

Patient call is a factor causing stress in hospital operations

Study about occasion of use
and expenditure of time for the caregiving staff



Target & structure of the survey

Patient call is a stress factor causing stress in hospital operations

- **Subject of the survey:** Measuring the effort for the caregiving staff in healthcare facilities caused by patient calls
- **Applied methods:** Logging participatory observations in combination with electronic distance measuring, chronographs and interviews
- **Screening sites:** Internal and geriatric stations in Lübeck, Berlin and Gronau, Germany
- **Time of survey:** May, June, July 2015

*A patient call is defined as a single-function device to be used by patients confined to bed. It enables the patients to easily and immediately initiate alarm calls that are signalled to the caregiving staff optically and/or acoustically. Please also refer to the definitions on p.15



Summary of survey results

- At all stations surveyed, there was on average one patient call per patient and shift (8 hours).*
- The most common cause for patient calls was to issue service requests (49%). The second most common cause was feeling of thirst or hunger (21%). Third most common cause was the request for medicaments (16%). Questions of the patients or relatives amounted to 10% of patient calls.
- 37% of all patient calls necessitated additional walking routes for the staff.
- Request for medicaments (Lübeck, Berlin) and asking for drinks/water (Gronau) caused the longest additional walking routes on average. The shortest walking routes were caused by patient questions and service requests.
- The longer walking routes caused by delivering drinks and medicaments took 3 minutes on average per patient call. This amounts to up to 1 hour per station per shift – depending on the frequency of patient calls, size and spatial layout of the station.

*There are several factors that have an influence on the frequency of issued patient calls: Size, floor plans, specializing of the station as well as number, age and condition of patients or size and education of the staff. The quantitative data of this survey therefore cannot be generalized or projected on other institutions. The data of this survey can be used to identify development trends.

Categories of patient calls

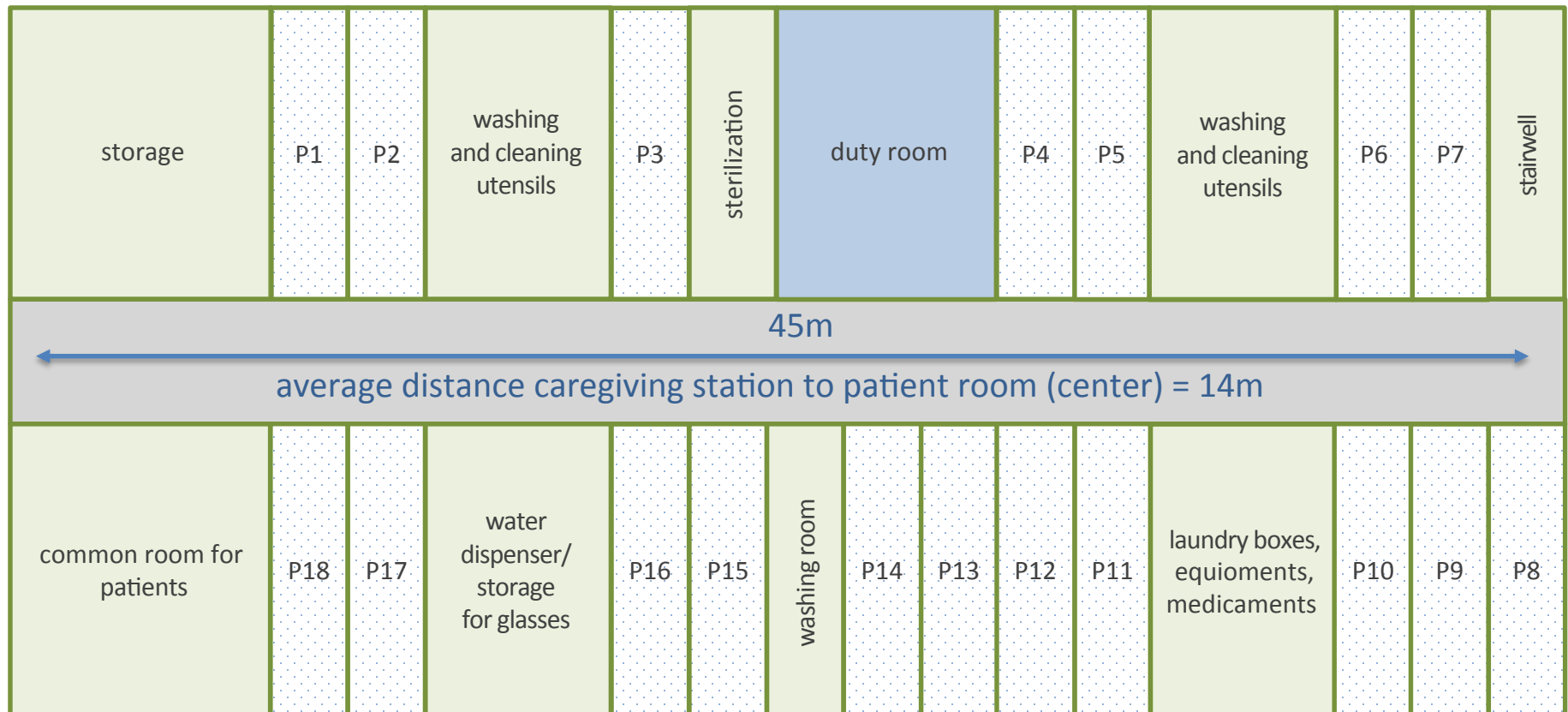
Telefon, Raumreinigung, Fehlalarm

Cause	Service needed	Cumulative Distance	Priority
Emergency	Urgent threat to health	Variable	Very high
Service call	Patient positioning, washing, changing clothes or bandages, going to toilet	Variable	Variable
Medicaments	Patient needs medicaments: tablets, syringes, drips	Yes	Variable
Asking for drinks	Patient asks for drinks or food	Yes	Low
Questions	Patients or relatives have questions	No	Low
Other	Asking for phone calls, cleaning the room, false alarms	Variable	Low

Potential for optimization (blue) is identified for all those categories of patient calls with lower priority that necessitate additional walking routes. This especially applies to calls for drinks and – to a limited degree – medicaments. The several causes listed under “Other” also show potential for improvement, such as providing telephones for patients.

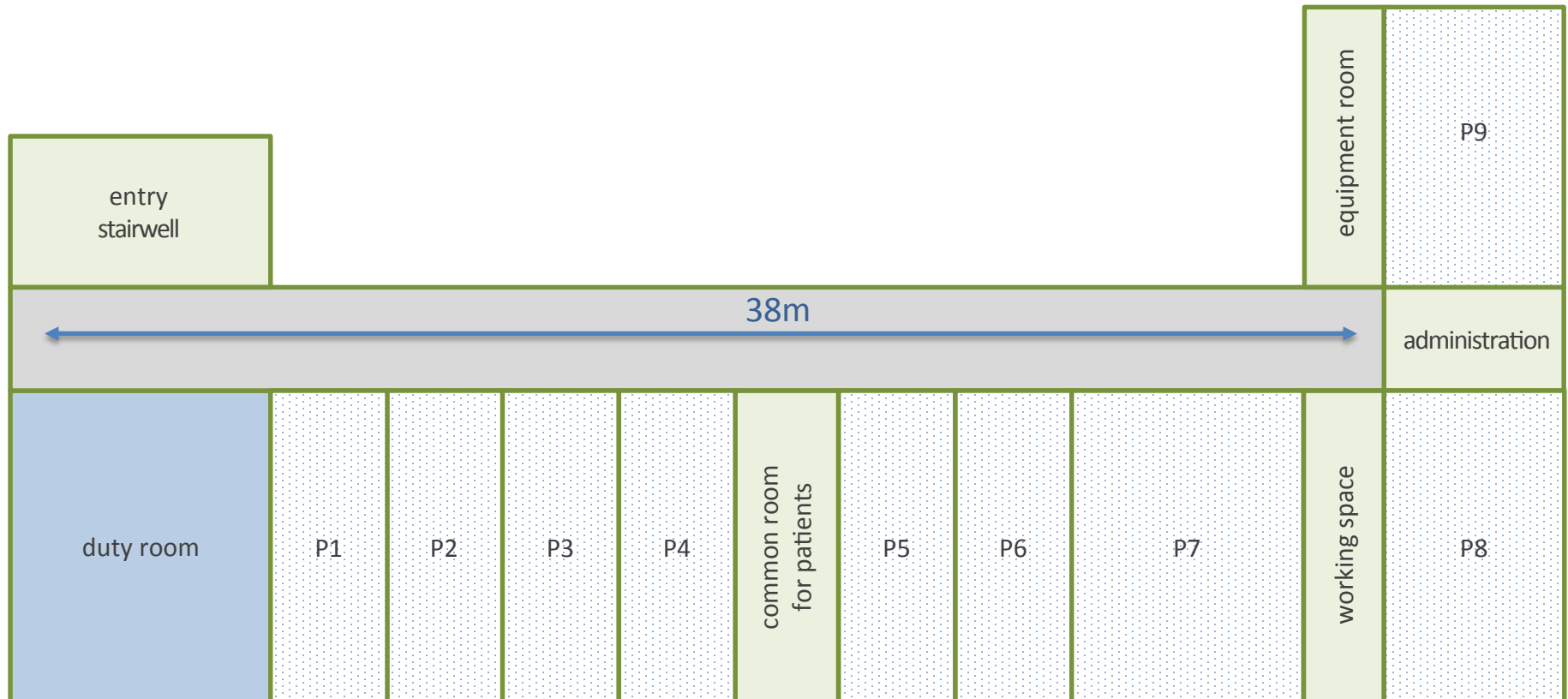
Lübeck: Internal department, 30 patients

(schematic illustration)



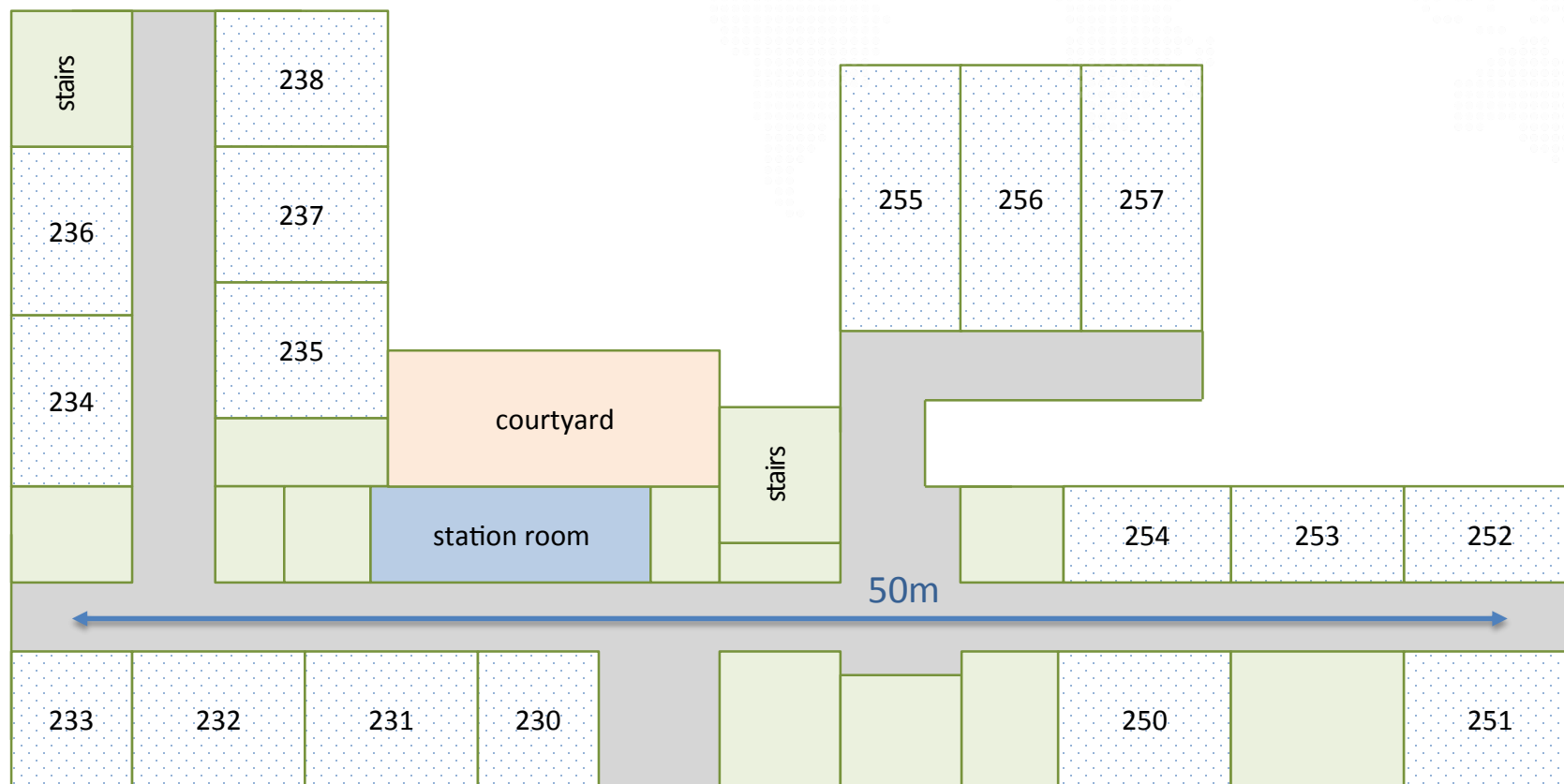
Berlin: Internal department, 17 patients

(schematic illustration)



Gronau: Internal / geriatric, 33 patients

(schematic illustration)



Patient calls sorted by categories

Category	Lübeck	Berlin	Gronau	Total	Percentage
Service call	18	11	23	52	49%
Request for drinks	8	5	9	22	21%
Medicaments	6	4	7	17	16%
Patient questions	5	2	4	11	10%
Others*	1	-	2	3	3%
Emergency	1	1	0	2	2%
Total	39	23	45	107	
per hour**	~5	~3	~6	~5	
per patient/shift***	~1	~1	~1	~1	

Care, drinks, medicaments...

The most common cause for patient calls was to issue service requests (49%). The second most common cause was feeling of thirst or hunger (21%).

Third most common cause was the request for medicaments (16%). Questions of the patients or relatives amounted to 10%; other causes to 3% and medical emergencies to 2% of all calls.

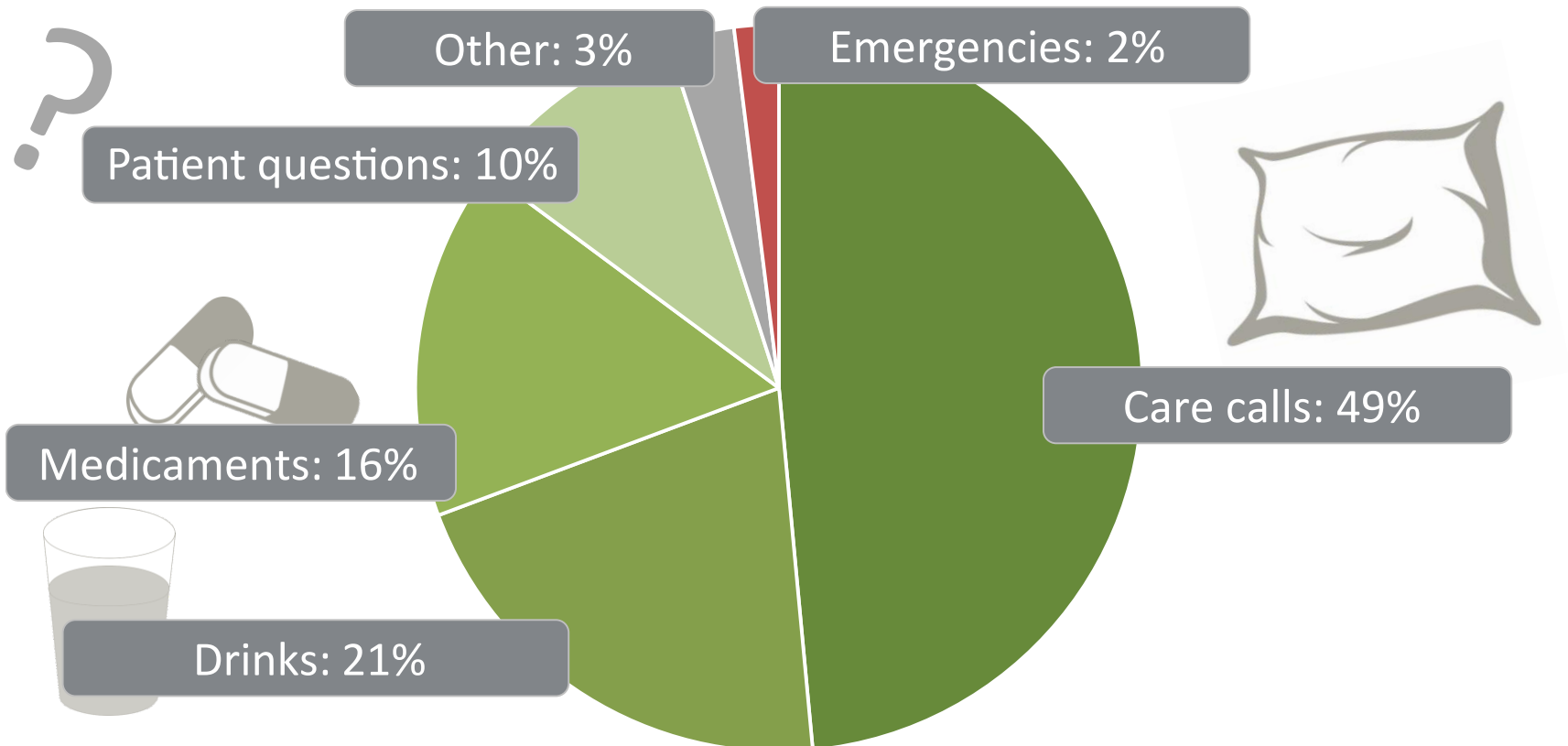
During the time of surveys, only 2 real emergency calls were issued by using the patient call system.

*False alarms, caused by confusion or other causes, and providing telephones for patients

**Surveys cover daytime eight hour shifts (night shifts might differ)

***According to occupancy during the time of survey

Causes for patient calls (median values)





Additional walking routes caused by patient calls

Walking once to and from patient: 63%

additional routes to deliver services: 37%

Over one third of all calls necessitated that the caregivers walk more than one time

Walking routes sorted by causes

(average median values)

Cause	Lübeck	Berlin	Gronau
Medicaments	50m*	35m	40m
Water / drinks	40m	20m	45m
Care calls	20m	15m	30m
Patient questions	20m	10m	25m
Others	-	-	45m
Emergencies	(15m)	(15m)	-
<i>Median per station</i>	<i>30m</i>	<i>20m</i>	<i>35m</i>

*Total walking route from the caregiving station to the destination where the patient call was issued, including necessary additional walking routes for coordination or getting tools or resources.

Longest routes – up to 50m for medicaments

In the hospitals of Lübeck and Berlin, the longest walking routes were caused by patients requesting medicaments.

In Gronau it were requests for water / drinks and other causes.*

Both medicaments and drinks necessitate long walks to get them from their storage spaces.

In all median values, additional walking routes due to coordination between the staff as well as overly long routes for rarely needed equipment were factored in as well.

The shortest walking routes – apart from emergency calls – were measured for patient care calls or patient questions.

Hierarchy of walking routes

Longest routes

Because the environmental and architectural conditions are different in every hospital and station, it is not purposeful to just calculate median values based on only three different locations.

Instead of this, we also calculated the ranking of call categories based on the length of the walking routes. This ranking can better be adapted to different conditions in other hospitals.

Shortest routes

1. requests for medicaments

2. requests for drinks

3. care calls

4. question

Time expenditure for walking routes

(average median values)

Up to one hour for additional walking routes

In this chart we consider the average number of patient calls only for those requests that require additional walking routes and measured the additional time expenditure for the staff. This shows that per station and caregiving shift, up to one hour was spent on additional walking routes. Out of the three stations that participated in the survey, Berlin has the smallest premises and the lowest patient capacity. Thus we assume that there is a relation between station size and time expenditure that should be the subject of additional studies.

Cause	Lübeck (Minutes / calls)	Berlin (Minutes / calls)	Gronau (Minutes / calls)
Medicament requests	3'/6	3'/4	3'/7
Drink requests	3'/8	2'/5	4'/9
Total time expenditure*	42'	22'	57'

*per shift

Up to one hour
per shift per station for additional walking routes



Results of individual interviews

Before the survey started, we also performed qualitative interviews with the caregiving staff. These interviews yielded three major results:

1. Missing categorization of patient calls

All caregiving staff members put emphasis on the fact that patient calls are a great cause for stress. The reason for this stress is that the staff does not know how important a patient call really is. It can be a life-threatening loss of patient health or another issue that cannot be delayed, but also a less urgent service call.

2. Acoustic signals are unpleasant

At one of the sites that participated in our survey, some staff members explained that the acoustic signals of patient calls were so unpleasant that they add considerably to the overall stress level for the caregivers. Even though the works council expressed the need for a change, this was not possible due to technical restraints, so that this additional stress resource still remains.

3. Coordination between staff members can cause unrest

Normally, deciding on which staff member takes a patient call takes place in the station rooms. But this is only the case if there are actually caregivers in that room when the call is issued. If this is not the case, the coordination between the staff members happens somewhere on the station corridors in an effort to save on additional walking routes. In this case, staff members communicate on the corridors about the nature and urgency of the patient call as well. These coordination processes cause additional unrest and noise nuisance and can also undermine the privacy of the patients.

Definitions

Patient call

Technical aid for stationary patients that starts an acoustic and/or visual alarm for the caregiving staff. There are several variants such as push buttons on a wire close to the patient bed, push buttons with radio transmitter worn around the patient's neck, push buttons connected to patient telephones or other fixed consoles and fittings. Some might offer additional functionality such as LED signals, digital displays, microphones or speakers (intercom system).

Alarm

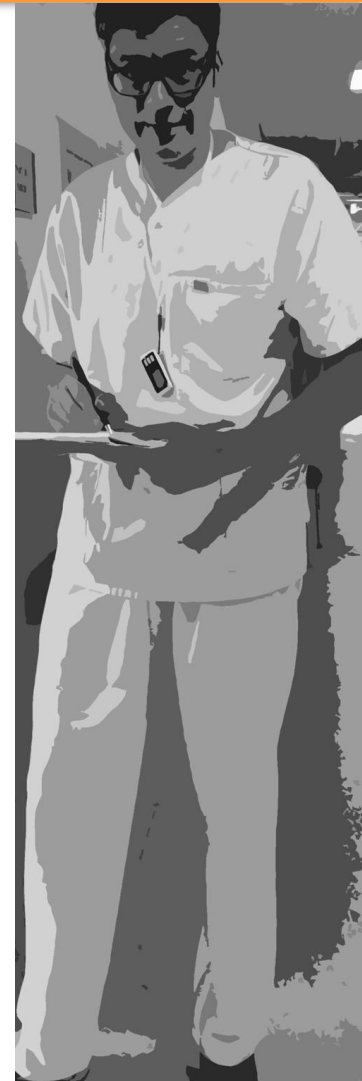
Acoustic and/or optical alarm signal for the caregiving staff when the patient issues a call.

Station room

Often also referred to as "nurse room" – the office room at the station where doctors and caregivers process administrative tasks and/or where medicaments and tools are stored. Normally this is also the center of station communications, where computers and telephones are installed and where the patient calls can be registered and administered.

Caregiving staff

Female staff (often referred to as "nurses") and male staff that usually work in shifts and are taking and processing the calls of patients. This definition does not refer to a certain level of qualification as depending on the circumstances there can be examined caregivers just as well as helpers or interns at the station.



Methodological critique

Problems during the survey and applied solutions

1) Measuring multi-part or disrupted patient services or those that involve leaving the station, such as transportation to external toilet rooms, pickup from toilet (a), getting supplies from other stations (b).

Solutions:

a) Multi-part services were considered as individual patient calls if the second (third, etc.) part of the service was started by a new patient call. b) measuring steps stops and resumes at the entrance to the station. The observer waits there in case the caregiver has to leave the station.

2) Defining routines and patient calls: Some tasks belong to normal hospital routines, such as pickup of food trays, even though sometimes patients might issue a call to do this.

Solution: All routine tasks were included in our measurement if the patient issued a call – independent of the fact that they would have been performed anyway by the caregiving staff at a later time if there would have been no patient call.

3) Different emergency call systems: In one station, an intercom system was integrated so that the caregivers could immediately find out about the nature of the patient calls. In another station there were optical signals on the corridors so that the caregivers could see the room from where the call was issued. In both these cases, some information about the call was available to the caregiving staff before they react.

Solution: Special technical solutions were ignored. It was always assumed that there is a basic patient call where the caregiver does not get any additional information and has to walk from the station room. If there were additional walking routes so that the staff members could coordinate their measurements, those were not factored in.

4) We could not perform zero measurements. The idea was to measure all walking routes of the caregiving staff that were part of routine operations and not issued by any individual patient calls. Such a survey has to be performed separately. All staff members would have to be equipped with step metres for such a measurement.

Solution: We differentiated between simple walking routes (only to the patient room and back) and additional walking routes.

Observation guidelines (1)

The participating observer measures the number of issued patient calls (alarms) during a shift and is equipped with a digital step counter. Between patient calls, the observer stays in the station room. When a staff member accepts a patient call, the observer accompanies that staff member during all actions that are connected to that patient call. If the staff member answers the call from another location, the observer still will walk from the station room to the location of the patient call.

If a patient call is issued, the observer notes the following (before leaving the station room):

- time
- current step count (metres and steps)
- room number (where the call was issued)

The observer then follows the caregiver to the location of the patient call (normally the patient room). There, he waits for all actions of the caregiver. If the caregiver has to walk through the room (e.g. to help the patient with the toilet) the observer will substitute those actions by performing and recording a similar number of steps outside of the patient room to protect patient privacy.

The observer also accompanies the caregiver during all additional walking routes e.g. to get supplies / drinks / medicaments etc. or to coordinate any action that is associated with the patient call. After the patient call has been closed, the observer returns to the station room. Here the time, new step count and category of the patient call will be protocolled.

Observation guidelines(2)

Calls were grouped into the following categories:

- (Life or health threatening) emergency calls: Patient is in immediate need of medical care
- Care calls: e.g. positioning, changing bandages, going to the toilet
- Request for drinks (also for water or food)
- Request for medicaments: Patients ask for medicaments or a drip
- Patient questions (Patient needs some information from the caregiving staff)
- False alarms (technical fault, confusion, human error)

Masthead

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