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Communication during ward rounds in Internal Medicine An analysis of patient–nurse–physician interactions using RIAS

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Abstract

Objective: Describe the content and of mode of patient–physician–nurse interactions during ward-rounds in Internal Medicine.
Methods: In 267/448 patients, 13 nurses, and 8 physicians from two wards in General Internal Medicine 448 interactions on ward rounds were tape recorded by observers. After exclusion of interactions with more than three participants ($N = 150$), a random sample of 90 interactions was drawn. Data were analysed with a modified RIAS version that allowed for the registration of a third contributor and for the assessment of the direction of a communicative action (e.g.: nurse → patient, etc.). Furthermore, time spent per individual patient was registered with a stop-watch.
Results: A total of 12,078 utterances (144 per ward round) were recorded. Due to problems with the comprehensibility of some interactions the final data set contains 71 ward round interactions with 10,713 utterances (151 per ward round interaction). The average time allotted to an individual patient during ward-rounds was 7.5 min (range: 3–16 min). The exchange of medical information is the main topic in physicians (39%) and nurses (25%), second common topic in patients (28%), in whom communicative actions like agreement or checking are more common (30% patients/25% physicians/22% nurses). Physicians and patients use a substantial number of communicative actions (1397/5531 physicians; 1119/3733 patients). Patients receive about 20 bits of medical or therapeutic information per contact during ward-rounds.
Conclusions: If ward rounds serve as the central marketplace of information nurses' knowledge is under-represented. Further research should try to determine whether the quality of patient care is related to a well balanced exchange of information, to which nurses, physicians, and patients contribute their specific knowledge.
Practice implications: Given the fact that in-patients in Interna Medicine usually present complex problems, the exchange of factual information, expectations, and concepts is of paramount importance. We hope that this paper is going to direct the attention of the scientific community to the characteristics of ward-rounds because they will remain the central marketplace of communication in hospital.

Keywords: Ward round; Triadic interactions; Nurse–patient communication; Nurse–physician communications; RIAS; Internal Medicine; Physician–patient communication

1. Introduction

Reports from patient surveys in Switzerland have shown that 8 out of 10 most common deficits patients perceive during their hospital stay are related to information and communication between them, nurses, and physicians [1]. About half of the patients claim that side effects of drugs were not explained, a quarter of patients reports that the purpose of new drugs was not explained, one fifth reports that physicians and nurses were discussing their 'case' in their presence without including the patient in their discussion. Typically, the daily ward round is the place – and often the only one – when patients are informed about these issues and when they can ask questions. The ward round, however, is also the only opportunity for interactions among patients and representatives of both professional groups ('here called triadic interactions'): only then do nurses, patients, and physicians clarify treatment goals together or check the necessary preparations for the patient or his relatives before his release from hospital, etc. Thus, the daily ward round should serve as the central market place of information exchange between all three parties that interact in the interest of the patient.

There has been very little systematic research on communication in hospitals; to our knowledge, the most comprehensive studies date back to the 1970s and 1980s of the last century [2].

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These findings showed that patients' chances to participate were low, that patients' contributed mainly medical facts and that the paucity of emotional topics became more pronounced the more ill the patient was [3]. Twenty to thirty years ago the average time spent per patient and ward round was 3.5 min. Breaking down this time showed that the physician was speaking in 60% of the time, 10% was used by another team member and 30% by the patient. Eighty percent of patients' utterances were responses to physician questions; the relation of physician to patient questions was 6–11:1. On the average, patients had 12 s per ward round to bring in a topic on their own; disease-related information was not always told the patient directly, but in 40% it emerged from inter-professional communication [3].

A recent editorial in the BMJ [4] supports this impression: whereas the NHS [5] strongly recommended improved teamwork between professionals, the literature contains mostly rhetorical articles or editorials and almost no empirical studies. A Cochrane review by Zwarenstein and Bryant [6] stated that an improvement in nurse–physician communication most probably would improve patient outcome, however that data are sparse.

The current study reports on interactions during daily ward rounds in Internal Medicine that were registered as part of the PhD thesis of the first authors (H.W.) and reanalyzed with the Roter Interaction Analysis System (RIAS) as part of the medical thesis of the second author (M.S.).

2. Methods

2.1. Study participants

In 2000, the nursing and the medical head of the Department of Internal Medicine started a project to improve communication during ward rounds. In a first step, the current practice of ward rounds was assessed by tape recording routine ward rounds. Microphone and tape recorder were carried by two observers (H.W. and a member of the research team), who wore a white coat but did not interact with the other three parties during ward rounds or during conversation in the floor prior to entering the patients' room.

During a 3-month period a consecutive cohort of 448 patients was asked to participate, of whom 267 (59%) gave their consent. All physicians and all nurses involved were willing to have their contributions tape recorded. The study was approved by the ethics committee of the hospital.

2.2. Setting

The investigation was undertaken on two wards in general Internal Medicine. Thus, a typical mixture of diagnoses was represented by the patients who took part in this investigation. Ward rounds performed by 8 physicians (3f, 5m), 13 nurses (12f, 1m), and 59 patients (33f, 26m) contributed to the random sample. Physicians were on the average in their 3rd year (range: 2–5) after their medical degree specializing in Internal Medicine.

2.3. Selection criteria for a subset of interactions used in the study

As we wished to focus on direct interactions with a patient, we excluded ward rounds that are characterised by a high amount of inter-professional communication like ward rounds when either senior doctors (registrars or readers in Internal Medicine) or physicians from other specialties were present. Furthermore, ward rounds were excluded when the patient was too ill to communicate or unable to speak German or Swiss German, or when the nurse had to leave the room during the ward round. Furthermore, the presence of any other professional, e.g., a physiotherapist or clergyman, the presence of relatives or emergency situations during the ward round led to an exclusion of the respective recordings. Using these definitions, 150 out of 448 recordings had to be discarded, most of them ($n = 110$) because another physician was present. Using a randomization procedure (STAT 60) we selected 90 ward round interactions to be analyzed with RIAS. A further six out of these randomly selected interactions had to be excluded because of major technical problems with the tape recording.

2.4. Dependent variables

The observer activated a stop watch to register how much time physician and nurse spent with an individual patient. In this paper this time does only refer to interactions with a patient in his or her room and not during floor talk. The latter occurred for example when patients were not yet waiting in their rooms for the ward-round to start.

We used the Roter Interaction Analysis System that has been developed for the analysis of dyadic interactions [7] together with a flexible on-line program. In order to analyse triadic interactions, some changes had to be made: the RIAS manual defines that medical information about a person who is not present has to be coded under the category ''gives information–life style''. All medical information concerning an individual patient that was exchanged during nurse–physician interactions in the floor, was coded as ''gives medical or gives therapeutic information''.

'Backchannel' (hmm-hmm) is a category that is exclusively reserved for physicians; however, it was often used by nurses as well, therefore, this code was also allowed for nurses.

Using a flexible on-screen program (DCAS®) with RIAS allowed for the inclusion of a third participant; furthermore, a button was added that defined the direction of an interaction (e.g., Nurse → patient or Nurse → physician). In order to code not only the type of utterances but also the direction of talk, interviews were analysed at least twice, once focussing on the content and a second time focussing on the direction of talk.

2.5. Statistical analysis

Data were analyzed with SPSS 12.0; means ± S.D. will be reported.

3. Results

A total of 12,078 utterances (144 per ward round) were recorded. Out of these, 2119 (17.5%) were not clearly understandable, therefore, further 13 ward round interactions in which more than 30% of the utterances were not understandable were excluded, leaving a total of 71 ward round interactions with 10,713 utterances (151 per ward round interaction). Fifty eight of these interactions took place at some time during the hospital stay of a patient, 13 at the final visit before the patient was released from hospital. The average time allotted to an individual patient during ward-rounds was 7.5 min (range: 3–16 min).

3.1. Contributions of nurse, patient, and physician to communication

The whole data set contains 5531 utterances from physicians (51.6%), 3733 utterances from patients (34.8%), and 1449 utterances from nurses (13.5%). Looking at interactions that took place in the patients' room clearly shows that the direction of communicative actions is physician-focused; there is only a small amount of communication between nurse and patient.

Nurses and patients interacted sometimes during conversation on the floor in the presence of the physicians: here nurses typically address patients who are not in their room waiting for the ward round but walk around, asking them to go into their room, etc.

Comparing patient/physician and nurse/physician shares in communication, shows a slight preponderance of physician utterances in both directions.

3.2. Differences between routine ward rounds and final ward rounds

There was a difference between routine ward rounds ($N = 59$) and the final interaction with the patient ($N = 12$): whereas the former contained 151 utterances, the latter comprised 190 utterances. Other significant differences relate to the number of physician counselling statements: they increase from 2.28 ± 3.58 to 10.3 ± 7.66. This is partly compensated for by a reduction of medical information by around 50%. However, the number of therapeutic information increases by 63% in physicians and by 81% in nurses.

3.3. Differences in communication depending on the localization of the interaction

Patient relevant information is not only exchanged in front of her or him, but also in the floor before physician and nurse enter the patient's room. 8218 utterances (76.7%) could unanimously be localized as occurring in the patient's room, compared to 2696 (15.8%) that could be localized as being exchanged in the floor, in the remainder it was not sure where exactly the interaction had taken place. Overall, professionals prepared the interaction with a patient by talking about matters at stake in 47 out of 71 ward rounds.

If one excludes the floor talk and analyzes only those interactions that took place in the patient's room in front of him or her the picture does not change substantially: 7122 utterances are exchanged between patient and physician, 592 between physician and nurse, and 504 between patient and nurse. These numerical data show that nurses do not contribute substantially to the content of what is said during ward rounds.

Table 1
Distribution of utterances from 71 interactions according to RIAS categories during ward rounds in Internal Medicine at a Swiss University Hospital

Category	Doctor	Nurse	Patient
Personal	247	33	237
Laughter	144	55	133
Approve	6	3	10
Compliment	0	0	6
Disapprove	2	1	34
Critique	12	8	40
Empathy/legitimate	29	7	12
Concern	38	6	61
Reassurance/optimism	249	32	110
Self-disclosure	3	0	0
Request service	0	8	12
Asking for reassurance	0	0	42
Asking for patient opinion	11	0	0
Asking for permission	24	0	0
Check understanding	7	1	11
Bids for repetition	2	0	2
Psychosocial/partner	774	154	710
Gives-Med	1036	175	696
Gives-Thera	377	104	166
Closed Med	284	35	49
Closed Thera	83	37	47
Open Med	82	9	24
Open Thera	9	3	15
Counselling-Med/Thera	262	5	0
Medical information	2133	368	997
Gives-lifestyle (LS)	26	22	141
Gives-psychosocial (PS)	16	17	72
Closed lifestyle	18	10	2
Closed psychosocial	14	3	1
Open LeSt	3	1	0
Open psychosocial	3	0	0
Counselling-LS/PS	20	0	0
Psychosocial information	100	53	216
Agree	376	202	962
Back-channel	289	69	18
Checking	100	17	43
Transition	494	28	96
Structure	138	6	0
Communicative actions	1397	322	1119
Gives-other	366	196	145
Closed other	54	39	27
Open other	13	7	2
Unintelligible	694	310	517
Other	1127	552	691

3.4. Distribution of communication categories according to RIAS

Table 1 shows the distribution of different categories broken down into the contributions of all three parties. Table 2 lists the more common categories (more than once per patient) broken down by patient encounter.

Categories in Table 1 are arranged according to their content: the first paragraph summarizes utterances that could be ascribed to topics around partnership and mutual understanding. Physicians, nurses, and patients contribute 774, 154, and 710 utterances in this category, respectively. The next group of categories is related to the exchange of medical information. It clearly shows that this is the main category that physicians are using with a total of total of 2133 utterances, and it is also a prominent category in nurses and patients. Psychosocial information does not play a major role; especially in physicians the ratio of medical information to psychosocial information is very much in favour of the former with 21:1. The second largest category in physicians and in patients are proper communicative actions like agree, checking, or structuring. Special attention merits the high proportion of agreement statements from the patient that typically follow an explanation by a professional. The final block of categories combines utterances that could not be attributed to a certain content or were unintelligible.

Tables 1 and 2 show that patients are presented with an enormous amount of information. One might assume that this is partly trivial information; however, as the transcript in Table 3 shows physicians give relevant information during ward round interactions.

As floor talk might offer a more intimate frame for the discussion of delicate (psychosocial) topics, we analyzed whether the distribution of categories in physician and nurse differed between floor talk and interactions in front of the patient. This was not the case. Utterances with a focus on life-style information or psychosocial topics comprised less than 5%, nurses' and physicians' contributions taken together.

Table 2
Distribution of the more common utterances (>once per patient encounter) from 71 interactions according to RIAS categories during ward rounds in Internal Medicine at a Swiss University Hospital

Category	Doctor	Nurse	Patient
Personal	3.10 ± 2.98		2.97 ± 3.26
Laughter	1.33 ± 2.06		1.14 ± 1.96
Reassurance/optimism	2.59 ± 2.47		1.26 ± 2.16
Gives-Med	8.57 ± 6.46	1.64 ± 2.11	6.67 ± 6.61
Gives-Thera	3.42 ± 2.97		1.37 ± 1.94
Closed Med	2.91 ± 3.18		
Counselling-Med/Thera	2.28 ± 3.58		
Gives-lifestyle (LS)			1.28 ± 2.67
Agree	3.42 ± 2.19	1.78 ± 1.83	8.21 ± 5.66
Back-channel	2.76 ± 3.10		
Transition	4.52 ± 3.08		
Structure	1.35 ± 1.69		
Gives-other	3.60 ± 3.39	2.06 ± 2.34	1.42 ± 1.71

3.5. Type of question

All participants, including patients used closed questions much more frequently than open questions, the ration being ~4:1 in physicians, 3:1 in patients, and 6:1 in nurses.

Open questions focused on medical content as well: of 110 open questions asked by the physician only 3 concerned the category life style; a further 3 questions focused around psychosocial content or emotions. Nurses asked 1 open question concerning life-style issues of the patient and none concerning psychosocial content or patients' feelings.

4. Discussion and conclusion

4.1. Discussion

Starting from the assumption that the ward round could serve as the central market place of information between all three participants a clear picture emerges: the typical ward round is a dyadic interaction between patient and physician with only minor contributions from nurses. In our view this is a clear disadvantage. Contrary to physicians nurses see patients performing in daily activities. Thus, especially in a population of patients at a higher age like in Internal Medicine, crucial questions about final placement of patients, about the feasibility of therapeutic regimen, etc. depend on information that nurses possess. We believe that this knowledge should be fed into a shared decision making process among all three partners, in order to enable the patient to contribute his or her position.

As had been mentioned in the introduction, patients complain that they are not informed sufficiently, mainly from physicians. The current data do not simply support this perception; instead, patients seem to be bathing in an ocean of information, far beyond the capacity that a typical patient [8,9] can keep in mind. The most likely explanation for these seemingly contradictory findings is that professionals give explanations for problems that patients had not been asking for or that they are unable to memorise. i.e., they are flooded with un-requested or un-structured information. If this conclusion is justified it supports once more a communication style that invites the patient's perspective [10], including a precise assessment of what exactly an individual patient wants to know at a given moment. The diversity of topics to be dealt with on ward rounds calls for an explicitly structured communication; the low number of orientation statements and the example quoted in Table 3 show that information on ward rounds is presented in a rather chaotic manner.

The study has several limitations. The data presented in this paper were not controlled for gender effects. The high number of individuals participating in this study precludes a more thorough analysis of this aspect. We did not precisely assess the professional background of nurses, nor more detailed psychosocial characteristics of patients. Again, even though the number of utterances is high is would be difficult to analyse our data in more detail to find out, whether for example professional experience of nurses and physicians had

Table 3
Transcript from the first 2 min of a ward round interaction between a female doctor and an 83-year old lady

Ward round 14.04.2000 9:34-9:40 = 6 min Tape 16A / Position: 067-134	Professionals present at the ward round (Codes): 228*, 345*
Pat. 82120822: Diagnosis:	83 years, f Severe arthritis of the hip, cardiac insufficiency atrial fibrillation

PAT	Physician	Category*
	Good Morning, Mrs B., how are you?	
Good morning, Doc... – well how should I know?		
	You don't know? *[laughs]* ... I mean: how you feel physically.	
OK, that's fine.		
	So yesterday I talked to Dr. B again, he is the cardiac specialist here, he has been seeing you, hasn't he, and he said, that the heart needs improvement. He said your heart doesn't work properly right now.	Gives other Gives med Gives med
Ok		
	Em, I haven't seen what he..., or hasn't he written that down yet, ... what exactly he has .. drugs for you ... or how we should change your medication	Gives thera Gives thera
Ok		
	But it certainly takes yet another week with these drugs you know, to make you feel better, ok?	Gives thera
... patience *[unintelligible]* ... yes, I know.		
	Then I talked to the clotting specialist because of the coagulation. They have divided the dosis in half, that's sufficient for now. So you don't need as much as before, and I think you won't get as many black and blue bruises from now on	Gives thera Gives thera Gives thera
Yes, that doesn't matter.		
	Yes, but nevertheless ...	
If it's only that ...		
	[interrupting] Ya Ya o.k., but that's anyhow ... an advantage. With this blood dilution that we make only subcutaneously into the skin... one can also em, make a lumbar anaesthesia.	Gives thera Gives thera
Yes ...		
	So, that's no problem. If you for 24 hours, so, if .... Let's assume, you would get it at 8 o'clock in the morning, then one could operate on you the next day at 8 o'clock and then .. need in the evening, ouh, depending on the operation well – if they say it's a high risk of hypertension – you wouldn't get a dilution that evening...	Gives other Gives thera Gives thera Gives med Gives thera
Hm, yes ... ok		
	...otherwise within the next days. And we will switch you to Warfarin soon, after a few days, ok?	Gives thera Gives thera

*Only categories referring to information transfer are listed.

an impact on our findings. What we may say is that the composition of the professional groups and patients' characteristics are typical for wards in Internal Medicine at our hospital.

4.2. Conclusion

To our knowledge this is the first study that yields empirical data on the characteristics of professional–patient interactions

during ward rounds in Internal Medicine. It has shown that contributions from the three parties nurses, patients, and physicians are distributed unevenly with nurses contributing substantially less than patients and physicians. Interactions centre around medical and therapeutic topics with little emphasis on psychosocial issues.

4.3. Practice implications

Given the fact that in-patients in Internal Medicine usually present complex problems, the exchange of factual information, expectations, and concepts is of paramount importance. We hope that this paper is going to direct the attention of the scientific community to the characteristics of ward-rounds because they will remain the central marketplace of communication in hospital.

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