

# International Journal of Nursing and Health Care Research

Mattila E, et al. Int J Nurs Res Health Care: IJNHR-126.

DOI: 10.29011/IJNHR-126.100026

## Research Article

# Patient and Organisation-Related Factors Associated with the Duration of Ward Rounds for Gastroenterological Patients

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**Citation:** Mattila E, Sand J, Collin P, Leino K (2018) Patient and Organisation-Related Factors Associated with the Duration of Ward Rounds for Gastroenterological Patients. Int J Nurs Res Health Care: IJNHR-126. DOI: 10.29011/IJNHR-126.100026

**Received Date:** 04 July, 2018; **Accepted Date:** 20 July, 2018; **Published Date:** 26 July, 2018

### Abstract

The ward round is an essential function on hospital wards around world. The purpose of the study was to investigate the duration of the patient-specific ward round session at various phases of the session with surgical and non-surgical gastroenterology patients. Additionally, the study examines the association of patient- and organisation-related factors with the duration of the ward round session at various phases of the session. The research data was collected by observing the duration of the ward round with gastric surgery and non-surgical gastroenterology inpatients (n=224) in a Finnish university hospital. The overall duration of the ward round session for gastric surgery patients was 6.54 minutes and for non-surgical gastroenterology patients 8.02 minutes. As a rule, patient-related factors did not affect the duration of the session. The only factor affecting the duration of the session was whether or not the patient had undergone surgery. Organisation-related factors: The number of physicians attending the ward round, the size of the patient room and the day of the week were associated with the duration of the ward round at the various phases thereof. Ward rounds take up a considerable amount of the daily and weekly working hours of physicians and nurses. The purpose of the ward round in today's medical practice should therefore be reconsidered. When it comes to progress in the patient's treatment or the duration of the hospital stay, does a traditional ward round yield benefits to the extent that it should be implemented in its current format in the future as well?

**Keywords:** Duration of Ward Round; Gastroenterological Patient; Ward Round

### Introduction

The ward round is an essential function on hospital wards that has remained unchanged for years [1,2]. The objective of a ward round is to provide a patient with high-quality, safe and competent treatment in a timely and effective fashion [3]. The aim is also to give medical orders and consider treatment options [4-6]. The physician attending the ward round plans the patient's treatment and makes decisions concerning it. The patient can focus on the experience of his or her illness and the impact it has on his or her life [4,7]. On the ward round, the patient is also informed of his or her medical situation [5,8]. The pressure on health care to develop and streamline practices challenges hospitals to develop the content and organisation of, as well as the division of labour

on, hospital rounds. It is necessary to examine the structure of the ward round, the time spent on it, and the order of the round critically [2]. Traditional ward rounds take up a considerable amount of time, but the patient is acknowledged inadequately [9]. The benefit of the round often remains unclear [10]. It is important to devise and implement efficient and patient-oriented practices to revise the ward rounds [2,6,11].

The ward round session usually entails three phases. Before entering the patient room, there is a discussion between the medical professionals in the hallway, the so-called pre-ward meeting, regarding matters concerning the patient. After this, the attendees enter the patient room for the bedside round session [12]. After exiting the room, the decisions made at the bedside are finalised and confirmed in the post-ward phase [13,14]. From the patient's perspective, the ward round is often the only opportunity to engage with the doctor to participate in decision-making regarding the

treatment [2,14-17]. The patients perceive the ward round as an event dominated by the medical experts and assume the role of a recipient rather than an active participant [2]. The doctor does not have enough time to discuss matters with patients on the ward round [8,15,18,19]. The size of the patient room influences the choice of matters that the patient will bring up on a ward round - in rooms with several patients, the patients are reluctant to enquire about their personal matters, and it would be preferable that patients could have discussions with the doctor in private [14]. Communication in a single-bed room has been demonstrated to last longer (4.6 min on average) than in a room with several patients (2.6 min). The doctors also show more compassion towards patients in a single-bed room [16]. New patients receive more of the doctor's time (14.9 min) than those who have stayed on the ward longer (2.5 min) [9]. On ward rounds, outsiders, mainly other patients, have to listen to another patient's affairs [1]. According to the literature, the challenges pertaining to developing the ward rounds essentially deal with improving the protection of privacy [2]. Research on the structures of the ward round is scarce. More information is needed on the topic in order to develop the current practices to make them more patient-oriented and efficient and to ensure that they serve all parties participating in the ward round.

## Purpose of the Study

The purpose of the present study was to investigate the duration of the patient-specific ward round session at various phases of the session with gastric surgery and non-surgical gastroenterology patients. Additionally, the study examines the association between patient- and organisation-related factors and the duration of the ward round at the various phases of the round session.

## Study Method

The research data was collected between November 2012 and March 2013 by observing the duration of the ward round sessions with patients admitted to the gastric surgery and gastroenterology ward (n=224) in a Finnish university hospital. In this university hospital, gastric surgery patients and non-surgical gastroenterology patients in internal medicine are treated on the same wards. For the purposes of the current study, the term gastroenterology ward refers to a ward to which both gastric surgery and gastroenterology patients are admitted. There are a total of 66 beds allocated to these patients. During the ward round, the doctor meets the patient in the patient's room. The observations were carried out by nurses (n=5) who were familiar with the operations of the ward but did not frequently work on the ward in question. Using patient-specific forms, the observers recorded the time spent on discussing matters related to each patient before entering the room, by the patient's bedside and after exiting the room. In addition, the information recorded on the observation form of each patient included the

patient's sex, mode of admission (elective/emergency), whether the patient had undergone surgery (yes/no), medical specialty (gastric surgery/gastroenterology in internal medicine), as well as the number of bed days by the day of the observation (Table 1). This information was provided to the observers by a nurse participating in the ward round. As regards organisation-related factors, notes were made of the number of physicians attending the ward round, the day of the week (Mon-Fri) and how many patients were staying in the room in question (Table 1).

Background data	n	%	M (SD)
<b>Sex</b>			
Male	130	58	
Female	93	42	
<b>Age</b>			59 (19.2)
18-49	67	30	
50-64	58	26	
65-74	44	20	
75-	55	24	
<b>Specialty</b>			
Gastric surgery	123	55	
Gastroenterology	101	45	
<b>Mode of Admission</b>			
Elective	53	23	
Emergency	171	77	
<b>Surgical procedure</b>		48	
Yes	107	52	
No	117		
<b>Duration of ward stay (days)</b>			
1-2	48	21	8 (21.4)
3-4	73	33	
5-6	33	14	
7-	70	32	
<b>Number of physicians in the ward round</b>			
1	134	60	
2 or more	88	40	
<b>Patient room size</b>			
1-2 persons	52	23	

3- persons	172	77	
<b>Day of the week</b>			
Monday-Tuesday	95	43	
Wednesday	62	27	
Thursday-Friday	67	30	

**Table 1:** Patient - and organization related background factors.

## Analysis

The data was analysed with SPSS Windows version 22.0 software. For statistical analyses, the background variables were re-categorized to summarize the material (age, duration of ward stay, number of physicians, patient room size and day of the week). In the analysis, the duration of the ward round was processed in four phases. Firstly, the pre-ward phase was distinguished, referring to the discussion of a patient's matters before meeting the patient in his or her room. The second phase of the round refers to meeting with the patient by the bedside. The post-ward phase denotes the further discussion on the patient's matters immediately after exiting the patient room. Finally, the overall patient-specific duration of the ward round session was calculated as a sum of the above-mentioned three phases. The background data were presented as frequency and percentage. The associations between the background variables and the duration of the various phases of the ward round were studied with the independent samples T test and one-way analysis of variance (ANOVA), applying Bonferroni correction in the post-hoc analysis. A p-value of less than 0.05 was considered statistically significant [20].

## Results

### Ward Round Duration

The mean overall duration of the patient-specific ward round session in the entire material was 7 minutes and 21 seconds. The overall duration of the sessions for gastric surgery patients was statistically significantly ( $p=0.038$ ) shorter than the overall duration for non-surgical gastroenterology patients (6.54 min vs. 8.02 min). The matters of the non-surgical gastroenterology patients were discussed before meeting the patient in 66% and after exiting the patient's room in 18% of the cases. For the gastric surgery patients, the corresponding figures were 60% and 12%, respectively. Prior to entering the room, the patient's matters were discussed for a mean of 1.56 minutes and, after leaving the room, 29 seconds. There was no statistically significant difference between the surgical and non-surgical patients. The mean time spent by the bedside was 5 minutes and 36 seconds, and there was no statistically significant difference between the non-surgical gastroenterology patients and gastric surgery patients (6.16 min vs. 5.05 min).

### Association of Background Factors with Ward Round Duration

#### Patient-Related Factors

**Mode of Admission (Emergency/Elective):** No statistical association with ward round duration in either gastric surgery or non-surgical gastroenterology patients at any phase of the round session.

**Sex:** No statistical association with ward round duration in either gastric surgery or non-surgical gastroenterology patients at any phase of the round session.

**Age:** No statistical association with ward round duration in either gastric surgery or non-surgical gastroenterology patients at any phase of the round session.

**Surgical Procedure (Yes/No):** For gastric surgery patients who had undergone surgery, the duration of the ward round's bedside session was statistically significantly longer than for those who had not undergone surgery (5.35 min vs. 3.33 min,  $p=0.003$ ).

**Duration of Ward Stay:** No statistical association with ward round duration in either gastric surgery or non-surgical gastroenterology patients at any phase of the round session.

#### Organisation Related Factors

**Number of Physicians:** When the gastric surgery patients' ward round was attended by a single physician, the physician stayed by the patient's bedside statistically significantly longer ( $p=0.012$ ) than when two or more physicians were attending (6 min 13 sec vs. 4 min 26 sec). The number of participating physicians had no effect on the other phases (pre- and post-) of the round session. When it comes to non-surgical gastroenterology patients, the number of physicians attending was not associated with the round duration in any phase of the session.

**Patient Room Size:** With the gastric surgery patients who stayed in 1-2-bed rooms, the physician stayed by the patient's bedside statistically significantly longer ( $p=0.015$ ) than with patients staying in three-bed rooms. The overall duration of the ward round session was also statistically significantly longer ( $p=0.009$ ) for patients staying in 1-2-person rooms. With non-surgical gastroenterology patients, the room size had no effect on the duration of the ward round at any phase of the session.

**Day of the Week:** The pre-ward phase of gastric surgery patients was statistically significantly longer on Mondays and Tuesdays than on Wednesdays ( $p=0.041$ , 2 min 30 sec vs. 1 min 38 sec). The patient-specific overall duration of the ward round session was also longer on Mondays and Tuesdays when compared to Wednesdays ( $p=0.007$ , 8 min 18 sec vs. 5 min 6 sec). The pre-ward phase of non-surgical gastroenterology patients was statistically

significantly longer on Mondays and Tuesdays than on other days of the week ( $p=0.029$ ). In addition, the doctor stayed in the non-surgical gastroenterology patients' rooms longer on Mondays and Tuesdays than on other days of the week ( $p=0.044$ ). The patient-specific duration of the ward round session for non-surgical gastroenterology patients was also statistically significantly longer at the beginning of the week than on other days of the week ( $p=0.023$ ).

## Discussion

This study entailed a closer examination of the ward round in its various phases, which provided an in-depth overall picture of the ward round sessions of surgical and non-surgical gastroenterology patients. The patients received a mean of 5 minutes and 36 seconds of the doctor's attention in the patient room, which was, however, longer than the duration reported in a previous study [16]. On the other hand, when examined from a broader perspective, ward rounds consume a considerable proportion of the physicians' and nurses' daily and weekly working hours. The gastroenterological ward in the hospital in question has 66 beds, which means that, according to the findings of the present study (5 min 36 sec x 66), more than six hours a day and more than 30 hours per week (Mon-Fri) for a single participating staff member are spent on ward rounds. More information is needed on how the time invested in ward rounds affects the patient's treatment results, average hospital stays and the examinations performed. Are ward rounds to be seen as rituals whose primary purpose is to meet with the patient and thereby maintain the doctor-patient relationship?

Based on the present results, it is impossible to determine the ideal patient-specific duration for a ward round session. It is influenced by the patient's medical status as well as the doctor's and nurse's know-how. Moreover, hospital routines and operational structures define the doctors' use of time during ward rounds. From the patients' perspective, however, the question arises whether they receive adequate information from the doctor and whether they are able to participate in the decision-making concerning their treatment. Patients have been reported to mention that the discussion with the doctor on the rounds often remains superficial [18,19]. Based on the results of the current study, the ward round sessions with gastric surgery patients in particular was quite short, which highlights the need for research on the benefits of the ward round from the patient's point of view. Our results demonstrate that the ward round focuses on a discussion of the patient's situation prior to entering the patient's room and at the patient's bedside inside the room. Only rarely is the discussion regarding the patient's matters continued after exiting the room. This is likely to reflect the pursuit of fast progress in the patient's treatment, thereby also speeding up the patient flow on congested wards.

As a rule, patient-related factors do not affect the duration of the ward round session. Whether a patient had undergone

surgery was the only factor affecting the duration. With patients who have undergone surgery, various postsurgical complications and issues can potentially increase the time spent with the patient on the round. Or perhaps the gastric surgeons are keener to treat the surgical patients than the conservatively treated patients. An interesting aspect is why patient-related factors do not define the duration of the ward round session. Why does a patient admitted in an emergency setting not receive more time and attention on the ward than an elective patient? Is the answer perhaps that an emergency patient's treatment has already been planned, to an extent, at the emergency department, whereas the treatment of elective patients proceeds as planned according to the specified treatment protocol? The present results show that gastric surgery patients receive more time with the doctor when only one doctor is attending the ward round. It would also appear that single-doctor rounds are the more impactful in terms of the patient's treatment than rounds attended by several doctors. A recent study on ward rounds with gastroenterology patients demonstrated that daily consultant gastroenterologist's rounds substantially decreased the duration of the patients' hospital stay, increased the number of patients treated, and decreased the number of deaths when compared to ward rounds attended by several physicians [21].

The present results revealed that patients receive more of the physician's time during a ward round when they are staying in 1-2-bed rooms. It is apparent that, in such a setting, the patient's affairs are discussed more comprehensively at the bedside, also taking into account the patient's mental situation. Gastric surgery patients are seriously ill, and, in a small room, the patients are more prone to venture into discussions about their personal matters. Similar results have also been achieved in earlier studies [14,22]. If the patient will not initiate a discussion about their psychological situation, the nurses have to bring it up [23]. The variation in the durations of ward rounds according to the day of the week is likely explained by the weekly schedules of the doctors. In a university hospital, more staff meetings, multidisciplinary team meetings and major surgeries are scheduled early in the week than at the end of the week.

## Reliability and Ethics

The study method was observation, as it is suitable for studying human behaviour and interaction [24]. The duration of the ward round was timed with a watch that provided an accurate measuring result. Furthermore, the patient- and organisation-related data were straightforward, and, as a whole, the study material can be considered reliable. In analysing the material, an expert in statistics was consulted, providing assistance in selecting the most suitable analysis methods. The data was collected from all gastroenterological units of a single university hospital, and the sample size can be considered representative for the purposes of the study topic. The reliability is enhanced by the fact that the



ward round was examined in its various parts, thus receiving wider research data.

The study was conducted with care, and the results have been reported openly in accordance with good scientific practice [20]. The local ethics committee approved the study (Decision no. R 12242), and a chief senior physician gave permission to collect the data. The patients and staff were informed of the purpose of the study as well as the voluntary nature of participating in the study. An individual patient or member of staff participating in the ward round cannot be identified from the results. The observation did not cause harm to the patients or the participants of the rounds.

## Conclusion

Ward rounds are fast-paced, and the patient-specific session remains short. On the organisational level, on the other hand, they take up a considerable amount of the doctors' and nurses' working hours. The purpose that the ward round serves in today's medical practice should therefore be contemplated. When it comes to progress in the patient's treatment or the duration of the hospital stay, does a traditional ward round yield benefits to the extent that hospitals should keep practicing it in its current format in the future as well? Or is the purpose of the ward round rather to maintain daily interaction between the doctor and patient? From the perspective of developing the structure of ward rounds, it might be justifiable to meet the urgent and quickly treated patients first and leave the more challenging and time-consuming cases for last. The traditional ward round practice could be replaced with observing a gastroenterological patients' status as the situation of each patient requires. This might streamline the progress of the patient's treatment and better allocate the doctor's and nurse's time according to the patients' needs.

## Author Contributions

Elina Mattila is the author of the paper. She was responsible for study conception, design, data collection and overall supervision. Kaija Leino was responsible for conception, study design, data analysis and critical revision of the manuscript. Pekka Collin and Juhani Sand were responsible for critical revision of the manuscript.

## Acknowledgements

We thank the Tampere University hospital's gastro surgery and internal medicine in gastroenterology, units which contributed to our study. The authors are grateful to all participants who took part in this study.

## Conflict of Interest

No conflict of interest has been declared by the authors.

## Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## Ethical Approval

Tampere University Hospital Ethics Committee, reference number R12242/6.11.2012

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