


ORIGINAL ARTICLE

Hospitalised patients' experiences during Negative Pressure Wound Therapy due to surgical site infection after vascular and cardiac surgery

Charlotte B. Thorup^{1,2}  | Mette Hougaard³ | Pernille F. Blindum⁴ | Erik E. Sørensen^{2,5}

¹Department of Cardiothoracic Surgery and Department of Cardiology, Aalborg University Hospital, Aalborg, Denmark

²Clinical Nursing Research Unit, Aalborg University Hospital, Aalborg, Denmark

³Department of Heart and Lung Surgery, Aalborg University Hospital, Aalborg, Denmark

⁴Department of Vascular Surgery, Aalborg University Hospital, Aalborg, Denmark

⁵Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Correspondence

CB Thorup, Aalborg University Hospital, Sønder Skovvej 5, 3 etage, Office 313, 9000 Aalborg, Denmark.

Email: cbt@rn.dk

Surgical site infections that develop after vascular and cardiac surgery are often treated with Negative Pressure Wound Therapy (NPWT). Due to the severity of the infection and risk of bleeding, this NPWT often requires hospitalisation. Fourteen patients were selected for qualitative interviews to investigate their experiences and the meaning of patient participation during hospitalisation with NPWT. Results show that hospitalisation induces tension between an intrusion of privacy and being part of a community. Patients do not feel ill nor are considered ill. They feel minimised, lack participation and miss continuity, yet they still accept their circumstances by adjusting to hospital routines and treatment. The hospital's organisational framework compromises patient participation, yet patients still participate in supporting their own wound healing. They worry, are bored, lack a clear time horizon, and appear to be in an apathetic mood despite having significant time on their hands. In conclusion, the tension between a patient's privacy and sense of community, as well as involuntary participation in other patients' lives, compromises dignity and increases stress. Wound healing appears to be prolonged due to fasting, inactivity and stress. Self-reliant patients are at risk of being minimised and lack adequate emotional care, and the hospital's organisational framework hampers patient feelings of involvement and participation.

KEYWORDS

negative pressure wound therapy, NPWT, patient experience, qualitative interview, surgical site infections

1 | INTRODUCTION

Vascular surgical site infections (SSIs) are common, with an overall incidence in the range of 5% to 10%¹; for cardiac patients, SSIs have been reported in 2% to 10% of all cases.² Negative pressure wound therapy (NPWT) has been widely used as the first-choice treatment of SSIs after vascular and cardiac surgery. NPWT involves a non-invasive system that promotes wound healing through the application of localised negative pressure to the wound surface.^{3,4} NPWT provides infection control via isolation of the wound and wound reduction via the negative pressure, which pulls

the wound edges together and improves microvascular blood flow.⁵ Furthermore, it stimulates tissue granulation and provides wound drainage for the removal of bacteria, blood, and wound exudates.⁵ In general, NPWT reduces the frequency of dressing changes compared with traditional wound care as the dressing changes are often performed every third day with NPWT.⁶ Vascular surgery patients treated with NPWT for perivascular wound infection in the groin have significantly faster wound healing compared with patients without NPWT,⁷ and there was no difference in the quality of life.⁶ When used as a treatment for patients with deep sternal wound infections following cardiothoracic

surgery, there is a reduction in mortality compared with patients without NPWT,^{3,8} as well as a reduction in re-infection rates⁹ and length of stay in the hospital.³

Over the last several decades, there has been an increasing number of NPWT procedures performed as home care treatments¹⁰; however, some treatments still have to be performed as in hospital. These include SSIs after vascular and cardiac surgery due to the severity of the infection and the risk of bleeding from the heart and major blood vessels. As such, the majority of the dressing changes are performed under full anaesthesia in the operating theatre, leading to fasting before the procedure. In addition, the severity of the infection requires intravenous antibiotic treatment 4 to 6 times a day for several weeks.

Patients have identified a number of challenges associated with NPWT when treated at home, such as pain in relation to treatment,^{11–13} reduced mobility,¹³ and restriction in their physical and social life,¹⁴ and they felt dependent on others.^{14,15} Embarrassment was present due to the visibility of the tubing, noise of the machine, sleep disturbance, and the smell of the exudates.^{12–15} They experienced an altered sense of self as the NPWT was a physical reminder that they had a wound.¹⁴ Some tried to conceal the pump under their coats; to avoid noise, some switched the NPWT off in certain situations.¹⁴ Moreover, patients had to adapt to the new technology. On one hand, they felt satisfied as they were convinced they were receiving the most “up-to-date” treatment and expressed an overall positive experience; they reported feeling that the NPWT supported their autonomy and patient participation by facilitating getting out of the hospital and “back to normal.”¹² Patients felt in greater control of their lives and saw the NPWT as an active intervention, which was associated with improved wound healing and control of symptoms.¹⁶ On the other hand, the machine induced pain and occasional skin trauma,^{11,13} in addition to stress, anxiety, and fear that the machine would stop working.^{11,14,15}

Patient participation is a central component of the health vision formulated by The Danish Health Authority.¹⁷ The autonomy and involvement of patients in their own treatment and care has been suggested to increase the dignity and quality of life.¹⁸ In relation to wound healing in general and NPWT in particular, it has been suggested that increased patient participation might decrease negative experiences, such as pain and anxiety, and thereby support well-being and wound healing.¹¹ Patient knowledge of their own illness, disease, and opportunities appears to be a prerequisite for patient participation.¹⁸ In addition, knowledge of how to increase wound healing (eg, increased protein intake, increased oxygen circulation supported by physical activity) appears to support autonomy and patient participation. It is assumed that these patients might further benefit from care that supports their own resources for increased patient participation.

However, no study to date has demonstrated how patients experience hospitalisation while treated with NPWT

Key Messages

- the aim of this study was to explore patient participation and patient experiences with negative pressure wound therapy during hospitalisation for surgical site infections as this area has been poorly described
- a total of 14 vascular and thoracic surgical patients described their experiences through individual qualitative interviews
- privacy during hospitalisation is 2-sided, revealing tension between privacy and a sense of community, and an involuntary participation in other patients' lives compromises dignity and increases stress
- patients do not feel ill nor are considered ill; they feel minimised and lack emotional care
- the hospital's organisational framework compromises patient participation in their own recovery

and how patients experience participation when hospitalised for SSIs treated with NPWT after vascular and cardiac surgery. The aims of this study were therefore to:

1. Explore patient experiences of hospitalisation for SSIs treated with NPWT after vascular and cardiac surgery .
2. Explore patient experiences with their own participation during hospitalisation for SSIs treated with NPWT after vascular and cardiac surgery.

2 | METHOD

The methodology was qualitative and consisted of patient interviews. We used individual interviews following a semi-structured interview guide¹⁹ to investigate hospitalised patient experiences with NPWT and care and to reveal their experiences with participation in relation to their NPWT and care.

2.1 | Patients

From 2013 to 2015, a total of 14 participants were purposefully selected from the Department of Cardiothoracic Surgery and Department of Vascular Surgery at Aalborg University Hospital to provide rich information regarding patient experiences of patient participation during hospitalisation for NPWT due to SSIs.

The inclusion criteria were: 18 years of age or older and received NPWT for an SSI that required hospitalisation for at least 14 days, including at least 4 dressing changes. These criteria captured patients who were considered experienced in being hospitalised and treated with NPWT. The dressing changes had to be performed in the operating theatre. The majority of the dressing changes in the operating theatre were performed under full anaesthesia. The

exclusion criteria were: pregnancy, breastfeeding, or an inability to speak and understand Danish.

The interview guide¹⁹ was based on literature regarding patient participation and patient experiences when treated with NPWT at home.^{11–14,18,20} The interviews were digitally recorded and were transcribed verbatim. Transcription was performed immediately following each interview to provide the researchers with initial insights into the interview text, meaning that transcription was performed alongside the inclusion process. A satisfactory level of saturation was reached when the last few interviews did not contribute any essential new aspects concerning the research subject, and no further interviews were performed.²¹

2.2 | Data analysis

Inductive qualitative content analysis was performed to achieve a condensed and broad description of patients' experiences. The units of analysis (data) were the transcribed interview texts.^{22,23} Interview texts were organised using the software package Nvivo10 (Nvivo qualitative data analysis software; QSR International Pty Ltd. Version 10, 2014). After an in-depth reading of the interview text, "units of meaning" were identified and coded. Codes were grouped into sub-themes and then abstracted into themes (an example is presented in Table A1, Appendix). To validate the reliability of the research, all findings were the subject of continuous dialogue and discussion between the authors.^{23,24}

2.3 | Ethical considerations

The study was approved by the Danish Data Protection Agency (2008–58–0028) and conformed to the Declaration of Helsinki.²⁵ Patients treated with NPWT were recruited, and they provided signed informed consent after agreeing to participate in this study. The study was explained both verbally and in writing to the participants, and all participants had their anonymity and confidentiality maintained.

3 | RESULTS

The study patients included 12 men and 2 women, with a mean age of 68 years (range: 53–80 years). The interviews took place at the hospital at a mean of 19 (range: 13–27) days after NPWT initiation and lasted approximately 45 to 50 minutes. Patients were readmitted to the same ward as their primary surgery; as such, the ward was known to them. All participants and their characteristics are displayed in Table 1. Sternum infection and groin infection were the most common infection types among participants.

The results of the analysis are presented in 2 parts, related to the 2 study aims. When addressing patients' experiences of hospitalisation for SSIs treated with NPWT after vascular and cardiac surgery, 2 themes emerged. These were

"*privacy versus a sense of community*" and "*self-reliance and not being ill*."

In relation to patients' experiences of participation during hospitalisation for SSIs treated with NPWT after vascular and cardiac surgery, 2 themes emerged. These were "*participation compromised by hospital routines*" and "*participation as responsibility*."

These themes are addressed and supported with quotation from the interviews in the following sections. Parts of the content analysis, with authentic citations, are presented in Appendix.

3.1 | Patients' experiences of hospitalisation for SSI treated with NPWT after vascular and cardiac surgery

3.1.1 | Privacy versus a sense of community

Hospitalisation and staying with fellow patients in a hospital room was 2-sided because both the need for privacy and need to be a part of community were in tension. Patients expressed a loss of privacy as noise and disturbances in the ward intruded on their privacy. They did not have the opportunity to decide the structure of their own day as they were confined to the hospital due to their need for antibiotic treatment and their risk of bleeding. One patient said: "*It is like being in prison*" (patient no. 5). In addition, intrusion on privacy was also experienced as an involuntary participation in other patients' lives and illnesses. Intrusion on privacy appeared to be a major burden. One patient said:

You do not have any privacy at all when you stay in a multi-bed room, and you become an involuntary part of others' lives, illnesses and so on. This might also be a major burden (patient no. 2).

In contrast, several patients experienced an increased sense of community as they lived close together. They felt connected, which provided a positive feeling of fellowship and a cosy atmosphere as they chatted with each other in an informal way. Several patients stated:

Then, I hurry back to my roommates; has anything exciting happened? (patient no. 7). Actually, I don't mind chatting with people. It is cozy, you meet some funny people from time to time. However, most of them are discharged after a couple of days (patient no. 5).

In addition, to be a part of the community also means that they have to show consideration for fellow patients when staying in a multi-bed room, like an agreement to not watch television during the night. As such, patients stated that there are several unwritten patient rules they have to follow.

3.1.2 | Self-reliance and not being ill

Over time, patients became increasingly self-reliant as they gradually became more familiar with the NPWT machine,

TABLE 1 Characteristics of the participants

Patient no	Age	Gender	Date for interview	Days with NPWT before interview	Date for NPWT start	Termination of NPWT	Type of infection
1	55	M	18-06-2014	20	30-05-2014	16-06-2014	Sternum infection
2	60	M	25-09-2014	17	09-09-2014	25-09-2014	Others
3	72	F	09-10-2014	15	25-09-2014	10-10-2014	Groin infection.
4	74	M	06-01-2015	32	05-12-2014	09-01-2015	Groin infection.
5	80	F	16-02-2015	19	29-01-2015	12-03-2015	Groin infection.
6	68	M	02-03-2015	16	15-02-2015	04-03-2015	Sternum infection.
7	60	M	13-03-2015	15	27-02-2015	19-03-2015	Others
8	53	M	15-04-2015	17	30-03-2015	14-04-2015	Others
9	67	M	15-04-2015	24	23-03-2015	05-05-2015	Others
10	80	M	29-05-2015	17	13-03-2015	08-06-2015	Others
11	69	M	18-08-2015	14	05-08-2015	06-01-2016	Groin infection.
12	73	M	11-01-2016	24	19-12-2015	06-01-2016	Sternum infection.
13	67	M	04-02-2013	27	09-01-2013	04-02-2013	Others
14	75	M	16-01-2013	13	04-01-2013	17-01-2013	Sternum infection
Average	68			19			

Abbreviations: M, Male; F, Female; Others, Surgical site infections in the leg vessels (graft wound infection) or in the thorax.

and they dealt with minor technical and practical problems. They acquired appropriate ways of getting around despite the NPWT machine. Several patients stated:

The machine became unproblematic. A couple of times it alarmed, and then, I looked at the display to see what I could do myself. It has a small user manual attached, that you can use (patient no. 2). When I go to a shower, I ask for a rack to hang the machine on (patient no. 13).

In addition, several patients reported not feeling ill, yet they had to be hospitalised because of the risk of bleeding. They experienced that other patients were more ill than they were, and they saw themselves as self-reliant, fully mobile, and clear-headed. Several patients stated:

Because, people like me are not ill (patient no. 11). Four weeks of hospitalization is a long time when nothing is wrong with me. I am fully mobile and clear-headed you know (patient no. 13).

Likewise, patients felt that health professionals hardly saw them as ill, and they were therefore expected to be more self-reliant, thus receiving less attention. They felt overlooked and minimised compared with patients treated with acute and planned surgeries. One patient said:

I am not an interesting case. Think about it, I am lying here with older people who have had an operation; they are just cut open with cardiac surgery and so on. That's much more exciting [for the health professionals]. Well,

maybe exciting is not the right word, but I am self-reliant (patient no. 13).

Thus, patients experienced that nurses found it more exciting to care for "ill" patients who needed more care. Despite the fact that patients do not feel ill and are not seen as ill, they are not well and as healthy as they used to be outside the hospital. One patient said: "*Hospitalization is stressful, which is visible as my blood pressure increases. I feel very tense, and I feel stressed*" (patient no 2). Patients experience uncertainty and insecurity, which contributed to an apathetic mood. They lack a time horizon, which is troublesome as they do not know for how long they will need hospitalisation and NPWT. This makes them feel uncertain about their recovery. They experience other patients coming and going while they have to stay for an uncertain length of time. Several patients stated:

I will never get out of here; I will never get well (patient no. 5). You might get hospital tantrum so I try to take it easy. Time stops, and it's a kind of dementia praecox; of course this is said with a note of humor [the patient smiles] (patient no. 11).

They feel insecure as they do not know whether the treatment will last for 1 week or several months. They are bored, time feels unmoving, and they are in an apathetic mood.

3.2 | Patients' experience of patient participation during hospitalisation for SSIs treated with NPWT after vascular and cardiac surgery

3.2.1 | Participation compromised by hospital routines

Patients expressed that their wishes and expectations for participation in the planning of the day were not fulfilled,

leading to frustration, insecurity, and a lack of predictability. For example, they did not have any influence on the timing of rounds, timing for dressing changes, or influence over which health professionals they met and talked with. In relation to rounds, all patients experienced variation; sometimes it was before lunch; sometimes it was in the afternoon; and some days, they did not have rounds at all. Not having rounds frustrated several patients, yet others found it reasonable as they felt that nothing new had to be addressed. Several patients experienced a lack of time for information, follow-up conversations, and extended discussion. One patient said: *“Sometimes the doctors tear around in the ward, and suddenly they are gone again”* (patient no. 6). Others lacked continuity in who they met and talked to, and the dressing changes were often performed by different surgeons, giving patients a feeling of insecurity. One patient expressed: *“It is usually a new doctor every time, and I do not find that to be right, it is not reassuring”* (patient no. 7). Patients want to talk to doctors who know them and their specific wound; they suggested that the surgeon performing the dressing change provide them with information on their progression in the healing of the wound immediately after the dressing change.

Not knowing the exact time for the dressing change caused frustration. Patients often experienced rescheduling of the surgical operation. This rescheduling was often necessary because of other patients' immediate need for surgery. Patients expressed acceptance of this circumstance, but they still felt overlooked and noted:

Well, of course, if somebody needs acute treatment or is sick, they need to be put ahead. That's obvious. On the other hand, there also needs to be time for patients like us. Often, they call the night before telling me that I am scheduled for a dressing change first thing in the morning; then, fasting starts at midnight and you don't get to the operating theater until 1 or 2 pm. At that time, you have been waiting the whole morning, and that's a long waiting time (patient no. 6).

As a result, patients experienced long fasting periods and lengthy wait times. Some accepted this, whereas others found it annoying. Patients expressed:

It is hard, not the fasting part because I am not hungry here at the hospital, but the whole body goes wrong (patient no. 5). Fasting is like hell, you should be able to eat at 6:00 A.M., as they [the surgeons] do not change the dressing until late (patient no. 13).

Patients expressed that the schedule should be better organised as patients felt that they only served to “fill holes” in the surgery schedule.

I get the feeling that they [the health professionals] are using us to fill holes in the daily program for surgery. Of course, they [the health professionals] can do that, but I find it a bit irritating (patient no. 6).

As such, this way of organising hospital tasks (rounds, timing for dressing changes, and which health professionals' patients met and talked to) appears to compromise patient participation. Patients appear to capitulate and accept these circumstances.

You have to go along, resistance doesn't work (patient no. 1). When you are hospitalized, you have to “test the waters,” see how different things are done here. You have to adapt, and if the NPWT cleans out the infection, then it is a major advantage (patient no. 10).

The hospital routines appear to become patients' everyday life. They adapt to the circumstances, despite the fact that they dislike the feeling of “filling holes” in the surgical schedule. When asked how they spend their days, patients respond by referring to the hospital routines. Patients' explain:

Well, in the morning, you have breakfast, and then you take a shower when the shower is vacant. After that, they make the beds. Then, if there is no fresh blood samples, they take new ones, and after that, you are tired and then fall asleep. Then there is lunch, followed by sleeping until half past two and then afternoon coffee. After that I often have visitors, and at five thirty the food wagon comes, and it's time to eat; then I relax; after that, there is evening coffee and then I watch tele and talk and then brush my teeth and then go to bed. This is what every day looks like (patient no. 8).

Patients' experienced that the days just passed by with trivial pursuits, such as watching television, sleeping, reading, having visitors, and waiting. If they are allowed to leave the ward, some go for a walk; still, all days look the same.

3.2.2 | Participation as responsibility

Patients' requirements for participation and information on their progression appear to vary from patient to patient and are dependent on whether the patient is in the acute phase or has been hospitalised for a long time. Several patients expressed that, in the acute phase (where shock, pain, and high levels of medication are present), their capacity to remember information appeared reduced; thus, information and involvement at that time hardly makes sense. One patient expressed: *“The more you recover, and the better*

you get, the more you need clear feedback" (patient no. 2). Other patients felt fully informed and considered themselves responsible for obtaining sufficient information.

They don't necessarily know what I need to know, and they don't know what I know in advance because it is different doctors, so you have to come forward (patient no. 6). And another: I know what is going on, you can count on that; otherwise, I just ask, but they can't say anything for certain, and lots of things remain uncertain (patient no. 11).

In addition, patients distinguish between when their participation appears relevant or not. For example, they found that decisions concerning treatment and care should be medical judgments made by health professionals. As one patient expressed: "*It has to be a medical judgement, treatment and so on. I am just a goddamn civilian*" (patient no 13).

Patients were asked about their knowledge regarding how to support wound healing, such as mobilisation, nutrition, and smoking. The majority of patients had some knowledge of how to improve wound healing, knowledge they obtained from their primary hospitalisation. Patients stated:

I know that protein is helpful for wound healing (patient no. 8). I get many proteins, but they [the nurses] forget to bring the protein drinks to me. It's good for the muscles, to preserve the muscle mass you have (patient no. 12).

Despite some knowledge, several patients did not take any personal responsibility; they did not participate in obtaining a sufficient amount of protein drinks despite easy access to cold protein drinks. Instead, they expected nurses to bring the protein drinks to them.

4 | DISCUSSION

The aims of this study were to demonstrate how patients experience hospitalisation while being treated with NPWT and how patients experience their own participation when hospitalised for SSIs after vascular and cardiac surgery while being treated with NPWT.

Hospitalisation induces tension between the feeling of intrusion on one's privacy and the need to have a sense of community. Furthermore, patients did not feel important or ill, and they did not feel that the health professionals saw them as ill. They felt minimised, did not feel fully involved in the planning of their day, and missed continuity, but they still accepted the circumstances and adjusted to the hospital routines. They worry, are bored and lack a time horizon. They appear to be in an apathetic mood despite having

plenty of available time on their hands. In addition, the way the hospital is organised appears to compromise patient participation; however, patients do not always take responsibility by participating when possible. They show comfort in letting health professionals make decisions regarding care and treatment.

The tension between the feeling of intrusion on privacy, such as involuntary participation in another person's life, and the need for being a part of community was also seen in a study by Rasmussen et al²⁶ that focused on hospitalised patients' dignity. They found that privacy is important for dignity. Despite that, typical boundaries concerning privacy are changed during hospitalisation because patients share private issues with fellow patients they do not know in advance.²⁶ Our study notes that this is critical when it is involuntary. In other studies, patients cherish privacy and prefer single rooms rather than multi-bed rooms^{27–29} because single-bed rooms increase satisfaction with care, sleep, experience of privacy and dignity, and reduce noise,²⁹ despite a sense of isolation.²⁸ As such, hospitalisation appears to affect the balance between privacy and the need to have a sense of community. Our study particularly highlights the role of involuntariness in relation to fellow patients' compromise privacy.

In addition, our study demonstrates that involuntary participation in other patients' lives may lead to stress. Stress appears evident in patients treated with NPWT.^{14,15} Stress is an unhealthy emotion that hampers wound healing. In a study of the impact of psychological stress on wound healing,³⁰ the authors concluded that stress prolongs wound healing both directly and indirectly—directly via activation of stress hormones negatively influencing cellular wound healing and indirectly as individuals who experience high levels of stress are more likely to show unhealthy lifestyle choices (increased alcohol intake, tobacco use, decreased physical activity, experiencing sleep disturbances, and making poor diet choices).³⁰ In addition, fasting leads to malnutrition, increase in the length of stay, morbidity, and mortality, and patients feel physical discomfort, frustration, loss of control, and dismay.³¹ Thus, these patients are at risk of unhealthy stress and prolonged wound healing when hospitalised.

In our study, patients were readmitted to the same ward as for the primary surgery. In a study by Høgh et al,³² patients who were readmitted to the same ward feel minimised as they were expected to be familiar with the ward and hospital routines by the health professionals. They also lacked a feeling of being seen as a unique person in a new situation. Similarly, patients in our study expressed that they felt minimised compared with more "ill" patients, where "ill" is characterised as needing care and treatment, being reliant, immobile, and not entirely clear-headed. Patients reported feeling that nurses found it more interesting to provide care for ill patients than patients who are self-reliant,

like NPWT patients. This is consistent with Williams et al, who note that emotional care has a lower priority than care targeting more pressing physical needs.³³ Similarly, Kitson et al³⁴ stated that there is a tendency for nurses to focus on specialised tasks related to illness and treatment instead of establishing emotional, patient-centred, personal care. In our study, patients expressed that they see themselves as self-reliant, yet they often dealt with heavy emotions concerning their health and future, such as “Will I ever get well?” They often found themselves in an apathetic mood despite the fact that they had plenty of time on their hands. In summary, our study provides new insights regarding self-reliant patients for whom hospitalisation is obligatory due to the risk of major bleeding. Self-reliant patients appear to challenge the health professionals as there is a risk of prioritising more ill patients whose physical needs are more immediate; as such, more self-reliant patients may lack adequate emotional care.

In our study, patients reported feeling bored, introspective, and lacking a time horizon. According to Williams et al, lack of a time horizon challenges the patient’s feeling of control, leading to an increased level of vulnerability and decreased integrity.³⁵ In addition, it appears essential for patients to be able to perform some activities to promote their level of personal control, thereby achieving emotional comfort. For example, normal daily activities such as reading newspapers, watching television, and reading books were appreciated and may alleviate feelings of boredom.³⁵ Patients in our study appeared to use these trivial pursuits, yet the hospital routines (which they had no control over) became their everyday lives. Patients reported feeling that they “filled holes” in the surgical schedule. This can be seen as an example of an organisational framework that hampers patients’ feeling of involvement and participation. According to Kitson et al,³⁴ all patients need nurses to establish a caring relationship and integrate their needs in all aspects of care. Still, the nurse-patient relationship is dependent on a contextual framework, such as the hospital routines and health care system.³⁴ Patients in our study did not have any influence on the surgical schedule. To some degree, they accept these circumstances as other patients’ needs for treatment might be urgent. Still, they lacked a sense of participation.

In this study, patients experienced a lack of continuity as different doctors and nurses performed dressing changes, leaving patients with a feeling of being insecure. According to Sahlsten et al,²⁰ true functional patient participation depends on continuity as continuity is a prerequisite for successful relationships. Furthermore, patients felt that they were overlooked during rounds. According to Sahlsten et al,²⁰ rounds are characterised by a rational order of work, and patients may find themselves in a subordinate position, which is a hindrance to patient participation.²⁰ Sahlsten et al. suggested that nurses support patient’s involvement,

despite the fact that patients sometimes expect the health professionals to know best and expect to be served.²⁰ In our study, several patients asked for more information, and several used the information to support wound healing. Others expected to be served and expected the health professionals to know best. There appears to be a delicate balance between patient participation and trust in the experts and the health care system. Angel et al argue that the difficulties in achieving patient participation may stem from unrealistic expectations.¹⁸ Conditions are not equal when a layperson seeks out a professional; therefore, the participation cannot be fully equal. The layperson leaves a part of their autonomy in the hands of the professional. A distortion of power is irreconcilably embedded in the situation.¹⁸ Sahlsten et al²⁰ state that it is the nurse’s task to support and balance the patient’s resources; they have to work together to achieve mutual goals. Rasmussen et al state that the patient’s wishes to participate suggest that it may be possible for patients to be involved in care and treatment, although occasionally, this could be at the expense of the health care system.²⁶ The desired outcome may be patients who involve themselves in getting better, thus decreasing the length of their stay at the hospital. However, patients lack control over their situation, as well as involvement and participation, and they accept and adjust to the hospital routines. This might be a natural progression from the organisational structure of the hospital and the unequal relationship between laypersons and professionals.

As mentioned previously, these patients require hospitalisation if bleeding occurs and acute haemorrhage becomes crucial. Unfortunately, extended hospitalisation in and of itself appears to negatively influence both the patient and wound healing. Therefore, when the risk of bleeding is no longer active, patients could advantageously be discharged to ambulatory home-care NPWT to support their involvement and control over their own situation. However, there is a lack of evidence concerning when bleeding is actually a risk and when such bleeding may be fatal. To our knowledge, no research has revealed either the actual risk of bleeding or the outcome when bleeding does occur. However, if the risk is not as severe as believed, patients may successfully receive ambulatory home-care NPWT instead of being hospitalised.

4.1 | Limitations

A limitation of the study is that the interviews took place at only 1 university hospital. There is a risk that the culture of patient participation and involvement is different at different hospitals; as such, the results may be influenced by the culture of 1 particular hospital. Another limitation may be the long inclusion period; however, this appears unavoidable as our inclusion criteria excluded all patients with a short period of NPWT for SSI. The fact that more men than

women participated was a coincidence, and a more equal sample between genders might provide additional knowledge. However, more men than women suffer from cardiovascular diseases.³⁶

5 | CONCLUSION

For patients, hospitalisation for SSI treated with NPWT appears to affect the balance between privacy and the need to have a sense of community. Patients share private issues, which might lead to a feeling of intrusion of privacy and involuntary participation in other people's lives. On the other hand, they may develop a special type of bond with fellow patients; still, personal dignity is at risk. Patients are at risk of prolonged wound healing due to fasting, inactivity, and stress. Patients feel minimised, feel they are not seen as a unique person, and lack personal control. This may lead to feelings of vulnerability and decreased integrity. They reported a lack of continuity during rounds and NPWT, and they "fill holes" in the surgical schedule as the structure of their day is formed by hospital routines. These contextual frameworks hamper patient participation, and patients are not fully included in their nursing and treatment as coplayers. Patient participation appears to be multifaceted and, to some degree, unachievable due to the organisational structures and unequal relationship between laypersons and professionals. Still, it is important that nurses use a patient's resources by determining the patient's knowledge, wishes, and experience and build their relationship upon that without preconceptions, despite the fact that the patient is rehospitalised. Considering the study limitations, additional research should be performed to verify the obtained results in a broader context. Furthermore, future research should include how health professionals experience taking care of self-reliant patients in the hospital to put NPWT patients' feelings of being overlooked into a broader context. In addition, research is needed to more accurately evaluate the risk of bleeding and the consequences of eventual bleeding.

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ORCID

Charlotte B. Thorup  <http://orcid.org/0000-0002-7519-2639>

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APPENDIX

TABLE A1 Content analysis

Units of meaning	Sub-themes	Themes
<i>Patients' experiences of hospitalisation for SSI after vascular and cardiac surgery treated with NPWT</i>		
It is like being in prison (patient no. 5) You do not have any privacy at all when you stay in a multi-bed room, and you become an involuntary part of others' lives, illnesses and so on. This might also be a major burden. I feel very tense, and I feel stressed (patient no. 2). Then, I hurry back to my roommates; has anything exciting happened? (patient no. 7). Actually, I don't mind chatting with people. It is cozy, you meet some funny people from time to time. However, most of them are discharged after a couple of days (patient no. 5). The machine became unproblematic. A couple of times it alarmed, and then, I looked at the display to see what I could do myself. It has a small user manual attached, that you can use (patient no. 2). When I go to a shower, I ask for a rack to hang the machine on (patient no. 13). Because, people like me are not ill (patient no. 11) Four weeks of hospitalization is a long time when nothing is wrong with me. I am fully mobile and clearheaded you know (patient no. 13) I am not an interesting case. Think about it, I am lying here with older people who have had an operation; they are just cut open with cardiac surgery and so on. That's much more exciting [for the health professionals]. Well, maybe exciting is not the right word, but I am self-reliant (patient no. 13) I will never get out of here; I will never get well (patient no. 5) You might get hospital tantrum so I try to take it easy. The time stops, and it's a kind of dementia praecox; of course this is said with a note of humor [the patient smiles] (patient no. 11).	Prison, no opportunity to decide for themselves Involuntary part of other persons' lives Follow unwritten roles Difficult to sustain privacy How are the fellow-patients? Cosy chatting Teamwork Community Tackling problems with the NPWT-machine by themselves Use to get around despite NPWT machine by themselves Self-reliance Fully mobile Clear-headed Do not see themselves as ill Not considered ill by health professionals Self-reliant as inconsistent with being ill No time horizon Lack of belief in discharge Other patients get in and out Will I ever get out of here? Long-term patient Hospital tantrum and dementia praecox Adjust to hospital habits Adjust to circumstances	Privacy versus a sense of community Self-reliance and not being ill

(Continues)

TABLE A1 (Continued)

Units of meaning	Sub-themes	Themes
Well, in the morning, you have breakfast, and then you take a shower when the shower is vacant. After that, they make the beds. Then, if there is no fresh blood samples, they take new ones, after that, you are tired and then you fall asleep. Then there is lunch, followed by sleeping until half past two and then afternoon coffee. After that I often have visitors, and at five thirty the food wagon comes, and it's time to eat; then I relax; after that, there is evening coffee and then I watch tele and talk and then brush my teeth and then go to bed. This is what every day looks like (patient no. 8).		
<i>Patients' experiences of participation during hospitalisation for SSI after vascular and cardiac surgery treated with NPWT</i>		
Sometimes the doctors tear around in the ward, and suddenly they are gone again (patient no. 6).	No participation on planning of the day Lack of continuity in the health professionals they meet	Participation compromised by hospital routines Participation as responsibility
It is usually a new doctor every time, and I do not find that to be right, it is not reassuring (patient no. 7).	Not knowing when the dressing change has to occur	
Well, of course, if somebody needs acute treatment or is sick, they need to be put ahead. That's obvious. On the other hand, there also needs to be time for patients like us. Often, they call the night before telling me that I am scheduled for a dressing change first thing in the morning; then, fasting starts at midnight and you don't get to the operating theater until 1 or 2 pm. At that time, you have been waiting the whole morning, and that's a long waiting time (patient no. 6).	Feeling of 'filling holes in the surgical schedule' Feedback and information is needed when you get better Just asking if information is needed Health professionals are experts and patients are just civilians Knowledge is not always used by patients	
You have to go along, resistance doesn't work (patient no. 1).		
It is hard, not the fasting part because I am not hungry here at the hospital, but the whole body goes wrong (patient no. 5).		
When you are hospitalized, you have to 'tests the waters', see how different things are done here. You have to adapt, and if the NPWT cleans out the infection, then it is a major advantage (patient no. 10).		
Fasting is like hell, you should be able to eat at 6:00 A.M., as they [the surgeons] do not change the dressing until late (patient no. 13).		
I get the feeling that they [the health professionals] are using us to fill holes in the daily program for surgery. Of course, they [the health professionals] can do that, but I find it a bit irritating (patient no. 6).		
The more you recover, and the better you get, the more you need a clear feedback (patient no. 2).		
They don't necessarily know what I need to know, and they don't know what I know in advance because it is different doctors, so you have to come forward (patient no. 6). And another: I know what is going on, you can count on that; otherwise, I just ask, but they can't say anything for certain, and lots of things remains uncertain (patient no. 11).		
It has to be a medical judgement, treatment and so on. I am just a goddamn civilian (patient no. 13).		
I get many proteins, but they [the nurses] forget to bring the protein drinks to me. It's good for the muscles, to preserve the muscle mass you have (patient no. 12).		
I know that proteins is helpful for wound healing (patient no. 8).		