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Development of quality indicators to measure quality of medication handling in municipalities

Quality indicators for municipal procedures, medication lists, medication dispensing and medication administration were developed in four steps and tested in municipalities by community pharmacies.

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Background

Studies have shown that community pharmacies can contribute to strengthening medication handling in municipalities by providing relevant teaching and pharmacy services to staff at nursing homes, home care and residential facilities on how to work safely with medication. A Danish study is being conducted to strengthen the implementation of the teaching and pharmacy services. As part of the study, a set of quality indicators (QI) was developed and tested.

Objective

One objective of the study was to develop and test a set of QIs to measure the quality of medication handling in municipalities. The QIs were used by community pharmacies and municipalities when preparing teaching and pharmacy services to help make the teaching and services practice-oriented for municipal staff and improve the quality of medication handling.



Figure 1: Development of the quality indicators.

Design

The QIs were developed in four steps (figure 1). The QIs were tested at a larger scale in 20 municipalities from November 2022 to April 2023, with a before and after teaching measurement to assess the sensitivity of the QIs to changes in the quality of medication handling. The measurement was conducted by pharmacy staff during a visit to one institution. The pharmacies received a written instruction and a video on how to carry out the measurement. The measurements were registered electronically in Microsoft Forms, the data was analysed descriptively, and paired t-tests comparing the means for each QI before and after teaching were performed. The pharmacies answered a survey on the use of the QIs and data was analysed descriptively and qualitatively.

Results

A set of six QIs (presented in figure 2) to measure the quality of medication handling in municipalities was developed. The results of the descriptive analysis and paired t-tests are presented in table 1. Between 10 and 16 QI measurements, before and after teaching, were carried out in different institutions (nursing home, home care or residential facility).

The two structure QIs on procedures and the process QI about dispensing showed a significant change after teaching. According to pharmacy staff, the using of the QI measurements worked very well, with a median of 8 or 9 for each QI on a scale from 1-10 where 10 is the best. The measurements gave pharmacy staff an insight into the work of the municipal staff that they can use to make the teaching practice-oriented. However, it became evident that the QIs need to be simpler and more specific, as it was time-consuming to complete the measurements.

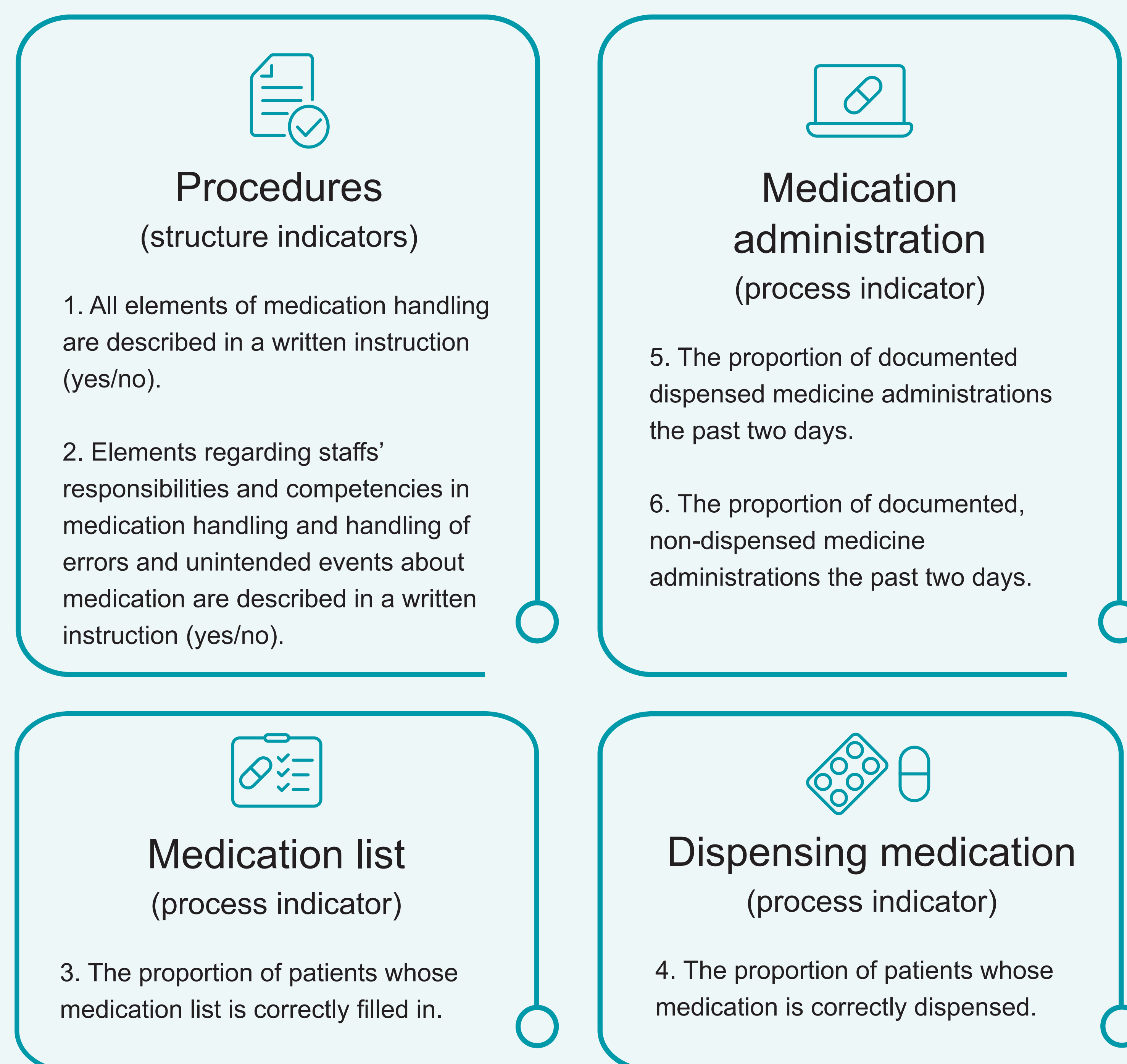


Figure 2: Developed quality indicators ready for test in a larger scale.

Conclusions

Three of the six QIs showed a significant change after teaching and were assessed as being sensitive to measuring changes in the quality of medication handling when community pharmacies teach municipal staff. The QIs can be used by pharmacies and municipalities to support the preparation and practice-orientation of teaching. However, they will need to be simpler because the measurement is time-consuming. Further development and testing of the QIs is needed to make a full set of relevant, practice-oriented and effective QIs.

Quality indicator (QI)	Number of measurements before and after teaching (nursing home, home care, residential facility)	P-value (paired t-test)
1. Procedures: All elements of medication handling	16 (5, 2, 9)	0.04996
2. Procedures: Elements regarding staff's responsibilities and competencies, handling of errors and unintended events	16 (5, 2, 9)	0.04127
3. Medication list	13 (4, 1, 8)	0.19311
4. Dispensing medication	14 (4, 1, 9)	0.04331
5. Medication administration: Documented dispensed medicine administration	13 (5, 1, 7)	0.05589
6. Medication administration: Documented non-dispensed medicine administration	10 (5, 1, 4)	0.10316

Table 1: Descriptive analysis and paired t-test comparing before and after teaching measurements.