
Collaboration to improve ICT solutions

OPINIONS

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In South-Eastern Norway Regional Health Authority, health workers and technologists have collaborated on improving and simplifying medication management in the maternity wards.

'There's too much clicking! This takes up far too much time!' We often hear such statements from health workers who have started using digital tools. It takes many clicks on the computer to obtain an overview of necessary information or perform a single task. Poor functionality arouses frustration.

In South-Eastern Norway Regional Health Authority we have collaborated to simplify a digital work process that at the outset was extremely cumbersome and time-consuming. We chose to apply our efforts to medication management in the context of obstetrics. This collaboration between health workers and technologists helped simplify the use of the electronic records solutions.

Process-based approach

In recent decades, South-Eastern Norway Regional Health Authority has introduced several shared electronic records solutions intended to provide improvements in the health service (1, 2). The hospitals in the region use three different records systems to prescribe medication linked to obstetrics: the main records in DIPS, birth records in Partus and the electronic patient chart in MetaVision. Health workers who want to know what medications the patient is using or want to find active prescriptions and dispensed drugs must open all three programs to obtain complete information. Moreover, information on medication use frequently needs to be updated in some of the systems.

The starting point for our work was that the electronic patient journal and medication solution did not communicate perfectly with the other solutions. We therefore wanted to work on further improvements. In our experience, such improvement can best be achieved using a so-called process-based approach (3). A process includes 'everything related to a specific matter', meaning activities, the people involved, any digital solutions and other information systems (4). A process-based approach describes how different tasks are addressed, either in sequence or in parallel. Processes followed in an enterprise are frequently undocumented, but exist as inherent procedures (5).

«A process-oriented approach to the introduction work will help identify and eliminate undesired effects before they arise»

Introducing a solution to improve specific parts of a process will have consequences for other systems and processes in the organisation. This reduces the totality of the improvement, and may inadvertently reduce the overall benefits and gains. The reason is that organisations and processes have interrelations or value chains that are not described anywhere (6). New measures, such as introducing a new records solution, may have inappropriate consequences unless dependencies within the organisation are taken into

account prior to the introduction. In addition, the records system may be designed according to premises that for various reasons do not work in clinical practice, and a well-established workflow may need to be changed as a result. A process-oriented approach to the introduction will help identify and eliminate undesired effects before they arise [\(7\)](#).

How we proceeded

In consultation with the Regional Professional Network for Obstetric and Maternity Records, the regional health authority invited the health trusts in the region to participate in the improvement efforts. A working group consisting of midwives, gynaecologists, paediatricians, anaesthesiologists and clinical managers was established. Process architects and service designers from the Sykehuspartner ICT supplier provided the necessary competence in process modelling. Nurses and pharmacologists with technological competence from introduction of the electronic patient journal and representatives of the local hospital administrations provided additional contributions. The group composition, with a fair distribution of doctors and midwives, was representative of the hospitals and functioned well in terms of reaching a consensus on the desired workflow and functionality. The model helped acquaint these groups with each other's specialties, which fostered mutual understanding and was crucial for understanding the needs and creating good solutions.

The workgroup obtained regular endorsement of the progress from the existing regional professional networks [\(8\)](#), medical councils and clinical directors at regular intervals. The working group described the challenges associated with documentation of medication management in the three records systems. This resulted in agreement on a single, shared workflow that provided the necessary basis for adapting the different records systems. A thorough analysis was made of the workflow for the midwife, gynaecologist and anaesthesiologist from when the birthing mother first shows a need for pain relief until the drug has been administered and documented in the records. Based on the group's principle of 'simple and secure documentation' and 'peeling away anything unnecessary', the group agreed to a) use the same drug combinations and b) have a shared regional workflow showing who does what and when.

«This resulted in agreement on a single, shared workflow that provided the necessary basis for adapting the different records systems»

The group also agreed on procedures for how the different electronic records solutions should be designed, developed and used together in the hospitals. As a result, more people will find that the ICT systems fit into their working day and that finding information is easier, since everybody is working in the same way across clinical departments.

Shortcuts

The working group agreed on drug combinations that enabled establishment of two new prescription templates for epidural treatment in the electronic patient journal system, especially adapted for birthing mothers. The group proposed shortcut keys for these, enabling the doctor to choose from a pre-defined 'menu'. The use of shortcut keys makes it easy to choose one of the recommended epidural combinations and underpins the division of labour between the doctor and the midwife. The improvement thus saves time while also promoting best practice. Without such shortcuts, prescription and administration of epidural anaesthesia require approximately 50 clicks. When using the shortcut keys, only five clicks are needed.

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Other advantages include fewer manual tasks, both for the doctor and the midwife. Each year, approximately 30 000 children are born in the area of South-Eastern Norway Regional Health Authority, and approximately 12 500 of the mothers receive epidural pain relief. A rough estimate indicates that healthcare personnel in South-Eastern Norway Regional Health Authority will save 625 hours of work annually with the aid of just one new shortcut key.

Summary

The work to establish agreement among professionals in different clinical departments is challenging and time-consuming, but can help produce ICT systems that make the working day easier for healthcare personnel. We succeeded in achieving good interdisciplinary collaboration by gathering relevant colleagues, describing the clinical needs associated with a task and optimising the workflow within the boundaries of what is technically possible. The value of this is a simpler and safer workflow (see the appendix). We have received very positive feedback from healthcare personnel on this form of collaboration, and in South-Eastern Norway Regional Health Authority we will continue to improve and simplify the electronic records systems, and continue our pursuit of time thieves. We hope that others who plan to initiate improvement work and ICT can benefit from our experience.

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Publisert: 27. June 2022. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.22.0362
Received 12.5.2022, accepted 7.6.2022.
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