



Patient Care Boards - A tool to promote patient participation during hospital ward rounds

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ABSTRACT

Objective: This pre-post intervention study investigated the effectiveness of the Patient Care Board (PCB) as a tool to increase the participation of patients and relatives during hospital ward rounds.

Methods: Using The Activity Barometer (TAB), we rated 121 video-recorded rounds to compare participation before and after implementing the PCB into clinical practice. Associations between scores for the extent to which patients ask questions or express preferences and concerns were tested with multiple linear regression.

Results: TAB-scores tended to be higher after implementing the PCB, especially for the relatives. However, no significant differences were found. The greatest impact on participation was time spent on rounds ($p < 0.001$). Preparing questions in advance of the round, as well as using anatomical drawings for explanations, increased patient participation ($p = 0.041, 0.024$). Furthermore, the implementation of the PCB led to higher nurse attendance ($p = 0.003$).

Conclusion: Although we found tendencies towards higher participation, the study could not confirm a significant impact of the overall intervention.

Innovation: Our results suggest that further research is needed, to ensure a higher degree of preparation among the patients, better opportunities for relatives to participate as well as integration of visual information in the rounds.

1. Introduction

The ward round is an essential hospital activity, providing a setting for reviewing and planning patient care. Important decisions are often taken during rounds, creating an ideal opportunity to involve patients and their families ensuring that their preferences and needs are met [1-3].

However, despite the knowledge that the inclusion of patients is beneficial for patient care, patients often remain excluded due to organizational constraints, lack of time, and the traditional medical hierarchy [1]. Descriptive studies reveal that 39.3% of decisions have already been made before the rounds, thereby minimizing the possibility for patient involvement [2]. In less than half of the rounds, patients are asked if they have any questions, and in even fewer, they are invited to contribute to the decisions taken [3].

Several studies have shown that the clinicians' behaviour discourages patient participation during rounds, e.g., by speaking as if the patient were not present, using medical jargon, or treating the patient as an object or a number and not as a person. Furthermore, patient participation is challenged by the patients' vulnerability and the subordinated role that the hospital culture assigns to the patient [4-8]. Consequently, the clinicians set the agenda for the rounds, leaving minimal room for patient involvement.

Patients emphasize the importance of being invited and empowered to participate in the rounds, and to be involved through clear and understandable information [1,4,8]. Walton et al [9] revealed, that patients more familiar with the healthcare system participate more actively, take greater responsibility for their involvement and describe higher satisfaction.

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However, one-third of patients had not heard of the term ward round, nor could they describe its purpose.

Across US hospitals, bedside whiteboards are a highly prevalent, low-cost visual tool that displays and share information between patients, families and medical providers. Preliminary research indicates that whiteboards are an effective tool for increasing patients' knowledge, satisfaction with communication, and engagement in decisions about their healthcare [10-13].

At Herlev hospital in Denmark, a Patient Care Board (PCB) has been developed through action research to facilitate a person-centred practice [14]. The PCB creates an overview of treatment and care throughout the hospital stay and contains various fields for specific purposes. By encouraging patients to prepare and note their questions on the board before the rounds, the PCB serves to empower the patients to participate more actively. The names of the responsible doctor and nurse, an agreed-upon plan, and the expected discharge date, are noted on the PCB during the round. Patients ($n = 125$) evaluated that their involvement increased due to the use of the PCB, indicating that it can promote shared decision-making during rounds [14]. However, no research has investigated the influence of the PCB on patient participation during rounds based on an objective assessment. Hence, this intervention study aimed to investigate the impact of an adjusted version of the PCB through real-life observations of hospital ward rounds. We hypothesized that the PCB would promote patient participation during rounds, as well as increased participation of their relatives.

2. Methods

2.1. Study design

A pre-post intervention design was used to evaluate the effectiveness of the PCB in clinical practice by video recording hospital ward rounds. Patient participation and the participation of their relatives were measured by rating the video recordings.

2.2. Setting and participants

The study was conducted at the Department of Surgery, Lillebaelt University Hospital in Denmark from October 2016 to June 2017. The PCB was implemented at the department in January 2017. The department mainly provides treatment for acutely hospitalized patients with different gastrointestinal diagnoses, resulting in both long, complicated hospital stays and short-term admissions. Eligible for inclusion were acutely admitted adult patients, without a diagnosis of dementia, delirium or other conditions that cause disorientation, who participated in a round. Patients gave informed consent before the rounds, and were then included consecutively if accepting to participate in video recordings. Whenever relatives participated in the rounds, they were included as well. Different patients and relatives participated in the pre- and post-intervention video recordings.

2.3. Local adaptation

Before implementing the PCB, a workshop was held to adjust the design of the board for the department. A team of three nurses, a doctor, and two patients were purposively sampled to discuss the content of the board. The patients expressed a need to be better informed about the routines at the department, e.g., when rounds took place, blood tests were taken and medicine dispensed. The clinicians expressed a need to document and thus better remember future plans for the patient, e.g., outpatient follow-up visits and examinations. Based on those requests, a holder was attached to the PCB for pamphlets of relevance for the patient, e.g., general information about the department and discharge plans. As the clinicians preferred long-term planning for the assessment, treatment and care of the patients, they saw no need for rounds every day for all patients. The patients agreed to that decision, as they found doctor continuity and follow-up on plans more important than daily rounds. Based on those considerations, the

field "Next ward round" was added to the PCB, intended to be filled in mutually by the patient and the doctor (Fig. 1).

2.4. Testing in clinical practice

The new prototype was tested in the department for two weeks to investigate the usability and the organisational issues important for the implementation. The experiences were discussed in a workshop with six doctors and seven nurses. All clinicians emphasized that the nurses play an important role during rounds and suggested that they were responsible for introducing the patients and relatives to the PCB, as well as supporting the patients in preparing and writing questions on the board prior to rounds. In addition, the nurses should note the agreed plan on the board during rounds. As some doctors used either handmade drawings or drawings printed from Google to visualize the gastrointestinal system for the patients, they asked for a visual tool to explain the patients about their illness and treatment. Therefore, an anatomical drawing was produced and placed on the PCB to be used during rounds.

2.5. Outcome measures

The primary outcome measures were patient participation and the participation of relatives, measured by the extent to which they asked questions or expressed preferences and concerns during the rounds. Each statement was scored using a validated assessment tool: The Activity Barometer (TAB) and summed in a total score for participation. Secondary outcomes were the scores from each type of statements and the participation within different patient groups.

2.5.1. Assessment tool

The participation was assessed by using TAB [15], which consists of three categories used to describe the types of questions and statements that provide the patients with varying degrees of influence. Incomplete questions or statements were awarded one point, while general questions and statements that were not related to the specific situation were awarded

Patient Care Board	
My plan:	My questions:
Expected date of discharge:	Next ward round: (added after local adaptation)
Booklet holder (added after local adaptation)	Doctor:
Anatomical drawing (added after testing in clinical practice)	Nurse:

Fig. 1. The Patient Care Board.

3 points. Finally, specific questions and statements regarding the illness and treatment were awarded 10 points [16] (Supplementary file).

TAB was developed based on a literature review of existing, validated measuring instruments, feedback from an expert and a patient panel, and a pilot test [15,16]. In a previous study [17], the authors (HP, EI and JA) have further developed and tested TAB by examining the face and content validity, reliability, and construct validity of the tool, by rating audio recordings of clinical consultations. In this process, a codebook was developed to ensure reliable ratings. The inter-rater reliability for the total TAB-score (0.85), the questions (0.92), and the preferences/concerns (0.6) were all above acceptable thresholds. Since TAB has not previously been used to rate video-recorded rounds, a test of the inter-rater reliability was conducted for this study, finding similar results. Measured by 40 double coded ratings, the inter-rater reliability for the total TAB-score was 0.85 (CI: 0.72; 0.97, $p < 0.001$, mean difference: 21.63 points). For questions, the inter-rater reliability was 0.88 (CI: 0.78; 0.98, $p < 0.001$, mean difference: 10.30 points). Due to a higher degree of subjective interpretation, the inter-rater correlation was lower for the preferences and concerns, with an inter-rater reliability of 0.62 (CI: 0.42; 0.82, $p < 0.001$, mean difference: 14.38 points). Bland-Altman plots showed that a higher score was associated with higher variance in the inter-rater measurements.

2.5.2. Data collection

Video recordings of rounds were collected from October to December 2016 (pre-intervention) and from April to June 2017 (post-intervention). A power calculation was made based on the differences found in previous studies using TAB [16,17]. A mean improvement in participation of 25–30 points ($sd: 70$) was assumed, giving a sample size of 100 video recordings pre- and post-intervention. The final sample size was based on a pragmatic approach with 29 scheduled days for data collection, aiming to meet this sample size.

Before the rounds, the doctors prepared themselves as usual by reading the medical records and discussing the patients with the nurses. The first author followed the doctors continuously with a handheld video camera to the patient rooms, if consent was given by all parties.

The video recordings were supplemented with socio-demographic information about the patients, including age, gender, educational level and diagnosis. The patients provided this information prior to the rounds as part of the informed consent. In addition, the duration of the rounds, the presence of relatives, and the use of the anatomical drawing were registered. Nurse attendance was registered if a nurse was present for more than half the time spent in the patient room. Finally, the doctor and nurse continuity was registered, by noting whether it was the patient's first encounter with the doctor and nurse or if they had met before. The clinicians provided this information.

2.6. Data analysis

2.6.1. Coding procedure

The coding procedure was performed by two authors (HP, EI), who were trained to use TAB. The verbal content of the video recordings was transcribed before the coding procedure. Ratings were then performed based on the written material supplemented by watching the video recordings to include ratings of actions and nonverbal behaviour. When the raters identified questions, preferences, or concerns from the patients or relatives, these were noted in the transcribed text.

The two raters double-coded the first 40 video recordings (20 pre-intervention and 20 post-intervention) and discussed whether adjustments were needed in the codebook. The final scores of these ratings were obtained by an inter-rater agreement.

No changes were made to the original codebook. However, additional coding instructions were added, e.g., instructions for coding nonverbal expressions. If the participants expressed questions or concerns through nonverbal behaviour, this was rated as incomplete statements (1 point).

The ratings were stopped when the doctor left the patient room. In some rounds, the nurses continued the conversation with follow-up or

care-related topics. The follow-up could take place immediately after the round or later on. In these cases, this part would not be captured on the video recordings. To ensure an uniform evaluation regardless of timing, the follow-up by the nurses was not included in the ratings.

When the inter-rater reliability was acceptable, one rater (HP) coded the remaining 81 video recordings. To ensure consistency 1 out of 7 ratings (in total 12) were reviewed by the second rater. After the coding procedure, the ratings were transferred to REDCap, which is a secure, web-based software platform designed to support data capture for research studies [18,19]. To avoid entry errors data were entered twice.

To evaluate the fidelity of the PCB post-implementation, it was registered whether questions or comments from the patients or relatives had been recorded on the PCB in advance of the round, whether the staff referred to the PCB during the round, as well as whether the PCB was updated with an agreed plan during the round.

2.6.2. Statistical analysis

The statistical analysis was conducted using STATA Statistical Software, version 13. No video recordings were excluded from the data analysis. Descriptive statistics were used to describe the characteristics of the sample. Possible differences between the pre- and post-intervention groups were measured by a t-test for numerical variables and a Pearson's chi-square test for categorical variables. If less than five observations in one group, Fisher's exact test was used. Variables with an unequal distribution between the two groups were seen as potential confounders and were adjusted for in the statistical analysis of the outcome measures.

An overall TAB-score was formed by summing the scores from questions, preferences and concerns. The TAB-scores were analysed using a multiple linear regression, which was applied for the comparison between pre- and post-intervention scores. Patient participation depending on different covariates was measured by a t-test to compare the scores between groups. When more than two groups, analysis of variance (ANOVA-test) was used.

The normality of all continuous variables and residuals was investigated by quantile-quantile plots, and no deviations from the normality assumptions were detected. Results with a p -value < 0.05 were considered significant. The inter-rater reliability was calculated by using Spearman's rank correlation coefficient and absolute mean differences between the ratings.

2.7. Ethics

Before participating in video recordings, the patients received written and verbal information about the study and signed a declaration of consent. To avoid the risk of coercion and power imbalance in the recruitment process, the patients were informed that their participation in the video recordings were voluntary and would not affect their current or future treatment. The patients were informed that the consent could be withdrawn at any time. The doctors, nurses, and relatives gave their oral permission to participate. The study was approved by the Danish Data Protection Agency (Journal No. 16/1586). According to Danish law, there was no requirement for approval by the Ethical Committee.

3. Results

3.1. Participants

Of the 121 patients enrolled in the study 58 were enrolled before and 63 after implementing the PCB. The mean age of the patients was 63 years ($sd: 18.7$) and the majority of the patients ($n: 98, 81\%$) were ≥ 45 years of age. No significant differences were found in the mean age ($p = 0.39$), gender ($p = 0.95$), educational level ($p = 0.55$), or diagnosis ($p = 0.14$) between the pre- and post-intervention groups. Only 23 patients (19%) had a relative participating in the round, and 20 (87%) of the relatives were women. No differences were found between the two groups.

Seven (29%) of the 24 included doctors and nine (33%) of the 27 included nurses participated in both pre- and post-intervention video

recordings. A nurse was present significantly more often in the post- than in the pre-intervention video recordings ($p = 0.003$). When examining whether the patient had met the clinicians previously, the doctor continuity was found to be 31% and the nurse continuity 45%, with no differences between the pre- and post-intervention groups.

The mean duration of the rounds was 9.5 minutes ($sd: 5.5$), with a slightly longer duration post-intervention (8.5 min vs. 10.4 min, $p = 0.054$). The majority of the rounds ($n: 88, 73\%$) lasted between 5 and 15 minutes (Table 1).

3.2. Patient participation

Patient participation depending on the different covariates appears in Table 1. Significantly greater participation was seen among women ($p = 0.007$), whereas no differences were found depending on age or educational levels. A positive association between the length of the round and patient participation was seen, with an average increase of 50.5 points on the TAB-score when the round lasted longer than 10 minutes ($p < 0.001$).

The anatomical drawing was only used in nine (7%) of the rounds, but in these cases, the TAB-score increased by 32.3 points on average ($p = 0.024$). An association between the use of the anatomical drawing and the duration of the round was found, with an average increase of 5.2 minutes ($p = 0.006$) (data not shown).

Both the presence of relatives during the round and doctor continuity tended to be associated with lower patient participation ($p = 0.062$ and $p = 0.061$, respectively). In contrast, neither the presence of a nurse nor the continuity of the nurse influenced patient participation.

Table 1
Demographics, covariates, and total TAB-scores.

Variable	All ($n = 121$) Frequency (%)	Pre ($n = 58$) Frequency (%)	Post ($n = 63$) Frequency (%)	<i>P</i> -value	Total TAB-score Mean (SD)	<i>P</i> -value
Patients						
Age						
≤60 years	43 (36)	20 (34)	23 (37)	0.39	54.3 (34.9)	0.14
>60	78 (64)	38 (66)	40 (63)		65.8 (44.2)	
Gender						
Female	56 (46)	27 (47)	29 (46)	0.95	72.6 (42.4)	0.007
Male	65 (54)	31 (53)	34 (54)		52.4 (38.4)	
Educational level*						
Primary/high school	31 (26)	13 (22)	18 (29)	0.55	63.5 (43.6)	0.83
Short/medium education	45 (37)	26 (45)	19 (30)		66.4 (43.3)	
Vocational training	37 (31)	16 (28)	21 (33)		55.5 (36.7)	
Long education	6 (5)	2 (3)	4 (6)		61.7 (48.6)	
Relatives						
Present						
Yes	23 (19)	9 (16)	14 (22)	0.35	47.3 (37.3)	0.062
No	98 (81)	49 (84)	49 (78)		65.1 (41.7)	
Gender						
Female	20 (87)	7 (78)	13 (93)	0.54	47.0 (37.6)	0.92
Male	3 (13)	2 (22)	1 (7)		49.3 (43.5)	
Doctors						
Continuity						
Yes	38 (31)	16 (28)	22 (35)	0.39	51.3 (35.9)	0.061
No	83 (69)	42 (72)	41 (65)		66.5 (43.0)	
Nurses						
Attended						
Yes	104 (86)	44 (76)	60 (95)	0.003	61.9 (42.4)	0.91
No	17 (14)	14 (24)	3 (5)		60.6 (35.4)	
Continuity						
Yes	47 (45)	19 (43)	28 (47)	0.72	58.6 (38.3)	0.48
No	57 (55)	25 (57)	32 (53)		64.6 (45.7)	
Duration						
≤10 min	80 (66)	43 (74)	37 (59)	0.054	44.6 (24.8)	0.001
>10	41 (34)	15 (26)	26 (41)		95.1 (46.8)	
Anatomical drawing						
Used	9 (7)	5 (9)	4 (6)	0.74	91.6 (57.5)	0.024
Not used	112 (93)	53 (91)	59 (94)		59.3 (39.2)	

* 2 missing values

3.3. PCB's impact on patient participation

Comparing patient participation before and after implementing the PCB revealed no significant differences in the total TAB-score, the score for questions, or the score for preferences and concerns. This applies both when the analysis was unadjusted and when using a multiple linear regression adjusting for nurse attendance and the duration of the round (Table 2).

3.4. The participation of relatives

No significant difference in the participation of relatives depending on their gender was found. A positive association between the duration of the round and the participation of relatives was seen, with an average increase of 51.2 points on the TAB-score when the round lasted longer than 10 minutes ($p = 0.011$) (data not shown).

3.5. PCB's impact on the participation of relatives

When comparing the participation of relatives both the total TAB-score, the score for questions and the score for preferences and concerns tended to be higher after implementing the PCB; though, neither the unadjusted analyses nor the multiple linear regression adjusting for nurse attendance and the duration of the round, showed any significant differences (Table 2).

3.6. Fidelity of the PCB

In the post-implementation period, questions or comments from the patients or relatives were recorded on 22 (35%) of the PCB's in advance of the round. Among the prepared patients, the total TAB-score was significantly

Table 2
TAB-scores before and after implementing the PCB.

Patients (n = 121)	Before (n = 58) Mean (CI)	After (n = 63) Mean (CI)	P-value	Adjusted P-value
Questions	35.5 (27.9; 43.0)	41.1 (32.0; 50.1)	0.35	0.71
Preferences/concerns	23.8 (19.2; 28.5)	22.9 (17.4; 28.4)	0.79	0.32
Total TAB-score	59.3 (50.3; 68.4)	64.0 (52.1; 75.8)	0.54	0.39
Relatives (n = 23)	Before (n = 9) Mean (CI)	After (n = 14) Mean (CI)	P-value	Adjusted P-value
Questions	29.4 (11.6; 47.3)	33.2 (12.4; 54.1)	0.78	0.90
Preferences/concerns	13.1 (3.0; 23.3)	22.8 (3.4; 42.2)	0.42	0.60
Total TAB-score	42.6 (19.9; 65.2)	56.0 (21.2; 90.8)	0.54	0.81

higher ($p = 0.041$). The staff referred to the PCB in 54 (86%) of the rounds, mainly at the end of the round to check whether the patient had recorded any questions, or when updating the agreed plan, which happened in 53 (84%) of the rounds. Most often, the plan was presented by the doctor and summarized when updating the board. In some rounds, the nurse updated the plan silently during the round, without referring to it. Neither referring to the PCB ($p = 0.97$) nor updating the plan ($p = 0.83$) affected the total TAB-score (Table 3).

4. Discussion and conclusion

4.1. Discussion

Investigating the impact of the PCB on the participation of patients and their relatives during hospital ward rounds showed that all TAB-scores, except the preferences and concerns expressed by the patients, tended to be higher post-implementation. However, no significant differences were found.

The greatest change in TAB-score was found for the relatives' expressions of preferences and concerns, indicating that the PCB might be beneficial to support the relatives in their participation, particularly within this domain. Interestingly, the presence of relatives tended to be associated with lower patient participation. This trend was also seen in the pilot test of TAB, where a correlation between less active patients and more active relatives was found [16]. This could indicate that the relatives participate in rounds to support less active patients, by speaking on their behalf. However, only 19% of the patients in this study had a relative to support them.

The greatest impact on TAB-scores was associated with the time spend on rounds. The TAB-scores doubled when rounds were longer than 10 minutes. Furthermore, we found a slightly longer duration of the rounds post-intervention. Previous studies reveal that traditional rounds may be too short for questions with an average time spend with the patient of as little as 7.5 minutes [5,20].

Table 3
Fidelity of the PCB and its effect on total TAB-scores.

Variable	Observed n Frequency (%)	Total TAB-score Mean (SD)	P-value
Preparation of questions			
Yes	22 (35)	80.5 (48.4)	0.041
No	41 (65)	55.1 (44.5)	
Reference to the PCB			
Yes	54 (86)	64.1 (44.7)	0.97
No	9 (14)	63.3 (62.9)	
Agreed plan updated			
Yes	53 (84)	64.5 (45.1)	0.83
No	10 (16)	61.0 (59.2)	

Other studies investigating bedside whiteboards to enhance patient-centered communication have identified several barriers to effective introduction and implementation in clinical practice [12,13,21]. Investigating the fidelity of the intervention in this study revealed that the PCB was referred to in most rounds. Nonetheless, as this was done at the end of the rounds, the patients' agenda was not stated at the beginning of the consultation as recommended in the Calgary-Cambridge Guide for patient-centered communication [22]. This minimizes the opportunity for the patient to influence the content of the round and the agreed plan. Patients who had recorded questions or comments on the PCB in advance of the round participated more actively, indicating that this preparation is essential to promote patient participation. However, only one-third of the patients were prepared for the round.

In addition, we found that the use of the anatomical drawing increased patient participation. This finding is consistent with a meta-analysis [23] revealing that using pictures to convey health information increases knowledge and understanding, especially for lower health literacy populations. With an increased understanding of the information provided, the patients can express more specific questions and concerns about the treatment plans suggested by the clinicians.

Nevertheless, very limited use of the anatomical drawing was seen.

Consistent with other research [24], the female patients in this study were more participatory than the male patients. In addition, the majority of the participating relatives were women. Clinicians should be aware of this gender inequality and support increased participation among men.

The implementation of the PCB led to higher nurse attendance. Previous studies indicate that nurses, compared to other clinicians, use the PCB most often, as they feel responsible for updating and maintaining the content on the board [12,25]. Thus, with the PCB, the nurses have been given a more clearly defined role during rounds, and it has become a priority for them to participate. This can be considered of great importance as several studies reveal that, even though nurses can play a vital role in preparing and supporting patients to participate during rounds, nurse attendance in traditional rounds is often limited [26-30]. However, we did not find support in our data for a relation between nurse attendance and patient participation.

The study has some limitations. Firstly, our sample size was based on pragmatic data collection. With the given sample size a change in overall TAB-score of >35 points would be needed to document a significant change. However, changes of ≥ 10 points would be enough to provide clinically relevant results, as this would reflect an increase in participation given either one specific or multiple general statements. Hence, the study has been underpowered, and the insufficient sample size limits the conclusions that can be drawn.

Secondly, the participants knew they were being observed, which might have altered their behaviour in the rounds to perform better. As we did not register how many or why patients were not video recorded, the sample might not be representative of all patients in the department. However, due to clear in- and exclusion criteria, the two groups were comparable in terms of demographic characteristics, minimizing the risk of selection bias.

Finally, it was not possible to blind the raters, as the video recordings revealed the intervention status. However, we used a well-known assessment tool validated in previous studies. The two raters were trained using TAB, and we added coding instructions to ensure reliable ratings in this new setting. Testing the inter-rater reliability showed that the raters were able to reliably score the video recordings with inter-rater reliabilities comparable with our previous study [17]. This finding indicates that TAB can be used as a reliable tool for the assessment of participation during rounds.

4.2. Innovation

To our knowledge, this is the first study to evaluate the effectiveness of the PCB based on an objective assessment of the participation of patients and relatives during rounds. Our results suggest that further research is needed to ensure a higher degree of preparation among the patients, better opportunities for relatives to participate as well as integration of visual tools in the rounds. This calls for an innovative and user-involving process including all stakeholders and assessment of implications for practice.

4.3. Conclusion

Introducing the PCB, we found tendencies towards higher participation during rounds, especially for the relatives. However, the study could not confirm a significant impact of the overall intervention. The greatest impact on participation was the time spent on rounds. Other positive impacts were the preparation of questions in advance of the round, use of an anatomical drawing for explanations and increased nurse attendance. However, integrating the use of the PCB in itself might not be sufficient for ensuring higher participation. Further research is required to identify an optimal strategy to support the active participation of the patients and their relatives during hospital ward rounds.

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Personal identifiers

The authors confirm that all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the study.

CRediT authorship contribution statement

Helle Poulsen: Conceptualization, Investigation, Methodology, Validation, Formal analysis, Writing – original draft. **Maiken Wolderslund:** Supervision, Writing – review & editing. **Else Dalsgaard Iversen:** Methodology, Validation, Writing – review & editing. **Jane Clemensen:** Writing – review & editing. **Jette Ammentorp:** Conceptualization, Methodology, Writing – review & editing. **Poul-Erik Kofoed:** Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pecinn.2023.100150>.

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