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Provision and assessment of pharmacology and pharmacotherapy education across an integrated medical school curriculum

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CHAPTER 4

Assessment of the manner in which physicians communicate therapeutic plans

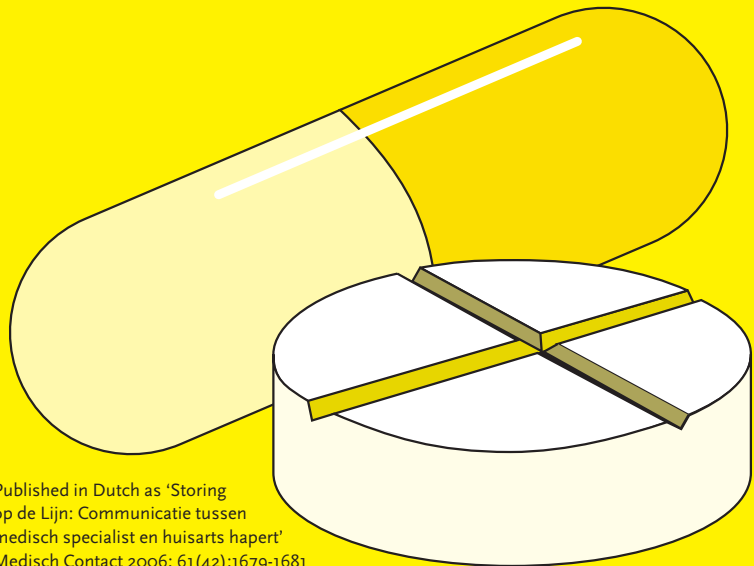
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ABSTRACT

Background: In the Netherlands, 170,000 patients yearly fall victim to poor medical communication, with 44% receiving inappropriate therapy as a result. This problem may be because physicians learn therapeutic communication skills and content by haphazard means.

Aim: To determine the extent specialists structure their reporting of therapeutic information to general practitioners (GP).

Methods: Eighty sequentially-received letters to a local GP practice were evaluated using two methods: the GP noted the timing of the letters and evaluated four areas using visual analogue scales; and investigators evaluated the letters based on criteria from the 'Problem Oriented Medical Record' endorsed by the American Medical Association.

Results: 48% of the letters were received within 4 weeks of the visit to the specialist. Most letters contained suitable diagnostic information based on assessments by the GP and investigators. However, the GP evaluation indicated that insufficient therapeutic information was provided in 42% of the letters and the investigator's found that information such as dosing, rationale and the determination of therapeutic efficacy were often missing.

Conclusions: A large percentage of letters contain insufficient therapeutic information based on assessments created using both local and international criteria. This suggests that physicians should practice and adapt a more structured form of communicating a therapeutic plan.

INTRODUCTION

There was a recent report from the Netherlands Patient Consumer Federation and National ICT-Institute in HealthCare that found that 170,000 patients yearly fall victim to medical errors, due to poor communication between general practitioners, medical specialists and pharmacists (1). The most common problem (in 44% of the cases) was caused by broken communication between the health care providers over the prescribed medications for a patient, which led to the patient receiving inappropriate therapy. Surprisingly, not all the cases were caused by miscommunication between the physician and the pharmacist, but more than half of these cases were caused by poor communication between physicians. This finding was supported by another report from the Inspectors of Healthcare which found that hundreds of people die in the Netherlands by receiving inappropriate therapy (2). Understandably, this has led to a great amount of unrest in society over the quality of the Dutch healthcare system (3-6). However, it has long been found in the (international) literature that medical errors are occurring (7-9) and that the reasons are multi-factorial. Medical professionals are increasingly confronted with an increasing number of diverse medicines (10) with increasing pressure to prescribe the newest



and most potent drug (11,12). This is supported by evidence that patient's are more likely to suffer an adverse event if they used multiple drugs (13,14), multiple health care providers (15), and never had a structured evaluation to determine if there were drug-drug interactions (16,17).

So what can be done? One suggestion is that if we increase the drug and therapeutic knowledge, this will lead to an improvement in drug utilization. However, improved knowledge does not directly lead to an improvement of the physicians' ability to communicate that plan. It has been suggested that use of the electronic patient medical record can solve the communication problem (1). But this is unlikely, as the ability to communicate depends on both the form and the content of the electronic patient medical record. Currently, electronic patient medical records are limited to the sharing of patient data such as past medical history, medication lists, and results physical examinations and diagnostic tests (laboratory, radiological, et cetera) with limited possibilities for the documentation of a therapy plan. Physicians first need to learn a structured method in which to uniformly enter information regarding the therapy plan into a patient chart, then this format can be adopted by the electronic patient medical record.

One method endorsed by the American Medical Association to facilitate communication between health care providers is the use of the Problem-Oriented Medical Record (POMR) (18). The POMR uses a structured format for consistently presenting each medical problem that a patient may have. In the format, all available data (such as subjective and objective) with which the patient presents, is weighed and thoroughly evaluated (assessment) in order to develop a therapeutic plan (plan). This information is written in a concise form on a so-called 'SOAP' note: Subjective-Objective-Assessment-Plan.

It has been shown that medical records written using this format are more complete than those using free dictation format [19,20]. The completeness of the data even leads to better outcomes for the patients. The impact of this was demonstrated in one study that compared the outcomes for patients suffering from any of the seven common diseases when records were formatted or freely transcribed and found that POMR may have improved the thoroughness of patient management (21). It is assumed that the improvement in patient outcomes seen occurred by decreasing the obscurity of the information in the free-form medical records, and providing a rationale for the patient-specific therapy plan.

In the Netherlands there is not a tradition of providing a structured approach for the solving and communicating of a treatment plan. Implicitly, it is assumed that a physician is capable of performing this task in a clear and unambiguous manner. However, with the increasing focus and reporting of the occurrence of medical errors, it seems an appropriate time to critically look at this assumption.

One option is to research how medical specialists (who also serve



as clinical preceptors) communicate a patient's therapy plan back to the referring primary care provider. These discharge letters or post-consultation letters serve as the most important communication tool in which physicians inform each other over their shared patients. Therefore we will review which information the medical specialist provides and if the information is sufficient for the referring physician to implement the intended therapy plan and make adjustments if necessary.

METHODS

This assessment was performed as a collaboration between the Centre for Human Drug Research (CHDR), and a general practitioners office in a community served by the Leiden University Medical Center. During the evaluation period, 80 sequentially received discharge letters or post-consultation letters were logged in and data regarding the date received versus visit date were recorded. The content of the letters were then evaluated in a structured manner using factual data by the general practitioner who was unaware of the background of the study. She determined if the letter was 'complete, clear, logical, and specific enough' to understand the following aspects: diagnostic evaluation, therapeutic evaluation, therapeutic approach, and the global assessment of the contents of the letter. The physician's assessment of these sections was scored using Visual Analogue Scales (VAS). The letters were then blinded for anonymity (protecting both the patient and the specialist who had written the note) by the staff at the general practitioners office and sent to the CHDR for review. All letters were assessed on 15 different aspects of communication using the POMR Note Criteria form (See Appendix A). This criteria form is a Dutch version of the expanded SOAP format assessment previously described (22).

STATISTICAL ANALYSIS

The VAS scores were determined by calculating the percentage of the line from the left of where the vertical mark was made by the physician. The VAS scores for the four aspects evaluated by the physician were reported as the median (with the minimum and maximum scores) as the data were not normally distributed.

For the POMR assessment, the percentage of the letters not meeting each of the criteria [-] were assessed (the evaluations of [v] and [+] were grouped as these letters were evaluated as either mostly meeting criteria or meeting criteria). The power determination was based on a previous review of POMR notes in a student population which found that 10% of students failed to meet criteria even for topics that were very familiar to them. Thus, in order to determine that the proportions of our sample were not achieved



by chance, 80 notes were assessed. Finally, we have determined that having more than 20% of the notes not meeting criteria for a given topic to be the level of unacceptability.

RESULTS

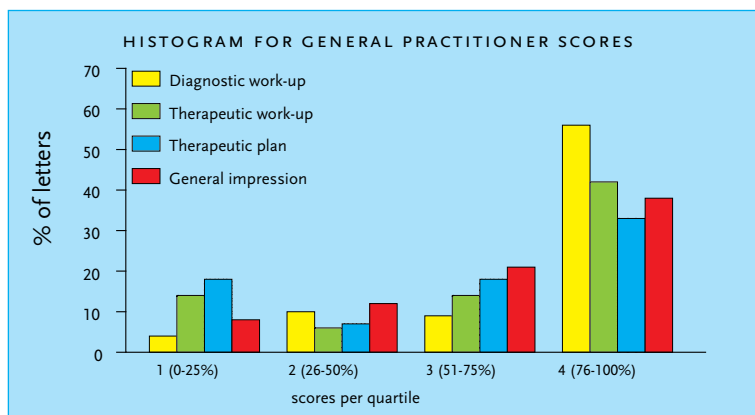
The time between the patient's visit to the specialist (or discharge from the hospital) and the receipt of the letter by the general practitioner is shown in table 1.

Table 1 *Duration between patient visit to the specialist and receipt of the letter by the general practitioner (* date of the patient's visit to the specialist not noted)*

Days	# letters	(% of total)
≤28	32	40.5
29-56	9	11.4
57-84	8	10.1
>84	17	21.5
Unknown*	14	16.5

The general practitioner evaluated information regarding the diagnostic evaluation contained in the letters with a median score of 83 (min-max: 0-100; figure 1). Evaluation of the letters using the POMR note criteria form with regard to identifying the most important medical problem (or diagnosis) resulted in 89% of the letter providing adequate information (figure 2).

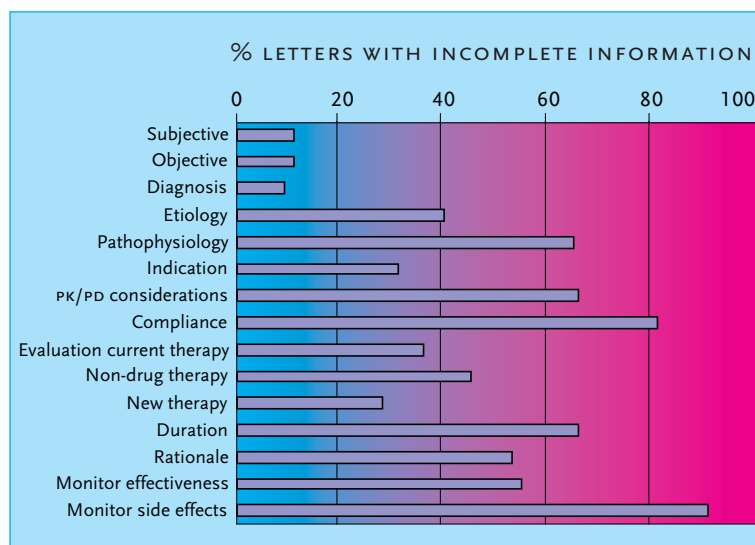
Figure 1 *Summary of the general practitioner's evaluation*



With regard to the communication of the therapy plan, in 20% of the letters, there was no information provided regarding any new or change in therapy. This does not mean that no change in therapy occurred, but it was simply not communicated. There was great variability in the content of the letters when the general practitioner was informed over the selected therapy and the rationale behind it. The median scores given the letters by the general practitioner for the information over the therapeutic evaluation was a 76 (0-100) and the scores earned for the therapeutic plan was only a 62 (0-100). If the scores are grouped per quartile (figure 1), then it is clear that 40-50% of the letters contain incomplete information over the therapy plan. The general impression by the general practitioner of the information communicated in the letters can be seen in the global impression scores where the median score was a 74 (0-100).

Figure 2

Results from the evaluation using the POMR note criteria form



The evaluation using the POMR shows that if a therapeutic plan is given in the letters, that it was poorly communicated (figure 2). Many of the specialists provide no information of the name of the drug and/or the dosing in their letters (36%), give no indication of the necessary monitoring for effectiveness of the treatments (55%), and rarely provide information over the monitoring of possible side effects which could be encountered (91%). This is despite the fact that the specialists gave no indication that they themselves would be following up with the patient. In 53% of the letters there was no information provided over the rationale behind the choice for the therapy plan.



CONCLUSIONS

This inventory demonstrates that a large percentage of letters written by medical specialists to inform their colleagues over a shared patient contains an insufficient amount of information. While most letters contain enough information regarding the diagnostic aspects for the problem for which the patient presented, there is a lack of information in order for the general practitioner to follow a complete and rational therapeutic plan. We recognize that a limitation of the study is that the evaluations could have been biased. Here, the researchers could have expected a poor outcome and thus gave the letters lower scores. But evaluation of letters was designed as such to evaluate if the information was present or not present (for example: was the dose of the drug provided? Yes or No). In addition, the general practitioner's scores were similar to the results of the researchers. This is surprising since one would expect that the general practitioner has a favourable relationship with the consulting physician (otherwise she would have consulted another physician). As such, in a blinded situation the assessment of the letters by the general practitioner might have been more critical.

The findings could be attributed to the fact that the medical specialists believe that the communication of the information regarding the treatment of the patient is unimportant, but that seems unlikely. A second and more plausible explanation could be that physicians learn a different process for communicating their diagnostic actions than they do for their therapeutic action plan. Physicians are taught a structured method for completion and communication of their diagnostic process. A great deal of attention is given during both preclinical as well as clinical portions of medical school to the process of completing the review of systems, performing a physical examination, and requesting additional diagnostic tests. Here is the large difference with regard to the place of (pharmaco) therapy education. There has long been many signals that the education in pharmacology and pharmacotherapy is receiving too little attention (6). The current study's results seem to indicate that the current generation of physicians is unable to communicate a rationale therapy plan. This may not be synonymous with the fact that physicians are unable to develop a rational therapeutic plan, but if it's not appropriately communicated, what is the difference?

The development of a therapeutic plan is a complex process where the physician makes decisions based on both implicit and explicit considerations. For example, if a physician chooses therapy which is not first line therapy due to a co-morbidity, it is not easy to communicate the rationale for the second choice in the plan, but it is essential. Our findings should serve to provide the stimulus to have physicians (and physicians in training) learn how to develop and communicate a therapeutic plan in the same manner in which they learn to develop and document the diagnostic process. The therapeutic plan then can be utilized as a basis for communication between colleagues in the hospitals (via the medical



chart) and the referring health care providers (via the discharge or post-consultation letters). For this process to be successfully implemented in practice, developing a (pharmaco) therapeutic plan needs to become inculcated into the way that the physician practices and as second nature as the diagnostic process.

To ensure this occurs, a nation-wide standard is being developed where the therapeutic plan is presented in a consistent manner. The therapeutic plan is undergoing validation (23,24), and extensive 'train-the-trainer' sessions are being employed by the various universities to implement the format. This consistent process of communicating a therapeutic plan serves not only to provide improved communication of the information between specialists and general practitioners, but can also serve as the template for communicating a therapeutic plan in the electronic medical records of the future.



- (-) Letter does not meet the given criteria; letter requires changes.
There are missing data or information is not understandable.
- (v) Letter mostly meets the given criteria; it requires only a few clarifications.
- (+) Letter meets the given criteria; it requires no changes and is helpful for the management of the patient.

	-	v	+
1. Describe the subjective evidence of disease i.e. complaints, symptoms,			
2. Describe the objective evidence of disease i.e. physical exam, laboratory results			
3. Identifies primary disease states and assesses status			
4. Determines (possible) aetiologies of the problem			
5. Describes pathophysiological mechanism(s) of the problem			
6. Compares pathophysiology to the pharmacology of current agents			
7. Assesses patient-specific pharmacokinetic/pharmacodynamic data			
8. Assesses patient compliance			
9. Indicates plan for current drug therapy			
10. Describes plan for non-pharmacologic therapy			
11. Identifies correct drug(s), dose, route, frequency			
12. Describes titration schedule and duration or endpoint (if necessary)			
13. Provides rationale for drug, dose, route, etc. by describing pharmacologic, pathophysiologic, and patient-specific data			
14. Identifies monitoring parameters for efficacy (pathophysiological symptoms)			
15. Identifies monitoring parameters for toxicity (pharmacological symptoms)			



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