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The Obstacles to Safe Medication Administration

In Norwegian hospitals pharmaceuticals are put out to tender in order to save costs. Each year a list of the hospital's drugs is prepared based on the results of these tenders. This article describes the practical consequences of this procedure, based on a study among hospital nurses. The results showed quite unanimously that the nurses were concerned about the current system as they encountered an increasing number of generic drugs. They believed that their performance of generic substitution on the wards represented a risk factor for medication errors.

Pharmaceutical Tendering in Norwegian Hospitals

In an era of rapidly rising healthcare costs, strategies for cost containment are high on every hospital manager's agenda. In most countries, the pharmaceutical costs are included in hospital budgets, and drugs are purchased through direct negotiations with manufacturers. Competitive tendering is a well-established and widely used tool to purchase rebated pharmaceuticals

Following the entry of Norway into the European Economic Area in 1995, the Law of Public Procurement has regulated hospital purchases. Since the same year a nationwide organisation named the Drug Procurement Cooperation (DPC) has arranged for joint procurement and invited tenders on behalf of public hospitals. The cooperation consists of members of the hospital drug committees. The DPC is assigned to perform contracting, procurement, distribution, and logistical operations of all hospital pharmaceuticals and thereby enable the hospital organisations to improve efficiency and reduce costs. In 2009, DPC entered into an agreement on nearly all hospital pharmaceutical purchases and obtained a total price reduction of 600 million NOK. It is worth noting that all large hospitals in Norway are public. Besides being cost-effective, tendering may also enhance transparency of the use of public funds.

Pharmaceutical procurement in the neighbouring countries Denmark and Sweden is organised in a similar way through Amgros and Landstingene respectively.

What are the Practical Consequences of this Procedure in Hospitals?

The tendering procedures entail annual changes in the hospitals' drug inventories and consequent revisions of the drug list, which is to form the basis of the physicians' prescribing. Due to the extent of physicians failing to prescribe from this list, the nurses – who are responsible for administering drugs to the patients according to the medical charts – have to substitute the prescribed drug with a generic alternative (perform socalled generic substitution).

Our concern was that the nurses were too often left with this task and that they did not have the necessary skills to make these changes. We were also concerned that this would represent a risk factor for medication errors in hospitals. A study was therefore conducted to investigate how this situation was perceived by nurses who were involved in the medicine handling in a Norwegian hospital. Since the actual number of medication errors is difficult to detect ("tip of the iceberg"), the aim of our study was not to quantify the incidence of medication errors but rather to show how common it is for nurses to encounter problems related to generic substitution and their views on why these problems tend to occur.

We invited nurses from a large regional public hospital to take part in the study. Of those who were asked, 100 persons participated (constituting a 64 percent response rate) in a personal face-to-face interview during the autumn of 2008. They were all handling drugs in their everyday work on medical wards.

The results showed that discordance between physician's prescribing and the hospital's drug list was a frequent occurrence. According to the regulations of 2008, the nurses necessitate the physician's approval before a generically substituted drug is given to the patient. However, this procedure was seldom followed. As much as three-fourths of the nurses reported that they seldom or never verified the feasibility of the substitution with the physician. In addition, the changes were seldom documented in the patient medical charts.

The nurses were unambiguous about how they felt about the situation. Nearly all said they found it problematic that the drug inventory was subject to changes, and they expressed negative attitudes towards the increasing number of drugs available for substitution. Generally, they felt uncomfortable about carrying out substitution on the wards, and it was considered to be an uncertain part of drug administration. Many participants claimed that generic substitution prevented them from performing what they considered to be more important tasks. Furthermore, it was emphasised that they lacked sufficient training in order to perform generic substitution in a safe manner. Some of the nurses had had a short briefing about how to compare the names of the active compounds or the ATC numbers in "Felleskatalogen" (the Norwegian drug formulary). This is a very unsuitable tool in this regard as it only takes into account the active ingredient while strength, dosage, and bioavailability are ignored.

Confusion of Names and Other Risk Factors for Medication Errors

Medication errors in hospitals are widely covered in scientific literature. A common definition of these errors is "any preventable events that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient or consumer". Medication errors are important to identify and prevent since the consequences may be adverse drug events, increased morbidity

and mortality, and thereby increased hospital costs at the end of the line.

The nurses in our study thought medication errors related to generic substitution were likely to occur since the process of interchanging drugs made them insecure and frustrated in an already hectic workday. First of all, the nurses struggled with the increasing number of generic drugs, frequent changes in the drug inventory, and, subsequently, the many difficult as well as similar drug names. Confusion of drug names due to phonetically and orthographically similar drug names and poor product labelling was at the core of the problem. The nurses problematised confusion between proprietary names (e.g. Apodorm and Alopam; Seloken and Selo-zok) as well as between non-proprietary names (e.g. metoprolol and metformin; enalapril, ramipril, and lisinopril; cefalotin, cefalexin, and cefotaxim). Some even reported that trying to find the correct substitute could make them forget about dosing and formulation (e.g. tablet and depot tablet).

Generally, non-branded drugs are assigned the generic (non-proprietary) names, which often are more difficult to memorise and pronounce. The positive side about using these names is that they are international and common for all generically equivalent drugs. In addition, they are indicative of the drug's pharmacology and medical indication. Consistent use of these names for prescribing purposes, often referred to as generic prescribing, will make health professionals more familiar with the drugs' "real names" and provide congruency between the names used in various contexts. It will also contribute to reduce the risk of misunderstandings when patients are transferred between primary and secondary healthcare.

Conclusion

In conclusion, this study of generic substitution in a Norwegian hospital indicates that hospital managers in search of means to restrict the pharmaceutical expenditures should keep in mind that such strategies may not only interfere with patient safety but also lead to costs associated with medication errors. In this scenario, with competitive tendering, it is important to remember that the physicians are responsible for prescribing according to the current drug list. Indeed, many medication errors could probably be prevented if the physicians related more to the current drug list or consistently prescribed by generic name. Strictly speaking, generic substitution should not be such a burden on the nurses. Ultimately, it is the hospital managers who are responsible for the implementation of new procedures and to provide appropriate training and information material to the hospital's employees.

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