012-0>
- Haw, C., & Wolstencroft, L. (2014). A study of the prescription and administration of sedative PRN medication to older adults at a secure hospital. *International Psychogeriatrics*, 26(6), 943–951. <https://doi.org/10.1017/S1041610214000179>
- Heaton, J. (2008). Secondary analysis of qualitative data: An overview. *Historical Social Research/Historische Sozialforschung*, 33(3(125)), 33–45. <https://www.jstor.org/stable/20762299>
- Helsedirektoratet [The Norwegian Directorate of Health]. (2020). *I trygge hender 24/7* [In safe hands]. <https://pasientsikkerhetsprogrammet.no/>
- Kim, J. M., Suarez-Cuervo, C., Berger, Z., Lee, J., Gayleard, J., Rosenberg, C., Nagy, N., Weeks, K., & Dy, S. (2018). Evaluation of patient and family engagement strategies to improve medication safety. *The Patient: Patient-Centered Outcomes Research*, 11(2), 193–206. <https://doi.org/10.1007/s40271-017-0270-8>
- Lenander, C., Bondesson, Å., Viberg, N., Beckman, A., & Midlöv, P. J. B. (2018). Effects of medication reviews on use of potentially inappropriate medications in elderly patients: A cross-sectional study in Swedish primary care. *BMC Health Services Research* 18(1), 616. <https://doi.org/10.1186/s12913-018-3425-y>
- Lindblad, M., Flink, M., & Ekstedt, M. (2017). Safe medication management in specialized home healthcare: An observational study. *BMC Health Services Research*, 17(1), 1–8. <https://doi.org/10.1186/s12913-017-2556-x>

- Longtin, Y., Sax, H., Leape, L. L., Sheridan, S. E., Donaldson, L., & Pittet, D. (2010). Patient participation: Current knowledge and applicability to patient safety. *Mayo Clinic Proceedings* 85(1), 53–62. <https://doi.org/10.4065/mcp.2009.0248>
- Lovdata (2008). *Forskrift om legemiddelhåndtering for virksomheter og helsepersonell som yter helsehjelp*. [Regulations on medication management for services and health professionals providing healthcare]. (FOR-2008-04-03-320). <https://lovdata.no/forskrift/2008-04-03-320>
- Lovdata (2011). *Helse- og omsorgstjenesteloven. Lov om kommunale helse- og omsorgstjenester m.m.* [The act on municipal healthcare services] LOV-2011-06-24-30; 2011. <https://lovdata.no/dokument/NL/lov/2011-06-24-30>
- Lovdata (2012). *Forskrift om fastlegeordning i kommunene* [Regulations on general practitioners in the municipalities]. FOR-2012-08-29-842; <https://lovdata.no/dokument/SF/forskrift/2012-08-29-842>
- Malterud, K. (2012). Systematic text condensation: A strategy for qualitative analysis. *Scandinavian Journal of Public Health*, 40(8), 795–805. <https://doi.org/10.1177/1403494812465030>
- Manskow, U. S., & Kristiansen, T. T. (2021). Challenges faced by health professionals in obtaining correct medication information in the absence of a shared digital medication list. *Pharmacy*, 9(1), 46. <https://doi.org/10.3390/pharmacy9010046>
- Melby, L., Ågotnes, G., Ambugo, E. A., & Førland, O. (2019). *Kartlegging av medisinsk faglig tilbud i sykehjem og heldøgns omsorgsboliger* [Mapping of medical services in nursing homes and sheltered housing] (Vol. 3). Senter for omsorgsforskning: Rapportserie. Retrieved from [https://ntnuopen.ntnu.no/ntnuxmlui/bitstream/handle/11250/2596428/Rapport%2003\\_19\\_webFinal.pdf?sequence=1&isAllowed=y](https://ntnuopen.ntnu.no/ntnuxmlui/bitstream/handle/11250/2596428/Rapport%2003_19_webFinal.pdf?sequence=1&isAllowed=y)
- Modig, S., Holmdahl, L., & Bondesson, Å. (2016). Medication reviews in primary care in Sweden: Importance of clinical pharmacists' recommendations on drug-related problems. *International Journal of Clinical Pharmacy*, 38(1), 41–45. <https://doi.org/10.1007/s11096-015-0189-x>
- Murray, L. (2017). *The role of the registered nurse managing pro re nata (PRN) medicines in the care home (nursing): A case study of decision making, medication management and resident involvement*. [Doctoral dissertation, University of Hertfordshire]. <https://doi.org/10.18745/th.17989>
- Nilsen, M. K., Sletvold, H., & Olsen, R. M. (2020). “To give or not to give medication, that is the question”. Healthcare personnel's perceptions of factors affecting pro re nata medication in sheltered housing for older adults: A focus-group interview study. *BMC Health Services Research*, 20(1), 1–11. <https://doi.org/10.1186/s12913-020-05439-4>
- Nilsen, M. K., Sletvold, H., & Olsen, R. M. (2021). Sometimes we just have to trust our gut feeling and hope the reporting is good. *Tidsskrift for*

- Omsorgsforskning [Journal of Care Research]*, 7(3), 1–15. <https://doi.org/10.1186/s12913-020-05439-4>
- Odberg, K. R., Hansen, B. S., & Wangensteen, S. (2019). Medication administration in nursing homes: A qualitative study of the nurse role. *Nursing Open*, 6(2), 384–392. <https://doi.org/10.1002/nop2.216>
- Payne, R. A., & Avery, A. J. (2011). Polypharmacy: One of the greatest prescribing challenges in general practice. *British Journal of General Practice*, 61(583), 2. <https://doi.org/10.3399/bjgp11X556146>
- Rahmner, P. B., Gustafsson, L. L., Holmström, I., Rosenqvist, U., & Tomson, G. (2010). Whose job is it anyway? Swedish general practitioners' perception of their responsibility for the patient's drug list. *The Annals of Family Medicine*, 8(1), 40–46. <https://doi.org/10.1370/afm.1074>
- Reason, J. (2000). Human error: Models and management. *BMJ*, 320(7237), 768–770. <https://doi.org/10.1136/bmj.320.7237.768>
- Rose, A. J., Fischer, S. H., & Paasche-Orlow, M. K. (2017). Beyond medication reconciliation: The correct medication list. *JAMA*, 317(20), 2057–2058. <https://doi.org/10.1001/jama.2017.4628>
- Ruggiano, N., & Perry, T. E. (2019). Conducting secondary analysis of qualitative data: Should we, can we, and how? *Qualitative Social Work*, 18(1), 81–97. <https://doi.org/10.1177/1473325017700701>
- Rønningen, S. W., Bakken, K., & Granås, A. G. (2013). Behovsmedisinering i sykehjem: Forskrivning, bruk og dokumentasjon av effekt [Medication needs in nursing homes: Prescribing, use and documentation of effect]. *Sykepleien Forskning [Norwegian Journal of Clinical Nursing]*, 8(1), 14–24. <https://doi.org/10.4220/sykepleienf.2013.0005>
- Seidling, H. M., Mahler, C., Straßner, C., Strauß, B., Bernhard, G., Szecsenyi, J., Haefeli, W. E., & Wehrmann, U. (2019). Use of medication lists: A population-based approach to increase the prevalence of medication lists within a region in Germany. Pre-post study]. *International Journal of Clinical Pharmacology and Therapeutics*, 57(8), 375. <https://doi.org/10.5414/CP203447>
- Shay, L. A., & Lafata, J. E. (2015). Where is the evidence? A systematic review of shared decision making and patient outcomes. *Medical Decision Making*, 35(1), 114–131. <https://doi.org/10.1177/0272989x14551638>
- Stasinopoulos, J., Bell, J. S., Ryan-Atwood, T. E., Tan, E. C. K., Ilomäki, J., Cooper, T., Robson, L., Sluggett, J. K., & Ilomäki, J. (2018). Frequency of and factors related to pro re nata (PRN) medication use in aged care services. *Research in Social & Administrative Pharmacy*, 14(10), 964–967. <https://doi.org/10.1016/j.sapharm.2017.11.004>

- Stokes, J. A., Purdie, D. M., & Roberts, M. S. (2004). Factors influencing PRN medication use in nursing homes. *Pharmacy World and Science*, 26(3), 148–154. <https://doi.org/10.1023/B:PHAR.0000026803.89436.a8>
- Solberg, H., Devik, S. A., Bell, H. T., & Olsen, R. M. (2022). The art of making the right exception to the “rule”: Nurses’ experiences with drug dispensing in nursing homes. *Geriatric Nursing*, 44, 229–236. <https://doi.org/10.1016/j.gerinurse.2022.02.019>
- Tariq, A., Georgiou, A., & Westbrook, J. (2013). Medication errors in residential aged care facilities: A distributed cognition analysis of the information exchange process. *Journal of Medical Informatics*, 82(5), 299–312. <https://doi.org/10.1016/j.ijmedinf.2012.08.006>
- Vaismoradi, M., Amaniyan, S., & Jordan, S. (2018). Patient safety and pro re nata prescription and administration: A systematic review. *Pharmacy*, 6(3), 95. <https://doi.org/10.3390/pharmacy6030095>
- World Health Organization. (2017). *Medication without harm: Global patient safety challenge on medication safety*. file:///C:/Users/01700274/Downloads/WHO-HIS-SDS-2017.6-eng.pdf
- World Health Organization. (2019). *Medication safety in polypharmacy: Technical report*. <https://www.who.int/publications/i/item/medication-safety-in-polypharmacy-technical-report>