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Communication Facilities in an Integrated HIS

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Abstract. Electronic communication facilities which operate between different parts of the health care sector have become a reality. They operate primarily between General Practitioners and hospitals in which messages following EDI-standards are used, and secondarily between different departments in the hospital. There are many advantages linked to implementing communication facilities in an integrated HIS, and this article will elaborate on the need for increased use of eletronic communication in the health care sector in Denmark.

1. Introduction

Hospitals are committed to the objective of providing high-quality treatment and care to the patients they serve, on the basis of the available ressources. It is a fact, however, that only a fraction of working hours is allocated to this task. The majority of the working hours is spent on secondary activities which must be performed to provide treatment and care to the patients. Those activities include among others administration, transportation, research, scheduling, communication, etc. In terms of the day-to-day running of the hospital. These activities are seen as "inconvenient, but vital". American and British surveys indicate that only about 16% of the working hours are directly related to patient treatment and care. The remaining 84 % are spent on other activities (2).

The challenge is, therefore, to increase the 16% and reduce the 84%. Even a little improvement means better patient service, and more patients can be treated. The patients require that the treatment be as swift and as efficient as possible, and the General Practitioners (GP) require an improved service from the hospitals, e.g. through direct booking of patients to treatment and quicker letters of discharge - and all this in an electronic form.. Combined with a free choice of hospital for the patient, this puts the hospitals under pressure from their primary coorporation partners for a quicker establishment of the electronic possibilities. And by means of electronic communication facilities the hospital may reduce time consumption internally and deliver the required service to the patients as well as to the GPs.

2. Electronic Communication

The most important issue in connection with the establishment of electronic communication is that the establishment is a natural supplement to the implemented HIS or electronic patient record (EPR) in the hospital or at the GP. Within the hospital a lot of data about the single patient is registered during treatment and care in the hospital. The data is born and registered in many places around the hospital and is used by many different people and departments in the hospital for many different purposes. This implicates that there is an enormou amount of

internal communication in the hospital, and this communication is very complex in its structure. Therefore, there is a need for effective and structured communication facilities within the integrated HIS.
In practice, that means that the individual user would never worry about an order or a reply being sent as an electronic message or by post. When a hospital or a GP use electronic communication, it is not necessary for them to change work routines, moreover, sendeing messages electronically saves a lot of time. The minute after sending the first message, the changes may be observed. For instance, the secretary types the discharge letter from the dictated tape, and she sends the letter just after typing the last full stop. The doctor does not need to read the discharge letter before sending it to the GP, and should there be a mistake in the letter, a new letter may be sent right after the mistake is observed. The messages sent should be imported directly into the HIS or the EPR if wanted. In this way data only has to be typed once and may be used in all the following situations. The user may still need the message on paper, and this is possible. However, in the electronic age, the need will probably - and hopefully - be decreasing.

Furthermore, by implementing integrated electronic communication the management team will have better data for various kinds of Executive Information, e.g. activity-reports, the use of capacity within departments, operation theatres, outpatient-clinics, reports on pricing and consumption and improved accounts on departments or patients. The information comes as a profit from the daily use of integrated electronic communication procedures which support the different departments, and the subsequent changes in working methods save time and money !

Since 1988, hospitals in Denmark have had the possibilitiy of using communication facilities internally through Kommunedata's HIS, The Green System and since the early 90s they have had the possibilitiy of using communication facilities externally in the communication and planning processes, and thus of improving the quality of patient service. In 1996 the use of external communication between GPs and Hospital is more extensive than the use of internal communication in the hospital. Approximately 50 % of GPs in Denmark have the possibility of communicating electronically with the hospitals, approximately 20 % of the GPs use it, and approximately 30% of the hospitals communicate electronically with the GPs. However, only some 10% of the Danish hospitals use electronic communication internally.

3. Internal communication

Generally, hospitals use telephone, forms and personal meetings today communicate orders from one department to another. The communication used in the internal communication process is shown below in figure 1.

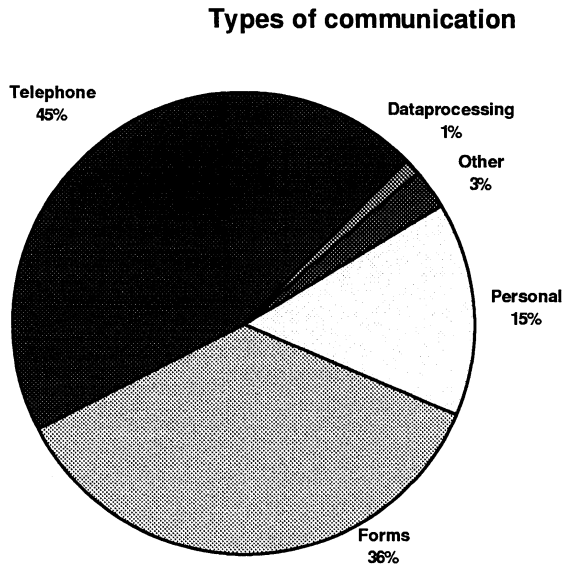

Figure 1
Source: Survey of internal communication in Danish Hospitals(2)

The backbone of electronic communication is that communication takes place in a structured way. The importance of working with structured data is related to the problems of communication. It is a well known fact that the "history" which is passed on looses some of its contents as well as its value when it is told to a third party. Thus, there is a considerable risk that the order sent or the reply returned are delayed, incorrect, inadequate, unreliable, comprehensive or obsolete. If communication took place electronically, these problems would be partly eliminated.

Below in figure 2, the communication problems are shown in percentage of the total amount of the internal communication.

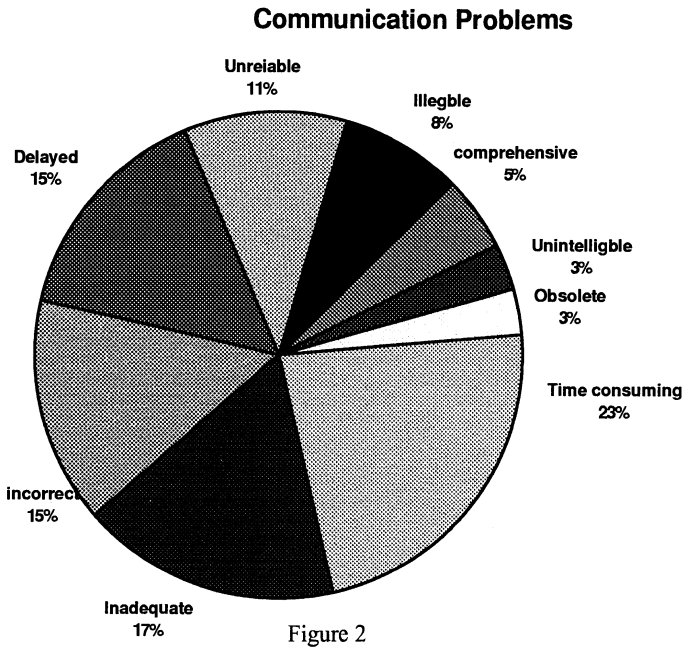

Figure 2
Source: Survey of internal communication in Danish Hospitals (2)

The whole idea behind internal electronic communication is to support the most efficient planning of the patient's treatment and care in the hospital. If internal electronic communication is used to its full capacity, all planning concerning the patient is managed before the patient even arrives to the hospital: the lab-test, the X-ray examination, the stay at the outpatient clinic, the admission to the hospital, the operation theatre and the treatment at the outpatient clinic after the operation. To offer a proper patient service and planning, it is of vital importance that the orders are not merely "simple orders" but are used within an integrated HIS in which the orders and their contents are directly used for placing in the integrated booking system. In this way, the registration process is also removed from the service departments to the wards.

Most of the communication takes place between the ward and the various service departments, and all replies to the orders return to the ward. E.g. results from the lab-tests, description from the X-ray examination, outpatient clinic description, the description from the surgery as well as the description from the following treatment at the outpatient clinic. All orders, replies and administrative data concerning the patient are collected in the EPR, and therefore a vast amount of data may be stored in EPR - clinical data as well as administrative data.

If tools for internal communication are important in connection with the planned patients, they are even more important in relation to the acute patients. In this case, it is also relevant to give an order a status stating that this is an acute patient who needs acute treatment or surgery. The important sentence here is: "Data is registered where it is born and used in all other relevant situations". Data should be registered only once, there should be no redundancies, and all the data should be accessible for the user who needs the data in the subsequent process. That is, the doctor, the nurse, the secretary or the different therapist or social workers. As a consequence of a structured internal communication process, all the

data is ready for statistic use afterwards (on-line updated). Just after treatment has been ordered, it exists in the statistics - and the user may see it if necessary.

4. External communication

A enormous amount of communication goes from the GP to the hospital and vice versa. Different kinds of communication are passed, e.g.: admission letters to the hospitals wards and to the X-ray department or the laboratory, lab-results, X-ray descriptions and discharge letters. All the planned admissions go this way. Therefore, the need for external communication is increasing. These types of external communication have been developed in the early 90s, and the number of GPs who use the possibilities is increasing. In 1996, about 50% of the GPs in Denmark have the possibilities to use these facilities.

The demand for new opportunities is established as soon as the above is operating and used on a daily basis. Kommunedata is establishing possibilities for the GP to book the patient directly to the X-ray department, to the ward or the outpatient clinic. In 1995 tests were made as regards booking directly at X-ray departments, and these facilities will be expanded into other areas in the future. The Green System was used for the tests at X-ray departments, and the tests showed that when the existing possibilities are used on a daily basis, the GP can offer the patient a better service - either in the consultation for an admission to the hospital or in consultation after a discharge from the hospital.

5. Conclusion

As is evident from the above there is a need for an expansion of the existing possibilities for using electronic communication in the health care sector in Denmark. The advantages of internal communication as well as external communication are immense, and before year 2000 an increasing nuber of hospitals will implement internal communication because of the advantages observed in connection with the external communication. Advantages which are both of economic and and rationalising nature. The external communication facilities have put a pressure on the hospitals, so that they will take the internal communication facilities into consideration again in the near future, and
the external communication facilities will improve within new areas, such as: home nursing, home care, aid for handicapped people etc. These facilities will be realities within the next few years.

As mentioned, the internal communication facilities are already at hand within The Green System. New possibilities will be developed, and the existing facilities will be improved in order to support the development within the hospitals, and there is no doubt that within the next few years the need for implementing such integrated facilities will enhance because of possibilities of rationalisation, better economy and improved working methods.

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