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Enhancing interprofessional ward rounds by identifying factors associated with low satisfaction and efficiency: a quantitative and qualitative national survey of Swiss healthcare professionals

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Summary

AIMS OF THE STUDY: Interprofessional ward rounds are a cornerstone of patient-centred care for medical inpatients and offer opportunities to discuss and coordinate patient treatment and further management. We aimed to identify factors associated with lower satisfaction and efficiency of interprofessional ward rounds, as reported by physicians and nurses.

METHODS: An anonymous Swiss nationwide online survey of physicians and nurses was conducted in 28 Swiss internal medicine inpatient departments between 9 August and 19 October 2023. Analyses were conducted from November to December 2023. The primary outcome was physicians' and nurses' perceived lower satisfaction with ward rounds, which was assessed using visual analogue scales ranging from 0 to 10, with lower satisfaction defined as scores below the median. The main secondary outcome was perceived lower efficiency using a similar definition. Qualitative analysis was performed through inductive thematic analysis.

RESULTS: The survey had a response rate of 21.6% (547/2530). Of the 547 physicians and nurses included in the final analysis, the median satisfaction was 7 points (interquartile range [IQR] 6–8). A total of 61% of physicians (156/254) and 76% of nurses (224/293) reported lower satisfaction. Lower satisfaction was reported significantly more frequently by nurses (adjusted odds ratio [OR] 2.33, 95% confidence interval [CI] 1.58–3.43; p ≤0.001) and female team members (adjusted OR 1.95, 95% CI 1.32–2.9; p <0.01). The median perceived efficiency of ward rounds was 7 points (IQR 5–8), and the nursing profession was associated with lower perceived efficiency (adjusted OR 1.95, 95% CI 1.3–2.93; p <0.01). Adherence to in-house guidelines for ward rounds was associated with satisfaction (adjusted OR for lower satisfaction 0.25, 95% CI 0.16–0.39; p <0.001) and perceived efficiency (adjusted OR for lower efficiency 0.27, 95% CI 0.17–0.43; p <0.001). Both physicians and nurses preferred to perform ward rounds as part of an interprofessional team. The qualitative analysis of the data revealed a preference for structured interprofessional ward rounds and the active involvement of nurses.

CONCLUSIONS: This survey revealed an overall high preference for interprofessional ward rounds. In addition, we identified several factors that were associated with lower satisfaction and efficiency. Structured in-house protocols for ward rounds may increase the satisfaction and efficiency of interprofessional collaboration during ward rounds.

Introduction

Ward rounds play a key role in inpatient care, providing an essential platform to discuss patient management, diagnoses, treatment options, and organisational tasks, along with valuable teaching opportunities for junior physicians [1]. Although medical ward rounds occur daily, data on how interprofessional ward rounds should be performed in the most efficient, patient-centred, and satisfactory manner are scarce. In addition, various factors may influence the efficiency and satisfaction of healthcare professionals concerning ward rounds. For instance, the team composition, location of patient visits (bedside or outside the room), and leadership during ward rounds may play an important role [2–5].

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Interprofessional ward rounds enable the coordination of patient treatment and improve collaboration between physicians and nurses, and they may influence healthcare professionals' perception of job satisfaction [3, 6]. However, interprofessional ward rounds face various challenges, such as time constraints and the coordination of all team members [7]. To address these challenges, the existing literature has proposed creating guidelines for structure and procedures [8]. A systematic review suggested that organising patient visits around checklists defining ward round structure might improve patient care and safety [9]. Nevertheless, no strong evidence supports the effectiveness of checklists, which are often limited to subspecialties such as paediatrics or intensive care [10, 11]. Another proposed intervention that has been used in other disciplines is Structured Interdisciplinary Bedside Rounding, a patient- and family-centred approach that uses a checklist to guide interdisciplinary bedside ward rounds [12]. Evidence shows that using Structured Interdisciplinary Bedside Rounding (SIBR) influences teamwork, communication, job satisfaction, and staff efficiency [13, 14]. However, the existing data are mostly limited to experimental studies and surveys.

In Switzerland, ward rounds are typically performed in interprofessional teams. Interprofessional collaboration within the healthcare system is considered key to ensuring high quality of care and is actively promoted by programs of the Swiss authorities [15].

However, in clinical practice, interprofessional ward rounds are increasingly being discontinued, with medical and nursing teams working separately. This occurs frequently in situations with time pressure (e.g. during staff shortages) because interprofessional ward rounds are perceived as too time-consuming [16]. Because physicians' and nurses' perceptions of current practices are unclear, we designed a survey to assess the satisfaction and efficiency of interprofessional ward rounds. We aimed to identify predictors associated with perceived satisfaction and efficiency, and qualitatively analyse the opinions of physicians and nurses concerning interprofessional ward rounds.

Methods

Survey administration and participants

Data collection took place from 9 August to 19 October 2023. A nationwide anonymous web-based survey was conducted among physicians and nurses working in Swiss medical inpatient wards. As no specific databases with samples from the target study population were available, all teaching hospitals with internal medicine training programs and all centres with inpatient wards were included, as listed in the national register of medical speciality training programs [17]. This register includes all certified Swiss medical centres and also provides contact information for training centre management. Residency program directors were contacted by email or telephone and asked to forward the questionnaire to all nurses and physicians in their department and invite them to participate. Data collection was conducted using Umfrageonline.ch, a web-based survey tool that facilitates the distribution and completion of questionnaires in a secure and accessible manner. The inclusion criteria were as follows: physicians and nurses working in internal medicine wards who regularly took part in interprofessional ward rounds and full completion of the survey. Department heads were asked to report the number of staff contacted to calculate the response rate according to the American Association for Public Opinion Research's (AAPOR) guidelines and its survey outcome rate calculator 4.1 [18].

Ethics

Participation in this survey was voluntary. Participants were informed of this on the first page of the online survey, which also explained the study aims and included a statement from the research group guaranteeing the confidentiality of the collected data. Informed consent was assumed upon participants' partial or complete responses to the survey. The Ethics Committee of Northern and Central Switzerland waived the necessity for ethical approval (Req-2023-00997).

Questionnaire design

The Practices for Survey Research and Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were applied and the current literature concerning ward round procedures was consulted for the development and implementation of the survey, as well as reporting of the data [1, 4, 9, 13, 19–22].

To address the complexity of ward rounds, which involve healthcare professionals with diverse experiences, a mixed-methods survey was designed. This survey utilised perceived outcome measures for quantitative analysis and included open-ended questions for a qualitative exploration of the results.

The survey was designed following a three-step process. (1) The first authors developed a questionnaire based on the current literature and their clinical expertise. (2) The survey was evaluated by two senior internists and two medical inpatient ward nurses. After incorporating the feedback, the revised survey was presented to five randomly selected healthcare professionals who regularly took part in medical ward rounds, and the survey was adjusted according to their feedback [23]. (3) The final version was written in Responsive Web Design (supplement 1 in the appendix) [24], translated into Italian and French by bilingual native speakers, and checked for correctness by two bilingual members of the study team. The average response time was 25–30 minutes.

Outcome measures

The primary outcome was physicians' and nurses' perceived lower satisfaction with ward rounds, which was assessed using visual analogue scales ranging from 0 to 10, with lower satisfaction defined as scores below the median (dichotomised using a median split). The key secondary outcome was perceived lower efficiency using a similar definition. In brief, perceived efficiency was measured on a visual analogue scale (VAS) 0–10, with 0 indicating the lowest and 10 indicating the highest possible efficiency. Subsequently, it was dichotomised into higher and lower efficiency using a median split according to the primary outcome.

Further secondary outcomes and presumed predictors were the presence of in-house specifications of ward round procedures (e.g. guidelines, standard operating procedures, or checklists), self-reported adherence to in-house specifications, preferences concerning interprofessional ward rounds (i.e. case presentations at bedside versus outside the room and interprofessional versus separate ward rounds).

Baseline characteristics (i.e. age, sex, language, profession, function, hospital, and years of work experience) were assessed at the beginning of the survey.

The survey was structured into three main sections, each addressing key aspects of interprofessional ward rounds: (1) expectations of ward rounds, (2) current ward round practices, and (3) interprofessional collaboration during ward rounds. In addition to quantitative questions, 17 open-ended questions were included to gather qualitative written feedback on these themes, including management, interprofessional collaboration, and the perceived benefits and disadvantages of interprofessional ward rounds. The full questionnaire is available in the appendix.

Data analysis

A mixed-methods approach including both quantitative and qualitative analyses was used. Baseline characteristics and further predictors were stratified according to primary and secondary outcomes. Pearson's Chi-squared test was used to test differences between categorical variables, and t-tests or Wilcoxon rank sum tests were used for continuous outcomes, as appropriate. Additionally, the following analyses were performed: (a) univariable logistic regression to evaluate associations of predictors with perceived satisfaction and efficiency; (b) multivariable models, adjusted for teaching hospital, age, and sex of respondent; and (c) subgroup analysis with stratification according to profession. A p-value of <0.05 (two-tailed) was considered statistically significant. STATA 15.0 (Stata Corp., College Station, TX, USA) statistics software was used for all quantitative analyses.

Open-ended questions with free-text answers were analysed using an inductive approach grounded in thematic analysis, as supported by general inductive methodology [25, 26].

A first thematic analysis was performed by two investigators who simultaneously screened 10% of the answers to each question and then discussed their impressions until a consensus for overall themes was reached. As each answer was also broken down into thematic items, one answer could be assigned to multiple themes. In the second step, all categories were revised for each section of the survey to reduce overlap and redundant categories. Finally, the most important themes within the predefined survey sections were summarised in a table including representative samples of the findings.

Results

Baseline characteristics and univariable associations with primary and secondary outcomes

Of the 2530 participants contacted, data were collected from 816 participants; of these, 547 returned completed surveys that were included in the final analysis (21.6% response rate).

A total of 46.4% (254/547) were physicians and 53.6% (293/547) were nurses, and the mean (±SD) age was 37 (±11) years. Most participants (402; 73.5%) were female (table 1). In total, we received responses from 28 hospitals (22 German-speaking hospitals, 5 French-speaking hospitals, and 1 Italian-speaking hospital), which are all represented in the final analysis. A list of all included hospitals is provided in the appendix.

The overall median satisfaction concerning the primary outcome (perceived satisfaction with ward rounds) was 7 (interquartile range [IQR] 6–8) points. Participants who reported lower satisfaction were significantly younger, with a mean (±SD) age of 36 (±11) years vs 38 (±11) years, p = 0.02). In addition, female participants more frequently reported lower satisfaction than male participants (270/341 (79.2%) vs 132/206 (64.1%), odds ratio (OR) 2.13, 95% confidence interval (CI) 1.45–3.14, p <0.001). A significant difference was also found between professions. The nursing profession was a predictor of lower satisfaction (213/341 (62.5%) vs 80/206 (38.8%), OR 2.62, 95% CI 1.84–3.74, p <0.001). Furthermore, satisfaction differed significantly between physician positions, with head physicians reporting higher satisfaction. In general, the existence of in-house ward round protocols was not associated with satisfaction. However, adherence to existing ward round guidelines (131/341 (48.3%) vs 133/206 (78.7%), OR 0.25, 95% CI 0.16–0.39, p <0.001) and working in a teaching hospital were significantly associated with satisfaction.

For the secondary outcome (perceived efficiency of ward rounds), the overall median efficiency was 7 (IQR 5–8) points. The existence of in-house ward round protocols, checklists, and standard operating procedure (SOP) / memos significantly predicted perceived efficiency; adherence to in-house protocols was the most important predictor (149/380 (50.5%) vs 115/167 (79.3%), OR for lower efficiency 0.27, 95% CI 0.17–0.42, p <0.001).

Multivariable associations in an overall model for the primary endpoint

We applied multivariable associations to factors associated with perceived lower satisfaction with ward rounds and adjusted the multivariable model for age, sex, and teaching hospital employees (table 1). The strongest predictors for lower satisfaction compared with the overall model were female sex (adjusted OR 1.95, 95% CI 1.32–2.9, p <0.01) and working in the nursing profession (adjusted OR 2.33, 95% CI 1.58–3.43, p <0.001). Factors protective for lower satisfaction were older age, adherence to in-house ward round protocols (adjusted OR 0.25, 95% CI 0.16–0.39, p <0.001), and working in a teaching hospital (adjusted OR 0.54, 95% CI 0.37–0.8, p <0.01) (table 2).

Multivariable associations in an overall model for the secondary endpoint

We then performed a multivariable analysis and included factors associated with perceived lower efficiency of ward

rounds. The most important predictor was working as a nurse (adjusted OR 1.95, 95% CI 1.3–2.93, p <0.01). Factors protective for lower satisfaction were older age, working as head physician, existing in-house ward round protocols (adjusted OR 0.59, 95% CI 0.35–0.99, p <0.05), ward round checklists (adjusted OR 0.57, 95% CI 0.39–0.85, p <0.01), adherence to in-house ward round protocols (adjusted OR 0.27, 95% CI 0.17–0.43; p <0.001), and working in a teaching hospital.

Current ward round standards in internal medicine ward rounds in Switzerland

The mean score for ward rounds conducted in an interprofessional manner was 9.02 (SD 1.56) on a visual analogue scale (ranging from 0 to 10). Half (50%) of respondents (274/547) reported that they preferred ward rounds to be conducted outside the room, whereas 25.6% (139/547) reported that they preferred to conduct ward rounds at bedside, and 25.4% (134/547) preferred a mixed approach. Ward round protocols were reported by 80.4% (440/547) participants, checklists by 30.3% (166/547), SOP/memos by 37.5% (205/547), and verbal protocols by 22.3% (122/547). The reported duration of ward rounds was 12.9 minutes per patient (SD 4.7).

There were significant differences between the professions, specifically between nurses and physicians, regarding their perceptions of ward rounds. Physicians perceived the duration of ward rounds to be shorter than nurses did. Additionally, nurses believed that physicians had a significantly longer speaking time compared with the physicians' assessments. Notably, a substantial majority of participants (81.9%, 448/547) expressed a preference for interprofessional ward rounds, with a higher preference rate among physicians than among nurses (90.9%, 231/254 for physicians versus 74.1%, 217/293 for nurses; p <0.001). No significant difference was found between physicians and

Table 1:
Primary endpoint: Perceived satisfaction of interprofessional ward rounds. Stratification according to primary outcome (perceived lower satisfaction). Dichotomisation of outcome by median split. Values including median and lower define lower satisfaction.

Factor		n	All	Lower satisfaction	Higher satisfaction	p value	Univariable OR (95% CI)	p value	Adjusted OR (95% CI)***	p value
Sociodemographic factors		n	547	341	206					
Age (years), mean (SD)	Per 1-year increase	547	36.86 (10.91)	35.99 (10.69)	38.29 (11.14)	**0.02**	0.98 (0.97, 0.99)	**0.02**	0.98 (0.97, 0.99)	**0.03**
Sex, n (%)	Female	547	402 (73.5%)	270 (79.2%)	132 (64.1%)	**<0.001**	2.13 (1.45, 3.14)	**<0.001**	1.95 (1.32, 2.9)	**<0.01**
Professional experience (years), mean (SD)	Per 1-year increase	547	11.94 (10.34)	11.40 (10.01)	12.83 (10.83)	0.12	0.99 (0.97, 0.1)	0.12	1.01 (0.97, 1.04)	0.72
Profession, n (%)	Physician	547	254 (46.4%)	128 (37.5%)	126 (61.2%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Nurse		293 (53.6%)	213 (62.5%)	80 (38.8%)		2.62 (1.84, 3.74)	**<0.001**	2.33 (1.58, 3.43)	**<0.001**
Position (physicians), n (%)	Resident	254	130 (51.2%)	78 (60.9%)	52 (41.3%)	**<0.01**	(ref)	n.a.	(ref)	n.a.
	Attending physician		67 (26.4%)	31 (24.2%)	36 (28.6%)		0.57 (0.32, 1.04)	0.07	0.68 (0.35, 1.33)	0.27
	Consultant		29 (11.4%)	12 (9.4%)	17 (13.5%)		0.47 (0.21, 1.07)	0.07	0.68 (0.21, 2.25)	0.53
	Head physician		28 (11.0%)	7 (5.5%)	21 (16.7%)		0.22 (0.09, 0.56)	**<0.01**	0.4 (0.09, 1.75)	0.22
Position (nurses), n (%)	Healthcare assistant, federal diploma	293	20 (6.8%)	15 (7.0%)	5 (6.3%)	0.75	(ref)	n.a.	(ref)	n.a.
	Licensed practical nurse (LPN)		195 (66.6%)	143 (67.1%)	52 (65.0%)		0.92 (0.32, 2.65)	0.87	0.95 (0.32, 2.81)	0.93
	Head nurse		48 (16.4%)	32 (15.0%)	16 (20.0%)		0.67 (0.21, 2.16)	0.5	0.6 (0.18, 1.99)	0.4
	Clinical nurse specialist		30 (10.2%)	23 (10.8%)	7 (8.8%)		1.1 (0.29, 4.1)	0.89	1.15 (0.3, 4.46)	0.84
Hospital specific factors										
In-house ward round protocols, yes, n (%)		547	440 (80.4%)	271 (79.5%)	169 (82.0%)	0.46	0.85 (0.54, 1.32)	0.46	1.01 (0.64, 1.59)	0.97
Ward round checklist, yes, n (%)*		547	166 (30.3%)	102 (29.9%)	64 (31.1%)	0.78	0.95 (0.65, 1.38)	0.78	1.04 (0.71, 1.54)	0.83
Ward round SOP/memo, yes, n (%)*		547	205 (37.5%)	119 (34.9%)	86 (41.7%)	0.11	0.75 (0.52, 1.07)	0.11	0.89 (0.61, 1.29)	0.53
Verbal in-house ward round protocols, yes, n (%)*		547	122 (22.3%)	69 (20.2%)	53 (25.7%)	0.13	0.73 (0.49, 1.1)	0.14	0.75 (0.49, 1.14)	0.18
Adherence to in-house ward round protocols, yes, n (%)**		440	264 (60.0%)	131 (48.3%)	133(78.7%)	**<0.001**	0.25 (0.16, 0.39)	**<0.001**	0.25 (0.16, 0.39)	**<0.001**
Working in a teaching hospital, yes, n (%)		547	166 (30.3%)	88 (25.8%)	78 (37.9%)	**<0.01**	0.57 (0.39, 0.83)	**<0.01**	0.54 (0.37, 0.8)	**<0.01**

SOP: standard operating procedure.

* Non-exclusive multiple-choice question. Number does not add up to 547, as more than one answer could be given.

** n = 440, participants indicating presence of in-house ward round protocols at their hospital.

*** Adjusted for age, sex, and teaching hospital.

nurses regarding their desire for increased involvement of nurses during ward rounds (refer to table 3).

Expectations for ward rounds

Physicians and nurses primarily emphasised "Organisation and structure" (270 out of 543 responses) and "Interprofessional collaboration" (217 out of 543 responses) when discussing their expectations for ward rounds. Many participants stressed the need for established ward round protocols; one head nurse underscored the importance of an "efficient, clearly structured process", and it was emphasised that "ward rounds should have a clearly defined procedure and content". Effective communication between medical and nursing teams was consistently identified as essential, with one attending physician stating that "good communication between the medical and nursing team (...) the patient" is crucial. The unique value of ward rounds was also recognised by several participants, who noted that they were "the only place where physicians, nurses, and patients come together". The potential impact of good organisation on interprofessional collaboration was a recurring theme. As one participant observed, "(Interprofessional ward rounds) also save a lot of time, provided the procedure is carried out correctly". Additionally, the importance of preparation was noted by both nurses and physicians, with one nurse stating that "Good preparation before the ward round is essential to prevent it from being drawn out". This view was echoed by another resident, who asserted that "ward rounds should be taken seriously".

Current ward round practices

Most positive aspects of ward rounds were linked to "Organisation and structure" and "Interprofessional collaboration and communication" (242/522 versus 186/522). By contrast, aspects perceived as not functioning well were

Table 2:
Secondary endpoint: Perceived efficiency in interprofessional ward rounds. Stratification according to secondary outcome (perceived lower efficiency). Dichotomisation of outcome by median split. Values including median and lower define lower efficiency.

Factor			All	Lower efficiency	Higher efficiency	p value	Univariable OR (95% CI)	p value	Adjusted OR (95% CI)***	p value
Sociodemographic factors		**n**	547	380	167					
Age (years), mean (SD)	Per 1-year increase	547	36.86 (10.91)	35.93 (10.66)	38.97 (11.20)	**<0.01**	0.98 (0.96, 0.99)	**<0.01**	0.97 (0.96, 0.99)	**<0.01**
Sex, n (%)	Female	547	402 (73.5%)	291 (76.6%)	111 (66.5%)	**<0.01**	1.65 (1.11, 2.46)	**<0.01**	1.46 (0.97, 2.21)	0.07
Professional experience (years), mean (SD)	Per 1-year increase	547	11.94 (10.34)	11.31 (10.17)	13.38 (10.63)	**0.03**	0.98 (0.96, 1)	**0.03**	1.01 (0.97, 1.04)	0.63
Profession, n (%)	Physician	547	254 (46.4%)	156 (41.1%)	98 (58.7%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Nurse		293 (53.6%)	224 (58.9%)	69 (41.3%)		2.04 (1.41, 2.95)	**<0.001**	1.95 (1.3, 2.93)	**<0.01**
Position (physicians), n (%)	Resident	254	130 (51.2%)	98 (62.8%)	32 (32.7%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Attending physician		67 (26.4%)	34 (21.8%)	33 (33.7%)		0.34 (0.18, 0.63)	**<0.01**	0.29 (0.14, 0.59)	**<0.01**
	Consultant		29 (11.4%)	14 (9.0%)	15 (15.3%)		0.3 (0.13, 0.7)	**<0.01**	0.18 (0.05, 0.65)	**<0.01**
	Head physician		28 (11.0%)	10 (6.4%)	18 (18.4%)		0.18 (0.08, 0.43)	**<0.001**	0.09 (0.02, 0.45)	**<0.01**
Position (nurses), n (%)	Healthcare assistant, federal diploma	293	20 (6.8%)	15 (6.7%)	5 (7.2%)	0.96	(ref)	n.a.	(ref)	n.a.
	Licensed practical nurse (LPN)		195 (66.6%)	148 (66.1%)	47 (68.1%)		1.05 (0.36, 3.04)	0.93	1.14 (0.38, 3.4)	0.81
	Head nurse		48 (16.4%)	37 (16.5%)	11 (15.9%)		1.12 (0.33, 3.78)	0.85	1.14 (0.38, 3.4)	0.81
	Clinical nurse specialist		30 (10.2%)	24 (10.7%)	6 (8.7%)		1.33 (0.35, 5.15)	0.68	1.63 (0.4, 6.59)	0.49
Hospital specific factors										
In-house ward round protocols, yes, n (%)		547	440 (80.4%)	295 (77.6%)	145 (86.8%)	**<0.01**	0.53 (0.32, 0.88)	**<0.01**	0.59 (0.35, 0.99)	**<0.05**
Ward round checklist, yes, n (%)*		547	166 (30.3%)	100 (26.3%)	66 (39.5%)	**<0.01**	0.55 (0.37, 0.8)	**<0.01**	0.57 (0.39, 0.85)	**<0.01**
Ward round SOP/memo, yes, n (%)*		547	205 (37.5%)	129 (33.9%)	76 (45.5%)	**<0.01**	0.62 (0.42, 0.89)	**<0.01**	0.68 (0.46, 0.99)	0.052
Verbal in-house ward round protocols, yes, n (%)*		547	122 (22.3%)	88 (23.2%)	34 (20.4%)	0.5	1.18 (0.75, 1.84)	0.47	1.22 (0.78, 1.93)	0.39
Adherence to in-house ward round protocols, yes, n (%)**		440	264 (60.0%)	149 (50.5%)	115 (79.3%)	**<0.001**	0.27 (0.17, 0.42)	**<0.001**	0.27 (0.17, 0.43)	**<0.001**
Working in a teaching hospital, yes, n (%)		547	166 (30.3%)	104 (27.4%)	62 (37.1%)	**0.02**	0.64 (0.43, 0.94)	**0.02**	0.59 (0.4, 0.88)	**<0.01**

SOP: standard operating procedure.

* Non-exclusive multiple-choice question. Number does not add up to 547, as more than one answer could be given.

** n = 440, participants indicating presence of in-house ward round protocols at their hospital.

*** Adjusted for age, sex, and teaching hospital.

mainly related to "Time management" (186/523) and "Organisation and structure" (157/523). The expectation for clear structure is reflected in the perception of the current state of ward rounds. Upholding elements such as "Structure, time management, full focus on ward rounds (no phone calls in the meantime, etc.)", as one attending physician noted, allows for better organisation of other nursing tasks, thereby enhancing interprofessional collaboration. However, "Time management" (186/523 answers) was often mentioned as an area requiring significant improvement. Physicians reported challenges such as "waiting times for nurses" and ward rounds that are "far too long, sometimes excessive". From the nurses' perspective, a key concern is the difficulty some physicians have in postponing lengthy discussions to a separate follow-up visit. Additionally, ward rounds led by head physicians often reduced the quality of nurses' experiences, as "nurse involvement is frequently overlooked, especially during head physician rounds." Conversely, physicians greatly appreciated the active participation of nurses.

Interprofessional collaboration

Overall, interprofessional communication was greatly valued by both physicians and nurses, as evidenced by the themes highlighted in this section "Interprofessional collaboration and communication" (193/406) and "Involvement of all team members" (93/406). Statements by physicians, such as "if we didn't have ward rounds with nurses, ward rounds would be pointless", as well as statements by nurses emphasising that "both sides can express their concerns and act as a harmonious treatment team" underscore the unique value of interprofessional ward rounds. This significance was also emphasised in the previous two sections. "Time management and efficiency" (126/406) and "Involvement of nurses" (124/407) were most often cited as suboptimal in interprofessional collaboration. Answers concerning the advantages of interprofessional ward rounds were mostly related to the "Gain of different perspectives and information" (282/361), and disadvantages were predominantly related to "Time Management" (131/361) and "Loss of efficiency" (41/361). In general, interprofessional ward rounds were preferred by both physicians and nurses ("If we didn't have ward rounds with nurses, ward rounds would be pointless").

A summary of categorisation and examples of open-ended questions and qualitative answers according to the predefined sections is provided in table 4.

Discussion

In this Swiss nationwide online survey study, we evaluated the perceived satisfaction and efficiency of ward rounds among physicians and nurses working in internal medicine departments who regularly participate in interprofessional ward rounds. The median satisfaction and median perceived efficiency were both 7 points. Key predictors for lower satisfaction were female sex and working as a nurse, whereas adherence to in-house ward round protocols was associated with higher satisfaction. According to our data, a typical ward round in an internal medicine ward in Switzerland is conducted outside of the patient's room in an interprofessional manner, primarily following written in-house ward round protocols.

In terms of perceived efficiency, working as a nurse was associated with lower perceived efficiency. By contrast, holding a head physician position, the existence of in-house ward round protocols, and adherence to these guidelines were associated with higher efficiency. Nevertheless, both physicians and nurses preferred interprofessional ward rounds to separately performed ward rounds. Answers to qualitative questions emphasised participants' preference for structured ward rounds and the involvement of nurses to improve satisfaction and efficiency and maximise information gained through interprofessional collaboration.

This survey provides several interesting insights into interprofessional ward rounds. Firstly, physicians and nurses

Table 3:
Further secondary outcomes: Stratification according to profession.

Factor			All	Physicians	Nurses	p value
Primary and secondary outcomes		**n**	547	254	293	
Satisfaction with in-house ward round protocols (VAS 0–10), median (IQR)*		440	8.0 (6.0, 8.5)	8.0 (6.0, 9.0)	8.0 (6.0, 8.0)	0.16
Perceived improved efficiency through guidelines (VAS 0–10), median (IQR)*		440	8.0 (6.0, 9.0)	8.0 (6.0, 9.0)	8.0 (5.0, 9.0)	0.36
Perceived duration of and speaking time during ward rounds						
Estimated average duration per patient (min), median (IQR)		547	12.0 (10.0, 15.0)	12.0 (10.0, 15.0)	15.0 (10.0, 15.0)	**0.01**
Time needed for preparation for ward rounds (min), median (IQR)		525	15.0 (5.0, 30.0)	30.0 (15.0, 60.0)	10.0 (5.0, 15.0)	**<0.001**
Estimated speaking time of head physicians during ward rounds (VAS 0–10), median (IQR)		547	7.0 (5.0, 8.0)	7.0 (5.0, 8.0)	8.0 (5.0, 9.0)	**0.01**
Estimated speaking time of attending physicians during ward round (VAS 0–10), median (IQR)		547	6.0 (4.0, 8.0)	6.0 (3.0, 7.0)	7.0 (5.0, 8.0)	**<0.001**
Estimated speaking time of residents during ward rounds (VAS 0–10), median (IQR)		547	6.0 (5.0, 7.0)	6.0 (4.0, 7.0)	7.0 (5.0, 8.0)	**<0.001**
Estimated speaking time of nurses during ward rounds (VAS 0–10), median (IQR)		547	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	0.47
Estimated speaking time of patients during ward rounds (VAS 0–10), median (IQR)		547	4.0 (3.0, 6.0)	4.0 (3.0, 6.0)	4.0 (3.0, 6.0)	0.26
Preferences						
Preferred colleague for presenting patient cases, n (%)**	Physician	543	217 (40.0%)	120 (47.2%)	97 (33.6%)	**0.01**
	Nurse		10 (1.8%)	2 (0.8%)	8 (2.8%)	
	Both		316 (58.2%)	132 (52.0%)	184 (63.7%)	
Preference for interprofessional ward rounds over separate ward rounds, yes, n (%)		547	448 (81.9%)	231 (90.9%)	217 (74.1%)	**<0.001**
Wish for more active involvement of nurses during ward rounds, (VAS 0–10), median (IQR)		547	7.0 (5.0, 9.0)	7.0 (5.0, 9.0)	7.0 (5.0, 9.0)	0.23

IQR: interquartile range; VAS: visual analogue scale.

* n = 440, participants indicating presence of in-house ward round protocols at their hospital

** No mandatory question

Table 4:
Results of qualitative analysis of open-ended questions; a selection of questions for the predefined survey sections (expectations regarding ward rounds, current ward round practices, and interprofessional work) are provided. All open-ended questions were voluntary and do not consecutively add up to the total sample size of n = 547.

	Expectations regarding ward rounds	Category*	Complete qualitative answers/ question (n)**	Answers in category (n)	Physicians' answers (n)	Nurses' answers (n)	Example: Physician (position/age in years)	Example: Nurse (position/age in years)
1	What do you expect from a well-managed medical ward round?	Organisation and structure	543	270	123	147	"Ward rounds must be efficient (teaching should be performed at the end without responsible nurses). – The doctors should know the patient and must not be 'glued' to the computer. –The diagnosis/ problem list is updated. – At the end, there is clarity about the next steps and discharge management." – *(Head physician/55)*	"Efficient, clearly structured process. Ward rounds should have a clearly defined procedure and content." – *(Head nurse/40)*
								"Good preparation before the ward round is essential to prevent it from being drawn out, especially when the resident has to recount the patient's history during the chief physician's rounds, which can significantly extend the duration." – *(Nurse/24)*
2		Interprofessional collaboration and communication		217	95	122	"Good communication between the medical and nursing team as well as with the patient within the given time frame." – *(Attending physician/31)*	"Nurses should be involved. They are often paid little attention, especially during head physician rounds. They always have to fight for their questions/concerns." – *(Nurse/24)*
							"Ward rounds should be taken seriously because it is the only place where physicians, nurses, and patients come together. It also saves a lot of time, provided the procedure is carried out correctly." – *(Resident physician/30)*	
	Current ward round practices							
3	What works well in the medical rounds at your hospital?	Organisation and structure	522	242	130	112	"Structure, time management, full focus on ward rounds (no phone calls in the meantime, etc.)" – *(Attending physician/31)*	"The ward round should have a clear structure, and the procedure should already be defined at the morning meeting so that other nursing tasks can be organised around it. This means that the ward round does not start unexpectedly starts and waiting times are minimised." – *(Nurse/19)*
4		Interprofessional collaboration and communication		195	100	95	"All participants involved (nursing staff, doctors, and, of course, the patient) have the same level of knowledge after the ward round and know what the next steps will be." – *(Attending physician/51)*	"Nurses are taken seriously and should be involved in the decision-making process." – *(Nurse/40)*
5	What does not work well during the medical ward rounds at your hospital?	Time management	523	186	69	117	"Ward rounds are sometimes far too long, sometimes excessive, but at the same time, the problems discussed are often relevant to the nursing team. – *(Attending physician/37)*	"We have to look after several patients. – I do not think the nursing staff should be present at the head physician's rounds all the time because it takes too long, and the nursing staff rarely get a chance to speak about the patient." – *(Nurse/24)*
								"Maintaining the allotted visit time is challenging for many doctors, as they find it difficult to tell the patient that if an issue requires more than five minutes, it will need to be addressed later during a follow-up visit." – *(Nurse/29)*
6		Organisation and structure		157	84	73	"There are waiting times for nurses. Furthermore, according to our guidelines, an extended discussion of the medical history by doctors should not happen during the ward round. I think that's very bad and inappropriate." – *(Attending Physician/31)*	"Questions and prescriptions to be carried out remain unanswered, especially during ward rounds by head physicians, and are frequently only addressed in the afternoon. They are considered to be of too little relevance, but they influence our everyday work routine." – *(Nurse/32)*
	Interprofessional collaboration							
7	What do you think works well in an interprofessional ward round?	Interprofessional collaboration and communication	406	193	150	43	"If we didn't have ward rounds with nurses, it would be pointless. In the end, both professions should have the same level of knowledge." – *(Attending physician/34)*	"Both sides can express their concerns and act as a harmonious treatment team." – *(Nurse/23)*
8		Involvement of all team members		93	18	75	"Exchange of all important information, pooling the expertise of each profession." – *(Attending physician/33)*	"Each discipline gives its assessment of the current situation, then discusses the procedure together." – *(Nurse/25)*
9	What do you think works badly in an interprofessional ward round?	Time management and efficiency	407	126	54	72	"For doctors, (there are) sometimes long waiting periods until nursing staff is ready. Nurses, especially during ward rounds led by head physicians and attending physicians, sometimes find themselves in lengthy medical discussions that are not relevant to their roles." – *(Resident physician/31)*	"Too much time is often spent on the ward round, especially on the senior ward round. This is often without a common thread, and there is a lot of talk about other things in between." – *(Care expert nurse/25)*
10		Involvement of nurses		124	65	59	"Nurses are often busy with other things, which leads to delays." – *(Resident physician/27)*	"The length of ward rounds is sometimes too long, especially during senior rounds or when the infectious disease specialists are

								present (there is a lot of discussion among the doctors, which is interesting, but not always relevant for the nursing team). It often takes up time that you unfortunately don't have so often in everyday nursing." – *(Head nurse/30)*
11	What are the advantages of interprofessional ward rounds?	Gain of different perspectives and information	361	282	133	149	"Everyone is on the same page afterwards. Both physicians and nurses can benefit from the findings and observations of the other profession." – *(Resident physician/27)*	"Everyone is on the same page; concerns can be bundled, and exchange is encouraged." – *(Nurse/46)*
12	What are the disadvantages of interprofessional ward rounds?	Time management	361	131	59	72	"Time management, coordination, and organisational time losses." – *(Resident physician/29)*	"Doctors discuss 'their part', which is not always relevant for us. That takes up a lot of time." – *(Nurse/30)*
13		Loss of efficiency		41	24	17	"A lot of staff is 'tied up' during the ward round. It is therefore even more essential that this time is used well and that the flow of information is ensured." – *(Head physician/62)*	"If decisions are not made directly, the nurses cannot carry out their tasks, and time is lost." – *(Nurse/58)*

* Categories

** Number of qualitative answers given per question in total.

differ significantly in their perceived satisfaction and efficiency of interprofessional ward rounds. The qualitative results reveal a lack of active nurse involvement, with several possible reasons. For example, one nurse criticised "the amount of discussion among physicians (…) which is not always relevant for nursing", whereas an attending physician complained about the lack of nurses' knowledge needed for medical discussions (table 4, rows 6 and 10). This lack of involvement has been described before. A cross-sectional study on ward rounds with 807 patients found that communication between physicians and nurses took place only 12% of the time, and only 35.1% of interprofessional communication between physicians and nurses occurred during ward rounds [27]. Another semiqualitative ancillary analysis of a randomised multicentre trial assessing the perceptions of physicians and nurses of ward rounds outside patients' rooms and bedside ward rounds showed that nurses preferred bedside rounds, whereas physicians preferred outside-room ward rounds [21]. The authors concluded that ward rounds outside patients' rooms may favour academic and physician-centred discussions. According to our qualitative analysis, nurse involvement may be even lower during ward rounds led by head physicians. For example, several nurses mentioned the lack of involvement in head physicians' ward rounds and the lack of opportunities to ask questions.

Secondly, a large majority (81.9%) of participants preferred interprofessional ward rounds despite the challenges they pose, including interprofessional communication, organisation, management, and fulfilling the different focuses of the physician-nurse-patient triad [7]. There was a notable and significant difference between physicians and nurses with a lower rate of 74.1% reported by nurses. We suspect two main reasons for this discrepancy. One is the lack of involvement repeatedly mentioned by nurses in our qualitative analysis (table 4, rows 2 and 10). Evidence from a study involving 58 nurses with newly structured ward rounds (compared to a no-intervention control group) showed higher rates of collaboration and teamwork between hospitalists and nurses [28].

In addition, a recent study analysing ward rounds including over 1000 patients found that when physicians actively involved nurses early, physician and nurse interaction time increased [29]. Thus, the active and structured involvement of nurses may increase the acceptance of interprofessional ward rounds.

Another reported key issue and drawback of interprofessional ward rounds for nurses is time management (table 4, rows 9 and 12). However, this appears to depend strongly on team composition and competent ward round leadership (table 4, row 6) [5]**.** Findings of a randomised multicentre trial and ancillary analysis assessing bedside and out-of-the-room ward rounds highlighted that the latter lasted longer and that nurses preferred bedside ward rounds [4, 21]. Physician-only ward rounds outside rooms with nurse involvement at bedside could improve time management, but this could also reduce interprofessional exchange.

Thirdly, this survey provides important information about the impact of structured guidelines on efficiency and satisfaction with ward rounds. The challenge posed by differing workflows, which contributes to organisational complexity, has been documented previously. In response, various proposals regarding interprofessional ward round structure have been made [30, 31]. For example, one interventional study involving 159 nurses and physicians introduced the use of an 18-item checklist, which led to significantly higher rankings of nurses' perceived quality of communication and collaboration [32]. Interestingly, our study found that adherence to guidelines was the strongest key predictor for higher satisfaction and lower efficiency, whereas the existence of guidelines itself was only associated with higher efficiency. This finding is supported by a mixed-methods study including 239 ward rounds in which a structured checklist was introduced for 3 months before an observational period of 6 months [33]. According to this closely monitored implementation of the intervention, 19 of 20 healthcare professionals (15 nurses and 5 physicians) agreed that the use of the structured checklist should continue after the trial period. The qualitative results from our study emphasise the importance of organisation and structure in ward rounds (table 4, rows 1, 3, and 6).

To accurately demonstrate the impact in daily clinical practice, effective implementation and governance are essential for strategies regarding the organisation of interprofessional ward rounds [7].

This study has three main implications for research and clinical practice. Firstly, although structuring ward rounds is demanding, it appears to be an important driver of satisfaction and efficiency in ward rounds. Various hospitals in Switzerland have attempted to address this issue by introducing checklists [8, 20]. Further guidelines targeting wider aspects and the different roles of participants are provided by the Royal College of Physicians [1].

Secondly, as reported in previous studies, although nurses play a central role in the functioning of ward rounds, their involvement is often neglected. This might be a key factor in their lower reported satisfaction. Therefore, future research should focus on approaches to enhance nurse participation.

Thirdly, despite challenges related to time management and organisation, interprofessional ward rounds remain the preferred approach among physicians and nurses in Switzerland.

This study has several strengths: (a) the nationwide sample included a large number of Swiss physicians and nurses from 28 hospitals in all language regions, roughly representing the corresponding proportion of the population; (b) the survey design included a three-step procedure involving physicians and nurses who conducted ward rounds; and (c) the qualitative approach provided direct insights into the participants' perceptions. However, this study also had several limitations, including (a) the observational design, which only allows for a hypothesis-generating interpretation of findings; (b) possible reduced representativeness due to a 21.6% response rate; and (c) results based on rounds carried out solely in internal medicine wards.

Conclusion

This nationwide survey of Swiss physicians and nurses who perform ward rounds in medical inpatient departments assessed risk factors associated with lower satisfaction and lower efficiency in interprofessional ward rounds. The nursing profession was especially associated with lower satisfaction and perceived efficiency, possibly due to a lack of active participation and deficiencies in time management. Despite this, participants reported preferring interprofessional over separate ward rounds. Finally, as adherence to in-house protocols is associated with higher satisfaction and higher efficiency, providing specific guidelines with a focus on nurse involvement and time management may improve these factors and enhance interprofessional collaboration.

Data sharing statement

We intend to make data collected for the study available to others, including deidentified individual participant data and a data dictionary defining each field in the set. Also, related documents will be available, including the trial protocol, code written and the statistical analysis plan. These data will be available with the publication of our main manuscript and all secondary projects, upon receipt of a letter of intention detailing the study hypothesis and statistical analysis plan. Based on this request, the authors will discuss all requests and decide whether data sharing is appropriate. All applicants are asked to sign a data access agreement. Please send any request to the principal investigator of this trial (Sabina.Hunziker[at]usb.ch).

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The hospitals included in the analysis are listed in alphabetical order in the appendix.

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Potential competing interests

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflict of interest related to the content of this manuscript was disclosed.

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Appendix

Summarized survey

Question	Question type	Outcomes	Specific subtopics
Personal Details			
Age	close-ended	years	
Sex	close-ended	Female	
	close-ended	Male	
	close-ended	Not specified	
At which hospital are you employed?	dropdown	List of hospitals	
How many years of work experience do you have in your current medical occupation?	close-ended	years	
Which professional group do you primarily belong to?	close-ended	Nurses	Nursing assistant
			Nursing manager
			Healthcare specialist EFZ
			Nursing specialist FH/HF
			Ward Manager
			other (open-ended)
	close-ended	Doctors	Intern
			Attending
			Head physician
			Consultant
Expectations of medical ward rounds			
How important is the ward round in your opinion? Why?	open-ended		
What are important points and/or pieces of information that should be discussed during the ward round?	open-ended		
What do you expect from a well-managed medical ward round?	open-ended		
In your opinion, how long should the ward round ideally last?	close-ended	time in minutes	
Do you have any comments on the ideal duration of a visit?	open-ended		
How important is teaching on the ward round to you? How is teaching carried out?	open-ended		

Current status of the medical ward round			
How do you feel about the current status of medical rounds at your hospital?	open-ended		
What works well in the medical ward rounds at your hospital?	open-ended		
What works badly in the medical ward rounds at your hospital?	open-ended		
What does your personal ward round preparation consist of?	open-ended		
How much time do you invest in your personal ward round preparation?	close-ended		
Do you have any comments on your personal ward round preparation?	open-ended		
What are sensitive topics for you on the ward round?	open-ended		
How do you deal with sensitive topics coming up on ward rounds?	open-ended		
How do you deal with interruptions to the ward round?	open-ended		
How do you deal with disagreements or differences of opinion within the team during the ward round?	open-ended		
How do you deal with medical uncertainties during the ward round?	open-ended		
Does your hospital have guidelines for ward rounds? Examples of guidelines for the ward round: - A precise procedure in the form of a checklist, ward round memo (= description of the specified procedure) - Verbal instructions for the exact procedure of the ward round - Written or verbal instructions that the ward round is to be carried out interprofessionally (medical/nursing team).	close-ended	What kind of guideline is being used for the ward round?	checklist
			ward round-memo SOP (Standard Operating Procedure)
			another written format
			verbal guideline
		Do these guidelines mandate an interprofessional ward round (medical/nursing team)?	yes
			no
		How often do you personally implement these guidelines for the ward round?	VAS 0-10 (0=never, 10=always)
		How satisfied are you personally with these guidelines?	VAS 0-10 (0=Very unsatisfied, 10=very satisfied)
		"These guidelines help to increase efficiency." How much do you agree with this statement?	VAS 0-10 (0=completely disagree, 10=completely agree)

		No guidelines	
		Unknown	
Is the ward round conducted outside or bedside? The question refers to where the ward round is carried out. Outside ward round: The patient presentation and discussion is carried out outside the room with a subsequent, prepared visit to the patient. Bedside ward round: Case presentation and discussion in front of the patient's bed, followed by a discussion with the patient.	close-ended	bedside	
		outside	
		varying	
How long do you estimate the average ward round takes per patient?	close-ended	time in minutes	
How satisfied are you with the ward rounds you are involved in?	close-ended	VAS 0-10 (0=very unsatisfied, 10=very satisfied)	
How efficient do you think the ward rounds you are involved in are?	close-ended	VAS 0-10 (0=very inefficient, 10=very efficient)	
How would you rate the distribution of speaking time during the ward round between doctors, nursing staff and patients? Important: The sum of the points awarded does not have to be 10. (asked separately for consultant, attending physician, resident physician, nurse, patient)	close-ended	VAS 0-10 (0=little speaking time, 10=lots of speaking time)	
Interprofessional collaboration			
How do you view interprofessional collaboration (doctors and nursing staff) during ward rounds?	open-ended		
What do you think works well in an interprofessional ward round?	open-ended		
What do you think works badly in an interprofessional ward round?	open-ended		
What are the advantages/disadvantages of an interprofessional ward round?	open-ended		
Who mainly presents the patients?	open-ended		
In your opinion, who should mainly present the patients?	close-ended	Doctor	
		Nurse	
		both together	
Do you have any ideas for improving the ward round?	open-ended		
How often are ward rounds in which you are involved carried out interprofessionally (doctors and nursing staff)?	close-ended	VAS 0-10 (0=never, 10=always)	

"I would like nursing staff to be more actively involved in ward rounds." How much do you agree with this statement?	close-ended	VAS 0-10 (0=completely disagree, 10=completely agree)	
If you were free to decide, how would you prefer the ward rounds to be conducted?	close-ended	What are the most important reasons for your decision in favour of an interprofessional ward round?	efficient exchange of information
			time savings
			better coordination of therapy and further steps
			better for the patient
			other (open-ended)
		You would prefer a partially interprofessional ward round. When would this be the case?	with complex patients
			in a given time frame (e.g. from 9:00-11:00 a.m.)
			for specific nursing/medical issues that need to be resolved in the medical/nursing team.
			other (open-ended)
		What are the most important reasons for your decision against an interprofessional ward round?	inefficient exchange of information
			time savings
			more confusing for patients
			I am not included in the ward round
			other (open-ended)

Hospitals included in the analysis in alphabetical order:

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Hospitals included in the analysis in alphabetical order:

Centre hospitalier universitaire Vaudois - CHUV
Felix Platter Spital – UAFP
HFR Fribourg – Hôpital cantonal / HFR Freiburg – Kantonsspital
Hôpital de la Tour
Hôpital du Valais
Inselspital - Universitätsspital Bern
Kantonsspital Aarau AG
Kantonsspital Baden
Kantonsspital Baselland - Bruderholz
Kantonsspital Baselland - Liestal
Kantonsspital Graubünden
Kantonsspital Luzern - LUKS
Kantonsspital Olten
Kantonsspital St.Gallen
Kantonsspital Winterthur
Kantonsspital Zug
Klinik Barmelweid
Ospedale Malcantonese
Regionalspital Ilanz
Réseau hospitalier neuchâtelois - RHN
Spital Davos
Spital Limmattal
Spital Münsterlingen/Spital Thurgau AG
Spital Thun
Spital Uster
Spital Walenstadt KSGR
Universitätsspital Basel
Universitätsspital Zürich