

Perceptions of Infection Control Practices and the use of Vignettes to Alter Infection Control Behavior: A Feasibility Study

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ABSTRACT

Aim: To explore the perceptions of infection control practices among healthcare personnel and evaluate the use of authentic vignettes as a means to alter infection control behavior.

Method: Four authentic vignettes were used as a part of reflective dialogues with healthcare personnel. An evaluation of the dialogues was performed with six healthcare personnel using the focus group technique. Qualitative content analysis was used to analyze the data.

Results: The mind-set to help one another and do one's best in every situation was described as a core aspect in preventing the transmission of microorganisms. Having support, taking personal responsibility, being knowledgeable about infection control practices, and having a reasonable workload were seen to play decisive roles in controlling the spread of infection. Discussing authentic comprehensible vignettes with colleagues during the allotted time was considered a valuable method for improving infection control practices.

Conclusion: Meaningful insights on how best to use vignettes as a means to improve infection control practice were gained. These findings should be considered when designing theory-driven interventions in different contexts, which are aimed at improving infection control practices in health care.

Keywords: Feasibility test, healthcare-associated infection, healthcare personnel behavior, infection control practices, qualitative research

INTRODUCTION

Patients' safety is constantly endangered due to the risk of acquiring infections from healthcare procedures (Pittet, & Donaldson, 2005), despite the fact that several risk factors for such infections are modifiable. Some of these factors are: poor application of infection control practices (ICP), improper use of invasive devices, insufficient application of isolation precautions, unfavorable ward occupancy, and understaffing (Loveday et al., 2014; Storr et al., 2017). The main risks for potential organism transmission in health care come from direct contact between patients, healthcare personnel (HCP) who spread nosocomial pathogens from contaminated hands or clothing (Loveday et al., 2014), and indirect transmission by means of medical equipment or surfaces (Livshiz-Riven, Borer, Nativ, Eskira, & Larson, 2015). Thus, it is of great importance to increase infection prevention behavior in clinical practice and among personnel to deliver safe patient care (Pittet, 2004).

Despite available comprehensive recommendations for preventing healthcare-associated infections (Loveday et al., 2014), effective ICPs remain a complex problem in the clinical healthcare setting. Interruptions in the delivery of care can make this even more difficult (Lindberg, Lindberg, & Skytt 2017; Lindberg, Skytt, Wågström, Arvidsson, & Lindberg, 2018). The need to understand the underlying psychological processes that could explain infection prevention behavior among HCP has long been seen as a key factor in improving clinical practice (Pittet, 2004). Such an understanding could be a significant step in accomplishing the changes that are needed to be made structural conditions (Kanter, 1993) and behaviors (Pittet, 2004) for a more effective ICP. Several factors are described by HCP as influencing their infection prevention behavior. Among these are

motivational factors such as social stimuli, the acuity of patient care, and a perceived need for self-protection. Furthermore, factors regarding perceptions of the work environment such as resources, knowledge, and organizational culture are also important (Smiddy, O'Connell, & Creedon, 2015). Accordingly, a shared understanding regarding beliefs, values, and social constructs in relation to ICP is of paramount importance in behavioral interventions (Sandberg, & Targama, 2007). To ensure a theoretically and empirically plausible and a feasible intervention that is timely and meaningful for the staff and organization, a framework was used for guidance before establishing a full-scale intervention (Craig et al., 2013) intended to alter HCP behavior. Vignettes describing the care situations can provide information regarding the rationalizations behind the reflections of the HCP on ICP (Jackson, Lowton, & Griffiths, 2014). Hence, the aim of this feasibility study was to explore HCP's perceptions of infection control practices and evaluate the use of authentic vignettes as a means to alter infection control behavior.

METHOD

Creating Authentic Vignettes

In a medical ward, one of the researchers (MaL) conducted nonparticipant-observations (Lindberg, Lindberg & Skytt 2017) that focused on care situations involving behaviors that carried a risk for microorganism transmission. Based on these observations, we created authentic vignettes, i.e., descriptions of situations in which respondents are asked to express their reactions (Polit & Beck, 2017), which were to be used in a feasibility test. The authentic vignettes covered a) Upper and lower body washing of patients with diarrhea, b) Hand disinfection in patient care, c) Use and misuse of gloves in patient care, and d) Clean and unclean surfaces, and e) cleaning of equipment. An example of these vignettes is presented in Box 1.

Box 1. Illustration of vignette “Upper and lower body washing of patients with diarrhea.”

In your group, discuss and reflect on the risks for organism transmission in the daily delivery of nursing care. Use the situation that is described on the back page of this paper, which has been lifted from your ward. Mark within the text those places you perceive that the persons in question have acted in a way that prevents organism transmission or occasions where their actions led to a risk for organism transmission. Two people were involved in the observed situation, and they are referred to nursing assistant (NA) 1 and 2. Summarize your discussion and reflections below.

NA 1 and NA 2 go into the anteroom and put on protective aprons and double gloves. NA 1 takes out a draw sheet and an bed-covering from the cabinet in the anteroom and they both go into the patient’s room. NA 1 places the items on the patient’s bedside table, lowers the head of the bed, and raises the bed while NA 2 turns on the overhead light. NA 1 opens the blinds and goes into the attached private patient bathroom, fills a washbasin with water, and sets the basin on the bedside table. NA 2 stands at the bedside and waits. NA 1 goes out through the anteroom and disappears down the hall, while NA 2 talks to the patient. NA 1 returns to the anteroom with a package of disposable washcloths, removes the plastic wrapping and throws it away in the anteroom garbage bag. He places the washcloths on the shelf in the anteroom, takes a couple of washcloths, and comes back into the patient’s room. NA 1 puts the washcloths on bedside table and goes back out into the anteroom, opens a cabinet door, and takes out towels, after which he goes back into the patient’s room and places the towels on the bed. NA 1 turns around, removes a receptacle for trash from the wall, and places it on the bed. The NAs help each other remove the patient’s t-shirt, following which NA 1 gives a washcloth to NA 2, who washes the patient’s face. The used washcloth is thrown away, NA 2 takes a new washcloth, washes the patient’s upper body, takes a towel that is lying on the bed, and dries the patient. NA 1 takes a t-shirt hanging on the back of a chair and dresses the patient. After that, NA 1 removes the patient’s blanket and places it on the chair, takes some washcloths from the washbasin, and begins to wash the patient’s lower body. NA 1 stops and goes out into the anteroom, takes off the apron and gloves, throws them away, and goes out into the hall. NA 2 goes into the patient’s bathroom, retrieves a urine bottle and paper, goes back to the bedside and drains the patient’s catheter bag, and dries the opening with paper. NA 1 comes back into the anteroom and puts on an apron and gloves. At the same time, NA 2 goes to the toilet, empties out the urine, throws the paper away, flushes the toilet, and places the urine bottle in the bedpan cleaner that is in the bathroom, after which he removes gloves, throws them away, and returns to the patient’s bedside. NA 1 comes back into the patient’s room and resumes washing the patient’s lower body. He then throws the washcloth away, removes his gloves and puts them on the bed, turns the patient on their side, goes out into the anteroom, throws the used gloves away, puts on new gloves, goes back into the patient’s room, removes the diaper and the underpad and throws them in in the trash. NA 1 then takes paper from the bedside table and applies skin cleanser, washes the patient’s perineum, throws this away, removes the outer gloves, throws them away, takes paper from a roll of toilet paper on the bedside table, wipes away the feces, throws this away, and repeats this procedure three more times. NA 1 removes gloves, throws them away, takes an underpad from bedside table, places it on the bed, goes out into the anteroom, puts on double gloves, returns to the bedside, takes the draw sheet from the bedside table, drops it on the floor, picks it up, folds it away, and removes the draw sheet and sheet. Both the NAs help to turn the patient while they change the sheets. To be continued...

The Feasibility Test

Reflective dialogues among colleagues were used as an intervention to raise the awareness of risk behaviors and thereby reach a shared understanding of ICP. On a weekly basis, an authentic vignette was presented to the ward. The HCP that worked together during a predetermined shift participated in a 15-minute self-managed reflective dialogue. The groups were given instructions regarding the character and aim of the discussions. Each group wrote a summary of the different vignettes based on their discussion and returned it to the researchers.

Participants in the Feasibility Evaluation

The clinical nurse responsible for the ward's staffing schedule arranged a date for a focus group interview with the HCP who had participated in the reflective dialogues. The purposive sample included 6 HCP; 5 females and 1 male, who were aged 24–55 years (mean: 36.2 years) and had been employed for 0.5–14 years (mean: 5.2 years). Five HCPs were registered nurses and 1 was a nursing assistant.

Data Collection

A descriptive design with a qualitative approach was used. Data were collected using a focus group interview technique. The facilitator (BS), who has had experience with group interviews, guided them to remain focused on the topic and ensured that all of the informants contributed to the discussion. An assistant (MaL) who was experienced with group interviews and had incidentally maintained a previous professional relationship with three of the informants, took field notes to record non-verbal expressions. The interview focused on the informants' thoughts and reflections regarding their perceptions of ICP and the experiences from their participation in the reflective dialogues that pertained to the vignettes. The interview guide is presented in Appendix 1. The

focus group interview session that lasted 60 minutes took place outside the medical ward at the local hospital in April 2013. Immediately afterwards, the facilitator and the assistant reflected on the interview. The interview was digitally recorded and transcribed verbatim.

Statistical Analysis

The transcript was read and re-read to achieve an understanding of the text. The field notes, i.e., the tone and context of the comments and specific group dynamics were used to facilitate the analysis. The qualitative content analysis (Patton, 2015) was performed in [Swedish] and then translated to English. When reading through the transcript, two areas were identified that addressed different elements of the study's aim. The meaningful units were highlighted, condensed, and labeled with a code. The codes were interpreted and compared to assess differences and similarities and then abstracted into a set of categories. A theme addressing the respective content area that integrated the underlying content of the interview was formulated and named. Finally, the transcript was re-read to identify and select relevant quotations. The analysis was carried out as a dynamic process that moved between the parts and the whole and was continuously discussed by the authors until a consensus was reached.

Ethical Considerations

The Regional Ethical Review Board in [Uppsala] approved the research plan (Reg. no. 2012/373). Written informed consent for the voluntary participation was obtained from each participant and confidentiality was ensured.

RESULTS

The demographic data of the participants is presented in Table 1. The analysis of the fo-

Table 1. Participant demographics

	Mean	SD	Range
Age (years)	36.2	13.0	24–55
Employment (years)	5.2	5.1	0.5–14
	Female	Male	
Gender (number)	5	1	
	Registered Nurse	Nurse assistant	
Occupation	5	1	

SD: standard deviation

cus group interview resulted in two themes: A mind-set to help one another and do your best, and a reflective dialogue as a valuable means of reaching a shared understanding. The themes and categories described in the text were supported by quotations from the focus group interview. After each quotation, a roman numeral (I, II, etc.) identified the informant.

A Mind-Set to Help One Another and do Your Best

The mind-set to help one another and do your best in every situation was described as a core aspect of preventing transmission of microorganisms. Having support, taking personal responsibility, being knowledgeable about ICP, and having a reasonable workload were seen to play decisive roles in the successful prevention of microorganism transmission.

To have the support and the right conditions

Support to prevent microorganism transmission in the form of written guidelines and helpful colleagues and infection control specialists played a vital role. The informants reported positive experiences with skilled colleagues who were understanding and helpful. The HCP found it easy to contact infection control specialists, as their offices were close to the ward and the HCP were already familiar

with them. Getting help was difficult during night shifts, when nurses were often occupied in the patients' rooms. The staff from the cleaning services who cleaned the patients' rooms after discharge were appreciated and considered competent. The informants described the physical layout of the ward as practical and conducive to the prevention of microorganism transmission as opposed to the anteroom and dirty utility rooms with sinks nearby.

The informants described how being allotted only three sets of work clothes at one time was a limitation. This could prove especially difficult on the weekends. The basement location and limited opening hours of the supply room resulted in the personnel storing dirty work clothes in their lockers or washing the clothes themselves. The informants pointed out that it would be easier to do the right thing if used/dirty work clothes could be left near the changing rooms and there was an unlimited access to work clothes. The informants described that heavy workloads made it difficult to prioritize and act in accordance with ICP, e.g., when they were dressed in protective attire in a patient's room and had forgotten to bring an item. Moreover, heavy workloads were said to cause absent-mindedness. Except when the workload was heavy or in emergencies, the informants reported that they were aware of their noncompliance with ICP.

"...a person knows that everyone else has just as much (informant V), *yes (Facilitator)*, so there is no one that can help right away (informant V). *Yeah its somewhat similar situations... (Facilitator)*. That's a little how it can go (informant V) absent-mindedness and workloads (informant I), *yes precisely (informant V)*. *Yes it's sort of why a person lifts or transfers a patient a little dumb, although one should actually be two (informant VI).*"

Have responsibility for compliance

The informants said that they often knew when they were not compliant with ICP, which made them reflect over their own actions. The reasons were described as stupidity and carelessness. The importance of taking personal responsibility was stressed. Addressing non-compliant colleagues was described as important, but delicate as well. The informants expressed that it was difficult to correct someone who was respected, experienced, and should ideally know the correct protocol to follow. When it was perceived as too difficult to correct someone, the manager was consulted. The informants further said that it was easier to talk to colleagues regarding compliance when they themselves had more experience and confidence. Addressing compliance issues with temporary employees was described as a difficult but important responsibility, because the temporary hospital employees lacked knowledge regarding the guidelines. When temporary employees did not correct their actions despite being given information, the informants questioned whether they were providing sufficient information. They felt that experienced personnel needed to be more explicit and explain clearly why one should act in a specific way.

“Sometimes a person is just stupid (informant VI). For sure (informant V), and careless (informant VI), more careless I think (laughter) though then you know (informant V). Yeah, out in the anteroom with gloves and an apron on and take hold of the cabinet handle (informant I)... *yes (Facilitator)*, yes although I’m actually clever to open it with my foot (informant V).”

The same level of knowledge regarding infection control

Informants described how they suspected that by the misuse of gloves, hand disinfectants, aprons, and the lack of knowledge on how to use the anteroom doors to sustain the

negative room pressure, the temporary employees had low levels of knowledge regarding infections and ICP. The need to change the personnel’s focus from the risk of their becoming infected to a focus on the risks for the patients was described. It was perceived as easier to know how to act when patients had a specific diagnosis or an identified contagion.

“But I think that many believe they have an apron and gloves on to protect themselves (informant V), mm (informant II), not in the sense of spreading infection (informant V). Precisely (informant VI), *Mm (Facilitator)*, really (informant V). So, a person doesn’t get their work clothes dirty (informant I). Yes, yes (informant V). Yes, you can often get the answer, I’m not afraid (informant VI).”

Reflective Dialogue is a Valuable Means for Reaching a Shared Understanding

To discuss authentic vignettes with colleagues was considered a valuable method for improving ICP. The possibility for all colleagues to participate, the use of authentic and comprehensible vignettes, and having time allotted for discussing the vignettes were described as significant requisites for successful implementation.

Authentic and comprehensible basis for discussion

The informants stated that it was valuable to reflect on the different care situations exemplified in authentic vignettes. The content was described as important and was considered thought-provoking. Reading and discussing a vignette could be accomplished in 15 minutes without previous preparation by the personnel even though 1 vignette was somewhat complex. The informants underscored the importance of having something to discuss, i.e., prepared vignettes that made the discussions meaningful and limited the risk that the ambivalence of the group discussions would fade.

The questions and statements provided with the vignettes helped facilitate the discussions. The HCP described how the vignettes and discussions opened their eyes on how to act in different situations.

"...after the first discussion you started thinking, do we really do things like that (I)? At first we didn't think it was from our ward (informant II) (a little laughter and agreement is heard). We thought that we can't have it like this (informant II). We don't really do like that (informant I). *Mm (Facilitator)*, but it seems we did, at least somewhat (informant V) (small laughter)."

Good planning combined with flexibility facilitates implementation

The informants expressed the importance of all ward personnel having the opportunity to think and reflect together on a predefined topic that was central to the delivery of care. They further explained that it could be advantageous if the group's composition was varied. That could lead to "new" constellations of personnel having different discussions, which could lead to discussion and reflection on new aspects. The informants said it would be worthwhile to have group discussions for 15 minutes every week. Adequate practical preconditions were important for the informants. Despite the fact that the management had encouraged participation, it was hard to prioritize group discussions when it was evident that members of the nursing staff were needed by patients or by tired and crying colleagues. A place to sit outside the ward eased the discussion as it provided peace and quiet. It also reduced guilty feelings among the HCPs of not being available in the ward. Planning for participation was described as important but difficult, as many aspects needed to be taken into consideration. It was proposed that participants should not be from the same care team and that members of the groups should be

varied due to the work schedules. It was also suggested that time should be allotted to suit everyone, but to do this, better staff was needed. The informants took matters into their own hands and decided, from time to time, when it would work best for them to meet. Moreover, they had discussed two vignettes on one occasion in order to accomplish the planned discussions. There was no predefined designated time for the group discussions, and if there had been, it was suggested that the discussions would have been perceived as more important and would have been more prioritized by the informants and their coworkers. Even though it was considered difficult to find time to participate at a predetermined time, e.g., at the end of a shift the same day each week, it could be helpful to do so because everyone would understand that those who had worked that day would be participating. The informants said that group discussions would be easier to execute when everyone knew the time, day of the week, and number of participants. It was also suggested that after some weeks of discussions, a pause of a few weeks could be a good strategy to bring about a new start and focus to the discussions. Discussing reoccurring topics was considered to be a good way to keep the discussions updated and new personnel involved.

"We don't all work at the same time ...//... yes about this... it wouldn't work otherwise because you seldom always work with the same people (informant I). *Mm (Facilitator)*. The combination of those of us who have met has been steered by who has worked (informant VI)... *mm (Facilitator)* at the same time (informant VI)...//... a plan, everyone that goes away can't be on the same, be on the same care team, then that side would be rather vulnerable (informant I). *Yes that's right (Facilitator)*. So a person has to think (informant I). *Yes (Facilitator)*. Even if it is only for fifteen min-

utes there has to be someone to answer the calls (informant I). *Yes (Facilitator)*. Yes, but like today its rather precarious because four of us are from the same, no three of us (informant VI), mm (informant III) are from the same care team (informant VI)."

DISCUSSION

To acknowledge one's own incorrect infection prevention behavior and lack of compliance regarding the guidelines inspired the informants to reflect upon and identify other risk behaviors for microorganism transmission. This in turn led to the identification of inadequacies in structural conditions, which impedes one from acting in a correct manner when it comes to ICP. In order to enhance compliance to ICP, it is important to consider the determinants of infection prevention behavior (Pittet, 2004) and engage the HCPs to describe significant aspects in the prevention of microorganism transmission. Since nurses might justify their own incorrect ICP despite receiving a good education and sufficient knowledge (Jackson et al., 2014), it is of particular importance to perform interventions that influence the HCP's perceptions and behaviors when attempting to improve ICP. In theory, Kanter (1993) describes workplace empowerment structures that are essential to organizational effectiveness. The social structures of the organization/workplace rather than personality predispositions enable the personnel to fulfill their duties. Power 'to get things done' is described as being derived from the ability to access and mobilize information, support, resources, and opportunities. Access to information means having the information needed to carry out one's work. In this study, the importance of written ICP guidelines was laid out. Support is made up of feedback and guidance from coworkers and superiors, which enables autonomous decision-making and innovation.

The informants had good experiences regarding the support they received from colleagues and knowledgeable specialists, and that was expressed as playing a vital role. Resources refer to the access to sufficient time, supplies, materials, and funds. The informants said, in general, their experiences of getting help from their colleagues were good. Due to lack of resources, the possibility to get help during the night shifts was limited. The shortage of and problems described with work clothes are other examples of lack of resources. Opportunity is provided when employees have the possibility to develop knowledge and skills, and to advance in the organization. The need for knowledge in the personnel group regarding ICP was emphasized; and in particular, for the temporary employees who were perceived as being less familiar with ICP. According to Kanter (1993), it is the management's responsibility to create preconditions for their staff so they can properly perform their duties such as complying with ICP. This is achievable through interventions that are timely and meaningful for the staff and organization. However, there needs to be a shared understanding regarding infection control and the risk for organism transmission (Lindberg et al., 2017; Sandberg & Targama, 2007).

Feasibility evaluations are often undermined by problems of acceptability, compliance, delivery of the intervention, recruitment, and retention (Craig et al., 2013). That acceptability was obtained is illustrated by the theme for the content area, i.e., "Reflective dialogue is a valuable means for reaching a shared understanding." The fact that there is value in groups discussing their own everyday work permeates both categories in that theme. This, in our opinion, will lay a foundation for the improvement in infection prevention in clinical practice. As the group discussions were free to evolve on their own, the discussions of the vignettes could be adapted and made meaningful by the groups. Meet-

ing once every week to discuss the vignettes was considered meaningful but was considered difficult in terms of managing scheduling and staffing. It is our understanding that it is of particular importance, which is to be open-minded regarding how the discussions and reflections over the vignettes are delivered since clinical practice is complex with highly fluctuating prerequisites for the personnel participating in the group discussions. We had no difficulties recruiting or retaining participants in the feasibility test, which might be attributed to the fact that the topic was highly relevant. The focus group interview also gave us an understanding about the importance of getting all the personnel on the ward involved, as infection prevention is a common problem. The possibility for all HCP to participate in the intervention is essential when there is a focus on achieving a shared understanding (Sandberg & Targama, 2007). Another important aspect regarding the intervention delivery is the vignettes. In our case, authentic vignettes were crucial for the fulfilment of the intervention test. However, it is also important that the vignettes are comprehensible.

Study Limitations

Our study was conducted in a rigorous manner to ensure trustworthiness. Nevertheless, the limited generalizability to other hospital settings is inherent in any qualitative study. Using a questionnaire to reach everyone on the ward who participated in the reflective dialogues was a possibility, but we chose to use a group interview technique with participants from different discussion groups to facilitate a deeper exploration of their experiences. Moreover, focus group interviews are known to promote enriched dialogue, which we experienced during the discussions. The informants shared their experiences and opinions from many different aspects. From the exemplifying quotations, one may get the impression that only a few informants expressed

their experiences. However, those specific quotations were chosen because they are examples of the interactive group dialogue. This can be noted by the interposed murmuring and nodding. In the transcribed text from the interview, it can be confirmed that all informants contributed with their experiences and opinions. A cautionary note is that the assistant previously had a formal professional relationship with three of the informants. However, there are no indications that this had any influence on the findings.

CONCLUSION AND RECOMMENDATIONS

This feasibility study has revealed important standpoints central for preventing micro-organism transmission during the delivery of health care. Likewise, meaningful insights on how to best use vignettes as means to improve infection prevention behavior have been gained. These findings should be considered when designing plausible theory-driven interventions aimed at improving infection control practice in health care.



You can reach the questionnaire of this article at <https://doi.org/10.5152/FNJJN.2019.19005>.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Uppsala (Reg. no. 2012/373).

Informed Consent: Written informed consent for the voluntary participation was obtained from each participant and confidentiality was ensured.

Peer-review: Externally peer-reviewed.

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Appendix 1. Guide for the focus group interview

Narrate and discuss your thoughts and reflections with each other.

Regarding the use of group discussion based on authentic care situations from your daily work to prevent the risk for spread of infection.

- Can you give some examples of when it has been easy or difficult to carry out these discussions?
- Is it a suitable way to work?

Regarding the opportunity to maintain such work at your department.

- What obstacles have you encountered?
- What conditions are needed to be improved?

Regarding your own responsibility for adherence to hygiene routines and preventing the spread of infection in healthcare.

- Can you give examples of when it has been easy or difficult to take such responsibility?
- What makes it easy or difficult to take responsibility for preventing the spread of infection in healthcare?