

## Safety and Quality Management of Pressure Ulcers in a Jordanian Public Hospital: Qualitative Study

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### Abstract

Pressure ulcers are significant, complex health problems that occur during hospitalisation on an international scale and their prevalence is high. The study aimed to identify and examine existing attributes that were seen to be problematic in managing patient risk of pressure ulcer. A qualitative study design was used to generate an in-depth theory of safety and quality issues regarding managing pressure ulcer. In-depth interviews were conducted with 12 participants. Thematic analysis came out with five major themes; cultural safety and risk assessment; a model and quality of care and patient safety; systemize the working processes; multi-disciplinary communication; and human and physical resources. Nurses' responses focused on improving patient safety in acute care with patient should be the central focus of the clinical care decisions at the clinical, organisational and national levels. Great impact on improving patient safety, managing quality and practical framework for health services transition and reform in the health system should be concurrently implemented

**Keywords:** Pressure ulcers, Patient Safety, risk management, Jordan nurses

### 1. Introduction

Jordan is a developing nation in the Middle East with a total population of 6,530,000 and the vast majority of them reside in urban areas or major cities (Department of statistics, 2013). The latter showed that 2,528,500 (38.7%) of the total population reside in the capital Amman. The statistics shows a growth rate of the Jordanian population with 2.2% per annum; the crude birth rate was 28.1 per 1000 in 2013 (Ministry of Health, 2013) and the crude death rate is 5.8 per 1000 which is similar to most developing countries (Ministry of Health, 2013). Jordan was expected to experience an increasing percentage of older people in the coming years which may introduce changes to health services, especially the incidence of cancer and chronic illnesses increase with age (Ministry of Health, 2007). Furthermore, on the global level, the leading cause of all mortality in 2014 was cardiovascular disease, including hypertension, coronary heart disease and stroke at 35% of total deaths (WHO, 2014).

Health services in Jordan are provided through the Ministry of Health (MOH) assisted by the Royal Medical Services and Private sector. In total, Jordan has 103 hospitals; Governmental (31), Military (12), University hospitals (2), and private hospitals (58) (Ministry of Health, 2008). The total number of admitted patients in all health systems in Jordan was estimated at 919,685. The MOH provided services for 347,929 admissions, which accounts for 37.8% of total hospital admissions. The average occupancy rate for MOH hospitals is 68% and the average of length of stay is 3.2 days (Department of statistics, 2013, Ministry of Health, 2013). Patients, particularly elderly, suffering complex complications following either diseases or long staying, of these complications were pressure ulcers (PU).

Pressure ulcers (PUs) are significant, complex health problems that occur during hospitalisation on an international scale and their prevalence is high (Prentice and Stacey, 2001b). It appears as a local area of ischemic necrotic tissue that develops when the soft tissue over the bony prominences is compressed between the bone and an external surface for a prolonged period. Usually it is the result of impairment of the vascular, lymphatic systems of the skin and deeper tissue (Bader, 1990, Maklebust and Sieggreen, 1991, Frantz, 2004) that occurs when people lie in the one position over extended periods of time. Such injuries can be prevented or managed if patients are repositioned or positioned on special support mattress (Reddy et al., 2006).

Millions of people in the USA and UK develop PUs annually (Bennett et al., 2004). Treating PU is generally more costly than prevention with a cost of approximately 12 billion US Dollars was estimated annually

in the USA (AHRQ, 2011)), 4 billion GBP annually in the UK (National Patient Safety Agency, 2010) and varies from £1214 (category 1) to £14 108 (category IV) per patient (Dealey, Posnett & Walker, 2015) and AU\$ 285 million annually in Australia (Queensland Health, 2009). In developing countries, prevalence is most probably higher but no data is available to confirm this because patient risk of injury is not identified or managed. The prevalence of PUs in a Jordanian hospital is still unknown; there is no standardised documentation of nursing interventions undertaken to manage PU, therefore, it is important to inform clinicians and the organisation about the likely extent of the national problem.

This study seeks to evaluate the quality of health services in a Jordanian public health hospital in relation to a particular case type, PU, and to assess the type of health framework appropriate to improving the quality of patient care. The study will inform the development of a best practice model of risk management for improving patient safety in transitioning countries such as Jordan. The study will then be answering the question “*what attributes of patient safety management exists in an acute care, public hospital in Jordan?*”

## **2. Methodology**

### *2.1 Study design*

Exploratory interpretative qualitative research methodology employed as part of larger case study. The study was conducted at three levels, clinical, organisational and national, with the major emphasis on the clinical and organisational areas. The study was conducted in a Governmental hospital in Amman the capital city of Jordan (male and female wards). It is a large, public, referral, teaching, and acute care hospital run by the MOH.

### *2.2 Participants*

12 key informants were selected for indepth interviews using a purposive sample. Five at clinical level, including the director of nursing at MD, three ‘in-charge’ nurses at the medical wards and two clinical instructors. All staff and patients at both male and female medical wards were included in this study through observation of clinicians’ practices. Six key informants interviewed at organisational level including the general hospital manager and other organisational managers such as the manager of MD, director of Quality Unit, hospital nursing manager, director of Nursing and Developmental Unit. Finally one interview at policy level were planned and carried out at the ministerial level which includes the manager of the Quality Directorate at MOH.

### *2.3 Data collection processes*

Ethics approval was obtained from the Human Research Ethics Committee (HREC) of the University of Technology, Sydney. A letter of approval from the Jordanian MOH was obtained in order to conduct the study at a major governmental hospital. Consent from the MD nursing director and ward staff was obtained prior to data collection commencement. Clinical ward-based data were collected through observation of practice, interviews with clinical staff and examination of policy documents.

#### *2.3.1 Observation of practice*

Observation of practice was performed through two phases; field notes-clinical assessment and risk management of PUs. The first phase was the establishment of the risk assessment instrument and the collection of PU data to determine the extent of the problem at the hospital under investigation Hospital. The informal field visits began in January 2006 to explain study aim and methods. The second phase was concerned with revealing the structures and processes of health care at the clinical, organisational and national level.

Two weeks were spent in each selected site for this period of observation following a structured practice observation instrument that outlined fields notes. It was used in order to record the occurrence of a given action (Brink and Wood, 2001). This sheet included questions of what, why and how a particular kind of practice was done in comparison to the attributes of the quality and patient safety framework. Content was written out and the transcript given back to the interviewee to check for accuracy and any additional comments or modifications. The researcher observed the clinical practices until the researcher recognised that the same practices were being repeated and no more new data was being collected.

#### *2.3.2 Interviews with clinical staff*

Semi-structured interviews were used to obtain data from the key informants. Prior to the interview, a letter and information sheet that explains the study purpose along with a consent forms were given to each participant. To avoid any language misunderstanding, the consent form and other documents were translated into Arabic. Each interview took over one hour, audio-taped with the permission of the participant. The interview was then transcribed and checked with the participant prior to analysis.

Within the interviews, five clinical staff participants were asked 12 open-ended questions about teamwork, the current criteria used for risk management and PU resource management. Another six organisational managers were asked 10 open-ended questions derived from the literature regarding resources, facilities, and the management of patients with PUs, support management for clinical staff, communication and reporting structure. The last interview with the policymaker director of the quality department, MOH and was asked five open-ended

questions regarding her views, perceptions and thoughts about quality and risk management policies.

### 2.3.3 Examining policy documents

Available clinical policy documents and patients' medical records at the clinical (ward) level were examined and critically reviewed, to determine how the documentation compared with content recommended in the best practice guidelines in Jordan. Field notes were kept throughout data collection and checked at home on the same day and then checked with at least one of the participants for accuracy within the next two days.

### 2.4 Reflexivity

Reflexivity is an ongoing process to make the research process transparent, to ensure the rigour of the research and improve the data reliability decreasing the effect of researcher on participants' response (Jootun et al., 2009). The multi data resources were used and increased verification or reliability technique which was expected to minimise this effect (Cohen and Crabtree, 2008). Further, The secondary readers of the observational data from another RN/CI at the hospital on the second day of the observation were also important and used to minimise the researcher's impact and observer bias and to increase credibility (Cohen and Crabtree, 2008). Moreover, refined observational data on a daily basis and maintained field notes or a research diary to increase reliability (Koch and Harrington, 1998, Jootun et al., 2009).

## 3. Data analysis

Data were given a preliminary review after data collection on a daily basis. Radnor's step-by-step guided to analysis (Radnor, 2002, p.71). There are six steps in this technique a) topic ordering, b) constructing categories, c) reading for content, d) completing the coded sheets, e) generating coded transcripts and f) analysis to interpret the data.

## 4. Results

The findings outline the attributes of best practice relating to PUs drawn from the literature. These attributes comprise cultural safety and risk assessment, a model and quality of care and patient safety, systemize the working processes, multi-disciplinary communication, Human and physical resources (Donabedian, 1966, Hofstede et al., 1990, Runciman et al., 2009). Each is accompanied by a set of sub-attributes where they exist, and is discussed in turn.

### 4.1 Cultural Safety and Risk assessment

This environment still not established in Jordan public hospital, although some staff seem aware of the limitations that are currently existing in the Jordanian situation and are reflecting changes needed to develop safe environment for patients and staff. A clinical nurse admitted that a culture of safe practice environment is not yet in nurses' mind: *...who cares for this subject (patient safety) is this important? ICNI 18-4-06*. The clinical staff were not adequately aware of the importance of safety culture and developing it practice environment like risk assessment practices. *...We do not have risk assessment. For example, the patient develops stage one, two or three (PU) and the management has not yet started for the patient's health issue ICNI 18-4-06*.

Another nurse talked about the absence of routine assessment in the clinical system at critical points of admission and to respond to and document it: *Many cases develop a late stage (PU) and nothing was done for them - because there is no health care process available such as assessment at the first stage (of PU) to prevent or manage them. ICNI18-4-06. No clinical risk assessment or management was documented in the patient medical file by nurses, doctors or other clinicians. OMMW 12-3-06*. To conclude, the environment of practice did not provide evidence on awareness of safe practice at ward level, either for patients, their relatives or for clinicians themselves. That is, although some nurses articulated examples of safe practice, they were not carried through their daily practice.

### 4.2 A model and quality of care and patient safety

The care delivered to patients appears to be fragmented not only between nursing themselves, but also between nursing and medical clinicians. Nurses' responsibility to manage PUs was not clear. In-charge nurse indicated that doctors themselves are unaware of best practice management of PUs showing their limited knowledge through their routine orders. *The physicians only care to write in doctors' order: dressing or change position. That is what we are mostly doing...ICNI 18-4-06*.

Notably, nurses, including senior nurse leaders, were not involved in discussions with doctors about patient care or patient care planning; rather, they only carry out doctors' orders. They appeared practicing a delegated role rather than making their own decisions. Nurses expect doctors to discuss patient care issues with them, however, according to the nurse views; doctors were not always amenable to such discussions: *Nurses may suggest to doctors any comments regarding the patient's care, but sometimes the doctors refuse that and are rushing to go somewhere. It is good to have a mutually constructive beneficial discussion*.

#### ICN2 19-4-06.

Although nurse managers seem unaware that nurses rarely repositioned the patients in the two medical wards, the Medical Department (MD) nursing director was aware that the standard of nursing care was not optimal. Her comment in an informal clinical meeting with ward nurses attests to her view: *...bedside nursing care to the patients is 'very low' ...without follow up...OCNMI 22-2-06.*

During patient hospitalizations family members were repositioning patients if they understood the consequences of prolonged pressure on the body. *The patient's family member changes the position, changes the pad, and supervises walking. That is why many things here (at the Hospital) have to be changed to work effectively. ICCI5 26-4-06.*

Nurses may have instructed some family members about how to reposition patients, but no nurse was seen actually undertaking this educative process during observation. Clinical nurse pointed out: *The patient's families don't have enough education to follow up their patient, in addition to the deficiency of an effective care plan. So, they (patients) are readmitted with other complications, because we (Jordanian people) do not have proper home care (community nursing) such as nutrition, dressing and so on...ICN1 18-4-06.*

Quality of care and patient safety constitute the type of structure necessary to support a culture of quality and safety. A clinical instructor indicates that without supervision, appropriate patient care is at risk of not being delivered, potentially amounting to medical negligence: *There is no supervision by the administrators or the stakeholders of the nurses to implement the right job... so, because of the lack of continuous supervision, the PU is neglected and not even a change of position applied to patients... The seniors and the MD nursing could do this (supervise), because not doing the work in a proper way can lead to medical negligence. ICCI4 23-4-06.* A consequence of not having systems such as supervision in place is potentially a serious legal issue for the clinicians involved and for the organization.

#### 4.2 Systemize working processes

There was limited evidence on systemized working processes or guidelines being available to guide clinicians in the delivery of best practice PUs care. This drawn the attention of the researcher that nurses were not aware of what evidence based practice is, however, they seem aware but they do not practice it in the unit because the necessary resources are not available: *We do not have specialized foot boots which are used for the patient heels; currently we use sterile gloves filled with water to decrease the PU complications...it is not correct, but this is what we have. ICN1 18-4-06.*

One example of lack of resources and nurses unawareness was that nurses didn't know about pressure-relieving air-flow mattresses unless patients' relatives purchase them. *I don't know how to operate it (air mattress)... the main things we can do for the patients are (wound) dressing and change position. ICN3 20-4-06.* This response suggests that nurses are practicing more 'traditional' and out-moded forms of prevention, because the resources for more up-to-date care are not available, both in terms of equipment and nursing knowledge. This circumstance is not surprising, given that registered nurses are not given best practice guidelines or educational opportunity to upgrade their knowledge throughout their practice.

#### 4.3 Multi-disciplinary communication

Health professionals communicate patient care through patients' records and professional handover. The records may contain only limited and incomplete information such as admission details, medical and nursing documentation. This continuing problem with documentation was alluded to by a clinical instructor: *Yes, it is right; I notice that we still have an issue with incomplete documentation. Not everybody is writing in the correct way...We suggest having a constant similar design particularly at admission, but even for the physicians their assessment is incomplete. ICCI5 26-4-06.*

The documentation combined with the observation of nurses' work functions provide substantial evidence that nurses are not assessing or managing patients' risk of PU injury.

There was little evidence on verbal communication about individual patient care or of collaborative discussions about patient care decision making across disciplines. Doctors mainly spoke with other doctors about patients and nurses were rarely, if ever, part of these discussions. This is confirmed by a clinical nurse who commented that: *The physicians and nurses are not communicating as a team. If my relation with Doctor X is not good I will not agree even to work with that doctor such as in doctors' rounds. The nurse will say I will not do this and that for this doctor. I can implement his order or not. ICN2 19-4-06.*

The absence of documented data about patients' injuries was also clear in nurses interviews and this means that no summary results exist to evaluate how safe or dangerous the ward environment is for patients. This absence and its apparent lack of importance was confirmed by a clinical instructor who said: *There is no clear and available reporting system for PU cases; it is still considered as an unimportant area of nursing management. IOrgCI2 9-5-06.*

This comment may also indicate that nurses were unlikely to report any PU because of blame from the

senior managers that occurred as a result of negligent nursing management. However, a different clinical instructor viewed reporting as essential and part of nursing role. *Nursing has a role in reporting as one of their main responsibilities, which can be estimated as 80% and 20% to the physician. ICCI4 23-4-06.* As risk assessment processes and improved management for PU is implemented, a data collection system is required that will enable results to be evaluated and informed decisions made.

#### 4.4 Human and physical resources

##### 4.4.1 Shortage of staff

Nurses claimed that they have insufficient time to provide pressure area care to the patients which indicates there may be an inappropriate nurse/patient ratio in the two wards. In discussing this issue of staff shortages, a clinical instructor commented that: *Currently, we have staff shortage. We can't distribute the staff number on the present patients...two RN and two assistant nurses per shift; these two practice nurses have to do bedding, vital sign observations, changing urine bags, change patient positions and so on. Can you imagine two practice nurses to look after 40 patients... it is not fair for the nurses and the patients...with the types of patients we have ...ICCI5 26-4-06.*

Insufficient staff relative to patient load and acuity will result in a lower quality of care. Two nurses commented on this overload this way: *So I neglect to change the position of the patients who need that because with this overload 'I cannot scratch my head'. Care is according to the resources I have got. ICN2 19-4-06. ...CVA patents with PU need two nurses, at male ward we have 44 patients, you can't do everything ideally ... it is very difficult. ICN2 19-4-06.*

##### 4.4.2 Physical resources

The ward level data indicate that some resources were not available to clinicians. Some available items were used inappropriately by clinicians. Clinical staff outlined the type of equipment they do or do not have to ensure patients' safety. As a registered nurse comments: *We (medical department) do not have any resources that are required in PU management such as the specialised mattresses. We have only dressings, even the pillow is provided by the patient's family. No mechanical lifter or sliding sheets for repositioning of the PU patients to decrease the friction... they (managers) said this costs too much, who will pay or supply? ICN1 18-4-06.*

This was confirmed by other clinical staff and a further example of unavailable equipment to be used for PU came from a registered nurse who spoke earlier who said that: *The cleaners, porters and the family in addition to the nursing staff assist us in patient lifting from bed, trolley, or place to place since no mechanical lifter or sliding sheets. ICN2 19-4-06.* Yet another registered nurse commented that there is a shortage in the renewable resources.... *Still we suffer from shortages of dressing equipment... ICN2 19-4-06.*

This situation is well known by the general hospital manager who comments that we have basic resources but need effective use of these by staff at our hospital. OrgIDr6 2-9-06. Also comments that: *The available basic resources such as gloves and gowns are misused (not used for the patients for the right purposes. For instance, these resources used for cleaning by cleaners)...ICCI5 26-4-06.*

The above findings indicate that there is a general shortage of equipment at ward level and that this situation is well known by hospital administration. The above examples of equipment shortages are needed to be addressed by the managers at the organization and MOH level to provide the required quality and safety health care to patients. The Table below presents the best practice model attributes and availability in the case study site at the clinical level. This table is divided into four main categories according to the attributes namely: cultural safety and risk assessment, a model and quality of care and patient safety, systemize the working processes and human and physical resources: with their sub-attributes in order to compare them to the case study site in Jordan.

## 5. Discussion

The study was conducted at three levels, clinical, organisational and ministerial, with the major emphasis on the clinical and organisational areas. The attributes of best practice relating to PUs comprise culture, structure, process, human resources and physical resources (Donabedian, 1966, Hofstede et al., 1990, Runciman et al., 2009). For best practice to be substantiated as existing, a culture of safety for patients and staff at the clinical level must be nurtured and sustained. Ideally, clinicians would practise within this culture of safety supported practically in their direct clinical work and with clinical systems that support this work. It's include: safety for patients and staff; staff knowledge about risk assessment; staff knowledge and skill in conducting best practice interventions to manage risk and the model of care that incorporates patient safety considerations (Braithwaite et al., 2009).

The last year the Jordanian MOH has implemented a tighter performance review process that will provide targeted feedback to staff about where performance can be improved (Dr. S. Tarawneh, personal communication, Jan. 15, 2009).

The data show that no culture of safety has developed at the Hospital, either for patients or staff. However, several staff in key clinical leadership roles did articulate specific instances of problems and offered clinical

solutions to overcome them. What appears to be missing here is the organisational capacity to develop clinical systems, such as routine risk assessment, to support best practice. This absence extends to a capacity for nurses to address a critical underlying barrier to prevent PUs.

There does not appear to be any evidence of the structural support necessary to create an environment of quality and patient safety at the clinical level in Hospital. These structures, including particularly meetings to discuss standards of care and care organisation in the context of patient safety and quality, need to be established as a first step. Culture and structure are necessary but not sufficient attributes in a best practice model of care.

There is little evidence of the process support necessary to create an environment of quality and safety at the clinical level. These processes, including specified job descriptions for functions carried out by staff, conducting annual performance review, the availability of best evidence guidelines for staff, an effective written and verbal communication system between disciplinary groups and an incidence monitoring system for PU are all yet to be established. Culture, structure and process attributes, while necessary, are not sufficient in a best practice model of care. How human resources are managed is a further important attribute to ensure quality and safety in health care. Best evidence for nursing practice was not used. Patients' wound dressings are one example, undertaken with non-sterile equipment and 'Betadine', a product that has not been recommended for some years (Thomas et al., 2009, White et al., 2006).

## 6. Conclusion

The numbers of PUs indicated less than optimal management of patient safety. A safer culture for patients and staff has yet to be established and no documented risk assessment scale used. Structural changes to support the development of a patient safety culture have been implemented but are overlaid on an existing hierarchal structure. Further, there is a need for policy or protocol document regarding PU assessment or management. Human resources management to adhere and create patient safety culture is needed. Adequate physical resources needed to maintain a high standard patient care. Finally, it is recommend improving the quality of patient care and nursing working conditions.

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Table 1. The best practice model attributes and availability at the clinical level

Best practice model	Attributes	Comments
Cultural Safety and Risk assessment:	Safety for patients and staff	Little awareness among the clinical staff.
	Staff knowledge about risk assessment	No documented risk assessment using a valid risk assessment scale available.
	Staff knowledge and skill in undertaking best practice risk management interventions	Clinical staff have neither the knowledge nor skills to conduct clinical interventions in a safe manner.
A model and quality of care and patient safety:	A model of safe patient care	Nurses were not applying 'best evidence' to organise effective and efficient patient care to prevent PU.
	Quality of care and patient safety meetings	No evidence was found during the study period of routine meetings taking place in the two wards that discussed quality of care or risk management.
Systemize the working processes:	Specified clinicians' job descriptions	General job descriptions present.
	Performance review and feedback	General annual performance reviews for clinicians present without specific criteria used.
	The availability of best evidence guidelines	Very limited evidence of guidelines being available to guide clinicians in the delivery of best practice pressure ulcer care.
	Effective written communication between the disciplinary groups	Patient medical records incomplete Duplicate written patient information
	Effective verbal communication between the disciplinary groups and patients	Communication processes fragmented, disciplinary-specific and hierarchical.
	An incidence monitoring system for PU	Absence of aggregated or summary data to monitor the PU incidence.
Human and Physical resources:	Adequate staffing numbers	Task assignment model.
	Physical resources are well maintained	Specific permanently-required equipment not available on the wards. Some available items in poor working order and considered by clinicians to be unreliable.
	Adequate renewable resources appropriately used	Renewable items used inappropriately by clinicians.