

Title: The Quality of Intensive Care Unit Nurse End of Life Handover : An International Study

Running title: End of life handover

Authors:

Freda DeKeyser Ganz, RN, PhD
Head, Masters' Program
Associate Professor
Hadassah Hebrew University School of Nursing at the Faculty of Medicine
Jerusalem, Israel

Ruth Endacott, RN, DipN(Lond), Cert Ed, MA, PhD
Professor of Critical Care Nursing
Plymouth University, Faculty of Health, Plymouth, United Kingdom,
Monash University, Nursing & Midwifery, Melbourne, Australia,

Wendy Chaboyer, RN, BSc (Hons), MN, PhD
Director, NHMRC Centre of Research Excellence in Nursing Interventions for
Hospitalised Patients,
Griffith University PMB 50 Gold Coast Mail Centre Bundall, Qld, Australia 9726

Julie Benbinishty, RN, MSN
Academic Advisor and Trauma Coordinator
Hadassah Medical Organization
Jerusalem, Israel

Maureen Ben Nun, RN, BSN
Staff Nurse, Intensive Care Unit
Kaplan Medical Organization
Rehovot, Israel

Helen Ryan, RN, DipHSM, MSc
Director of Nursing
Yeovil District Hospital NHS Foundation Trust, Yeovil, Somerset, UK

Amanda Schoter, RN, BSc (Hons)
Staff Nurse, Intensive Therapy Unit
Royal Devon & Exeter Hospital NHS Foundation Trust, Exeter, UK

Carole Boulanger, RN, DipN(Lond), BSc (Hons), MSc
Consultant Nurse, Critical Care
Royal Devon & Exeter Hospital NHS Foundation Trust, Exeter, UK

Wendy Chamberlain, RN, BPhil, MSc, CertEd
Consultant Nurse, Critical Care
Taunton & Somerset Hospital NHS Foundation Trust, Taunton Somerset, UK

Amy Spooner, RN, BN, GradDip Intensive Care Nursing

Clinical Research Nurse,
Adult Intensive Care Services, The Prince Charles Hospital and University of
Queensland, Chermside, Queensland, Australia

Corresponding Author:

Professor Freda DeKeyser Ganz

Office:	Home:
Hadassah Hebrew School of Nursing	Bareket 8
Faculty of Medicine	PO Box 454
PO Box 12000	Hashmonaim 73127
Kiryat Hadassah	Israel
	Jerusalem 91120
	Israel
Tel: 972-2-677-6450	972-8-976-1636
	Fax: 972-2-643-9020
	Email: Freda@hadassah.org.il

Institutions where the work was performed: Hadassah Medical Organization,
Kaplan Medical Organization, Yeovil District Hospital, Royal Devon & Exeter
Hospital, Taunton & Somerset Hospital, The Prince Charles Hospital

Keywords: end-of-life; handover; nurse; intensive care

Ethics:

‘This work was done in accordance with the appropriate institutional review bodies
and carried out with the ethical standards set forth in the Helsinki Declaration of
1975’

The Quality of Intensive Care Unit Nurse Handover Related to End of Life: A Descriptive Comparative International Study

Abstract

Background: Quality ICU end-of-life-care has been found to be related to good communication. Handover is one form of communication that can be problematic due to lost or omitted information. A first step in improving care is to measure and describe it.

Objective: The objective of this study was to describe the quality of ICU nurse handover related to end-of-life care and to compare the practices of different ICUs in three different countries.

Design: This was a descriptive comparative study

Settings: The study was conducted in seven ICUs in three countries; Australia (1 unit), Israel (3 units) and the UK (3 units).

Participants: A convenience sample of 157 handovers was studied.

Methods: Handover quality was rated based on the ICU End-of-Life Handover tool, developed by the authors.

Results: The highest levels of handover quality were in the areas of goals of care and pain management while lowest levels were for legal issues (proxy and advanced directives) related to end of life. Significant differences were found between countries and units in the total handover score (country: $F(2,154)=25.97$, $p<.001$; unit: $F(6,150)=58.24$, $p<.001$), for the end of life subscale (country: $F(2, 154) = 28.23$, $p<.001$; unit: $F(6,150)=25.25$, $p<.001$), the family communication subscale (country: $F(2,154)=15.04$, $p<.001$; unit: $F(6,150)=27.38$, $p<.001$), the family needs subscale ($F(2,154)=22.33$, $p<.001$; unit: $F(6,150)=42.45$, $p<.001$) but only for units on the process subscale ($F(6,150)=8.98$, $p<.001$). The total handover score

was higher if the oncoming RN didn't know the patient ($F(1,155)=6.51, p<.05$), if the patient was expected to die during the shift ($F(1,155)=89.67, p<.01$) and if the family were present ($F(1,155)=25.81, p<.01$).

Conclusions: Practices of end-of-life- handover communication vary greatly between units. However, room for improvement exists in all areas in all of the units studied.

The total score was higher when quality of care might be deemed at greater risk (if the nurses didn't know the patient or the patient was expected to die), indicating that nurses were exercising some form of discretionary decision making around handover communication; thus validating the measurement tool.

Key words: handover, end of life, communication, nurse, intensive care unit

Background

Communication is associated with high quality end-of-life care (Curtis et al., 2012; Leung et al., 2012). Several types of communication related to end-of-life-care have been investigated in the intensive care unit (ICU), including communication between healthcare providers such as nurses and physicians and between healthcare providers and patients and their families (Truog et al., 2008). Handover is defined as the transfer of information, professional responsibility and accountability among healthcare providers (Australian Commission on Safety and Quality in Health Care, 2008). Handover has traditionally occurred at the beginning of each shift where the oncoming nurse receives information from the outgoing nurse. Despite technological changes, handover has survived as an important formal process of nursing communication (Spooner et al., 2013). Yet, there is little known about the quality of ICU nurse to nurse handover communication, especially associated with end-of-life care. Therefore the major objective of this study was to describe the quality of ICU nurse handover as related to end of life.

Review of the Literature

End of life is a reality in the ICU. Approximately 14% of Australian patients (Moran, Solomon et al 2013) and 14.9% of British patients admitted to the ICU died in the ICU (ICNARC 2012). In 2010, 3,397 out of a total of 39,590 deaths (8.6%) occurred in an ICU in Israel (Israel Ministry of Health, 2011). The exact percentage of Israeli patients admitted to the ICU who have died there has not been reported. Often a patient's death comes unexpectedly but it can also occur after considerable effort where treatments are considered to be futile and end-of-life decisions are made (Lautrette et al., 2006). Care under such circumstances has been called end-of-life-care and often consists of palliative care, defined as care aimed at increasing the

quality of life of patients with life threatening illnesses and their families, by the prevention and treatment of pain and suffering through physical, psychosocial and spiritual support (WHO, 2013).

The quality of end-of-life-care has been shown to be lacking in the ICU (Nelson et al., 2006). Indicators have been designed to measure the quality of end-of-life care and include patient and family centred decision making; communication with patients and families; continuity of care; emotional and spiritual support for patients and families; symptom management; and identification of patient and family end of life treatment preferences and decision making surrogates (Nelson et al., 2006). Many of these indicators apply to all ICU patients, regardless of whether they are expected to die in the near future. Most of these indicators should be communicated during handover because handover in the ICU involves the transfer of responsibility for unstable, unpredictable patients whose end-of-life issues might arise at any moment. A study of UK and Israeli ICU nurses (Endacott et al., 2010) found that communication was the key factor important in ensuring a 'good death' for a patient in ICU but documentation practices varied across individual units, with shift handover used as the main communication process.

Continuity of care relies on current information being passed during shift changes so that the oncoming shift can plan and implement care, thereby decreasing errors and omissions that might impact on effective and safe patient care (Scovell, 2010).

Handover has several other functions including exchange of clinical information, a forum for briefing and debriefing, a discussion of opinions, the expression of feelings (eg: anxiety, stress, helplessness, frustration), peer support, imparting of social norms, demonstration of nursing skills (such as medical knowledge and tidiness), fostering of group cohesiveness and encouraging team building (Poletick & Holly, 2010).

However, handover can be problematic, in that information can get lost, omitted or garbled, leaving patients at risk and increasing patient morbidity and mortality. ICU handover may be especially challenging due to the lack of standard practices, fatigue, high workload, and shift work (Pickering, et al., 2009). A European study of 10 countries determined that 61% of nurses were dissatisfied with nurse handover (Meisner et al., 2007). In two studies of nurses from Australian hospitals, 50-56% reported that the information they received was subjective, 30-48% stated that they could have gotten the information elsewhere while 40% complained of receiving irrelevant information and another 14-35% that handover took too much time (O'Connell et al., 2008; Street et al., 2011). In another study of 23 taped handover reports of a general medical ward, it was reported that 85% of information already in written reports. 9.5% of information not relevant to on-going patient care (such as stereotyping debriefing), and 5.9% of content involved a discussion of on-going care or ward management that could not be recorded in other sources (Sexton et al., 2004). In recognition of these potential problems, the American Joint Commission created "Standards for Handover Quality" (2006) that include up to date and accurate information, limited interruptions, process for verification and the opportunity to review any historical relevant data.

In summary, the quality of ICU end of life care needs improvement, where communication, including handover, has been shown to be an important factor. If communication related to end of life can be enhanced, then quality of end-of- life care should improve. A first step in the process of improving quality of care is to measure and describe it (Glavan et al., 2008; Nelson et al., 2006). The aim of this study was to describe the quality of ICU nurse handover related to end-of-life care.

Method

Study Design: This was a descriptive comparative study of 157 handovers that occurred in seven ICUs in three countries, Australia (one adult mixed cardiac surgery and general ICU, that contained a postoperative cardiac surgery, general ICU and long term patients who had undergone cardiac surgery), Israel (three units, adult general respiratory/surgical or medical ICUs) and the UK (three units, adult general surgical/medical ICUs).

Sample: The sample was a convenience sample of all of the handovers conducted on the days of data collection in the designated units in Israel and the UK. The days of data collection were randomly chosen. In Australia, days of data collection were chosen by convenience however specific handover reports were randomly chosen on a given day. All of the handovers were conducted by staff nurses who were registered nurses. Of the 157 handovers measured, 45 were in the UK, 46 in Australia and 66 in Israel.

Instruments: Handover quality was rated based on the ICU End-of-Life Handover tool developed by the authors (Endacott et al., 2012). The purpose of this instrument was to describe the quality of nurse to nurse communication during shift handover as applied to end-of-life care in the ICU. The tool is a checklist that contains 24 items, where observers are asked to rate each item on a yes/no basis. Each item receiving an answer of "yes" received a score of one while items with a negative answer received a score of zero.

The tool is divided into three sections: patient/nurse characteristics (three items), the handover process (six items) and the content of the handover (15 items). The content section of the tool can be further divided into subscales including end-of-life issues (six items), family needs (six items) and family communication (three items).

Items were based on a pilot observation of ICU handovers and the ICU, end-of-life, and handover literatures. The tool includes three items from the Joint Commission (2006) National Patient Safety Goal standards; eight items from the ICU quality of Palliative Care Measure developed by Nelson and colleagues (2006), five needs of ICU families as reported by Leske et al. (1991), two items related to family issues (Azoulay et al., 2005), one item related to the plan of care (Provonost, Berenholtz, Ngo et al., 2003), two items related to the condition of the patient and three items about the person conducting the handover (see Appendix 1).

Cronbach's alpha reliability for the scale was .92. A pilot study was conducted where handover reports on two days, two shifts per day were analysed. Two data collectors were present during the handover and rated each handover independently. Neither data collector was a member of the observed unit. Inter-rater reliability was found to be $r = .68$. The tool was rated for content validity by a panel of six critical care nursing experts, including those with expertise in ICU end-of-life care and palliative care. The experts were asked to rate each item for its relevance and clarity. All experts agreed that all of the items were relevant and clear, with some minor corrections. Experts were also asked to add other items that they thought would be relevant to the topic. No other items were added to the questionnaire. Feasibility was also tested during two consecutive shift handovers by two observers. Both observers reported that the tool was easy to use and clear, thereby demonstrating feasibility in this population.

Data collection: In Israel and the UK, the tool was used to measure the quality of end of life-related communication during shift handover on each unit. On the designated day of data collection, all of the handovers during that shift were sampled. Handovers were conducted at the patients' bedsides. Nurses were aware that the

handover was being observed. One observer for each unit rated each handover according to the items in the tool. These observers were either one of the authors of the tool or observers who were trained by one of the authors. The Australian data were collected using audiotaped handovers. These handovers were not directly observed. The transcripts of the handovers were reviewed and scored by two data collectors according to the instrument described above

Data analysis: Descriptive statistics (mean, standard deviations and frequencies) were used to analyse the items on the ICU End-of-Life Handover tool and its subscales. Differences between countries and units for subscale scores were determined using Analysis of Variance while differences on individual items were analysed using Chi Square.

Ethical Review: Ethical committee approval was obtained from all of the institutions in which the study took place.

Results

A total of 157 handovers were observed and rated. All of the nurses who reported on patients during handover cared for the patient during the previous shift. Notes were used in 95% (n=150) of the handovers. The vast majority of families were not present (n=142, 90%) during handover. For the most part, interruptions were limited (n=136, 87%) and incoming nurses could ask questions (n=149, 95%). All other process aspects of the handover were very dependent upon the unit protocol. In Israel, the vast majority of nurses receiving the handover had cared for the patient in the previous 48 hours (n=47, 71%) as opposed to nurses in the UK (n=13, 29%) and Australia (20%). Most of the nurses on shift were present for the bedside handover in Israel (n=34, 52%) and for some of the UK handovers (n=12, 27%) but the Australia

handover was conducted just with the nurse taking over the care of the patient. While very few patients were conscious in Israel ($n=3$, 5%), some were in the UK ($n=16$, 36%) and over half in Australia ($n=25$, 54%). This difference in the patient populations was also seen in whether the patient was expected to die where only 2% ($n=1$) was expected to die in Australia, 23 (35%) in Israel and 19 (42%) in the UK.

The highest levels of handover communication were in the areas of goals of care ($n=120$, 76%) and pain management ($n=115$, 73%) while lowest levels were related to legal issues, whether the patient had an advanced directive ($n=2$, 1%) and the identification of a health proxy ($n=15$, 10%). All other aspects of handover communication ranged between 19-59% (Table 1).

Significant differences were found between countries and units in the total handover score (country: $F(2,154)=25.97$, $p<.001$; unit: $F(6,150)=58.24$, $p<.001$), the end of life subscale (country: $F(2, 154) = 28.23$, $p<.001$; unit: $F(6,150)=25.25$, $p<.001$), the family communication subscale (country: $F(2,154)=15.04$, $p<.001$; unit: $F(6,150)=27.38$, $p<.001$), the family needs subscale ($F(2,154)=22.33$, $p<.001$; unit: $F(6,150)=42.45$, $p<.001$) and for the process subscale for units only ($F(6,150)=8.98$, $p<.001$). Significant differences were also found between countries on most of the content items of the handover. Bonferroni post hoc analyses showed that content items were significantly more frequently reported in the UK and least reported in Australia.

Significant differences were found between units for all of the individual items in the questionnaire except for the following items: is the nurse who is caring for the patient the person who delivers the handover (the answer was yes for all of the handovers) and handover information related to advanced directives. For a more detailed description of the differences between units, see Table 2.

The total handover score was higher if the oncoming RN didn't know the patient ($t(155)=2.74$, $p=.007$), if the patient was expected to die during the shift ($t(155) = -9.60$, $p<.001$) and if the family were present ($t(155)= -5.97$, $p <.001$).

Discussion

The quality of communication related to end of life at handover in the ICU was found to be universally low in legal issues surrounding end-of-life (such as proxy status and advanced directives), moderate to high in pain management but varied in all other content areas related to end of life. Room for improvement exists in all areas in all of the units studied. However the total handover score was higher when quality of care might be deemed at greater risk (if the nurses didn't know the patient or the patient was expected to die), indicating that nurses were exercising some form of discretionary decision making around handover communication. The handover score was also higher when the family was present.

While no studies were found that investigated handover reports of legal issues surrounding end-of-life such as proxy status or advance directives, several previous studies have reported on relatively low levels of these reports in written documentation. For example, in a report of patients from an Oncology ICU, 15.7% had an advanced directive, 47.6% had a health care proxy and 36.7% had neither (Halpern et al., 2011). These frequencies were higher than those reported for two studies of Medical Intensive Care Units where only 9-15% of patients had a documented advanced directive (Baranowski-Birkmeier et al., 1995; Kemp et al., 2004). However all of these findings are considerably higher than the frequencies found in the current study. One possible explanation is that these studies were conducted in the United States where documentation of advanced directives has been

legislated by the Patient Self-Determination Act. Another explanation is that most ICUs do not have routine forms that document these issues. In a content analysis study of routine documentation related to end-of-life in 15 ICUs across the United States, only 13.7% of the sites had a form for such documentation. Another reason for the limited use of advance directives may be that patients' preferences are not static but change as their medical conditions evolve (Somogyi-Zalud et al., 2000). It should be noted that that direct comparisons with the literature are not possible as most of the reported studies occurred in the United States while none of the units in this study came from America and most of the studies were conducted more than five years ago.

In contrast, handover reports frequently contained information related to pain management. Pain has been repeatedly emphasized as an important aspect of nursing care, so much so that the United States Joint Commission has designated it as the fifth vital sign and has required hospitals to improve their documentation and treatment of pain (Nworah, 2012). Pain and symptom management appeared most often on routine written forms of documentation (Clarke et al., 2004). While pain management had the highest frequencies of handover reporting, levels in all units were still far below the frequency that is expected.

As more and more patients are admitted to ICUs with chronic diseases, the need has increased for daily communication of goals of care (Martin & Koesel, 2010). Documentation of these goals has led to improved patient outcomes such as decreased ICU length of stay and ventilator-associated pneumonias (Siegel, 2009) but also to improved perceptions of nurse communication (Phipps & Thomas, 2007). No study was found that specifically addressed handover report of goals of care; however it would seem that some units are more inclined to include such reports in their handovers.

Unit culture and protocol seem to play a significant role in end-of-life handover reporting as the frequency of reporting most of the handover content was significantly different between countries and units. Part of this might be explained by the differences in patient populations, where in some units there were significantly higher frequencies of comatose patients and those expected to expire. Country differences also exist related to types of end-of-life decisions. For example, in Israel for the most part, withdrawing treatment is considered against the law while withholding treatment is accepted. While advanced directives are legal in Israel, a very low percentage of the population are familiar with them and they are not commonly found on in-patient units. In the UK and Australia advanced directives are promoted by patient interest groups but are not yet widely used. In the UK there is a greater tendency to withdraw than withhold treatment (Sprung et al 2008), whilst in Australia both may be used, focusing on the recognition of 'futility' to underpin decision-making (Bloomer et al 2010). Cultural differences between units in the same country were not investigated. These differences might also underlie differences in handover practices. It should also be noted that this study monitored only what was reported during patient handover. Actual nursing practices were not measured so that even though certain practices were not reported, it does not necessarily mean that they were not practiced.

Many of the handovers were of patients who were not considered to be at the end of life. As stated above, many patients die in the ICU or soon thereafter (ICNARC 2012; Moran et al 2013). Attempts have been made to prognosticate who will die however these attempts are flawed and it is extremely difficult to predict who will survive the ICU on an individual basis (Ehlenbach & Cooke 2013; Fisher & Ridley 2012). Therefore, healthcare providers continue to provide life sustaining treatments in an atmosphere of uncertainty. This uncertainty is associated with a lack of

consensus as to end of life decisions and studies have shown that in many instances there is a lack of consensus between healthcare providers as to who is considered 'at the end of life'. Nurses often come to this conclusion before their physician colleagues (Aslakson, Wyskiel, Thornton, et al. 2012). This lack of consensus is a major source of conflict in the ICU (Azoulay, Timsit, Sprung et al 2008). One potential method of dealing with this conflict is to adopt a view where all ICU patients are considered to be potentially at the end of life, a position promulgated by an expert panel of ICU practitioners who developed quality indicators for end of life ICU care (Nelson et al 2006). This approach is similar to more recent approaches to palliative care, where all patients, whether they are expected to die or not, are treated with some aspects of palliative care (such as symptom management and attention to advanced directives).

Study limitations:

This study was a convenience sample of handovers conducted on only seven units in three countries therefore generalizations cannot be made about entire countries and certainly not about ICU practices in general. The tool used in this study was developed in a limited number of centres. When tested during the pilot study, the tool had a moderate, yet acceptable level of inter-rater reliability, thereby potentially affecting the validity of the measurements. Handover communication evaluated in Israel and the UK was live while those in Australia were audiotaped. This difference might also bias the results. The relatively low scores indicate that the presence of an observer did not unduly influence the content of the handover. The results might also be affected by institutional and national culture. Another potential limitation is that information from all of the handovers was used as data for this study when in reality it is expected that only a small percentage of patients will die in the ICU. It is probable

that analysing just the data from patients who were known to be at the end of life would have yielded different results.

Recommendations/implications:

Given the relatively small sample and limited population, it is recommended that this tool be tested on other ICUs around the world. Other medical information such as severity of illness could also be collected and correlated with the quality of end of life handover reports. It is also recommended that future studies use a mixed method approach, combining quantitative and qualitative measures in order to further explore the influence of local culture on end of life handover quality. This tool might also be used to measure and monitor clinical practice quality improvement interventions. Given the low levels of end-of-life reporting, it is recommended that efforts be made to determine why such levels are found and to design, test and implement interventions to improve the level of end-of-life handover reports. One possible suggestion is the addition of end-of-life written documentation.

Conclusions:

Based on the results of this study, there is a global need for improvement of handover practices in all areas related to end-of-life. Further studies are recommended that will assist in the development and implementation of such practices.

References

- Aslakson, R.A., Wyskiel, R., Thronton, I. et al. 2012. Nurse perceived barriers to effective communication regarding prognosis and optimal end of life care for surgical ICU patients: A qualitative exploration. *J Pall Med.* 15(8), 910-915.
- Australian Commission on Safety and Quality in Health Care. 2008. Accessed June 20, 2013. <http://www.health.qld.gov.au/psq/od/docs/acsqhod.pdf>
- Azoulay, E., Pochard, F., Kentish-Barnes, N. et al. 2005. Risk of post-traumatic stress symptoms in family members of intensive care unit patients. *American Journal of Respiratory and Critical Care Medicine* 171(9), 987-94.
- Azoulay, E., Timsit, J.F., Sprung, C.L. et al. 2009. Prevalence and factors of intensive care unit conflicts: The conflictus study. *Am J Crit Care* . 180(9), 853-860.
- Baranowski-Birkmeier, T., Johnson, Jr. R.F. & O'Donnell. J.B.1995. Advance directives in the medical intensive care unit of a community teaching hospital *Chest* 107(3), 752.
- Bloomer, M., Tiruvoipati, R., Tsiripillis, M., Botha, J. 2010 End of life management of adult patients in an Australian metropolitan intensive care unit: a retrospective observational study. *Australian Critical Care* 23(1), 13-19
- Clarke, E.B., Luce, J.M., Curtis, J.R. et al. 2004. .A Content Analysis of forms, guidelines, and other materials documenting end-of-life care in intensive care units. *Journal of Critical Care* 19 (2), 108-117.
- Curtis, J.R., Ciechanowski, P.S., Downey, L., et al. 2012. Development and evaluation of an inter-professional communication intervention to improve family outcomes in the ICU. *Contemporary Clinical Trials.* 233, 1245–1254.
- Ehlenbach, W.J., Cooke, C.R. 2013. Making ICU prognostication patient centred: is there a role for dynamic information. *Crit Care Med* 14 (4), 1136-1138.

- Endacott, R., Benbenishty, J., Ganz, F., Ben Nunn, M., Chamberlain, W., Ryan, H., Boulanger, C. 2010. Applicability of palliative quality measures to end of life care in ICUs in the UK and Israel [abstract]. *Intensive Care Medicine* 36 (Suppl 2), S388.
- Endacott, R., Ganz, F., Benbenishty, J., Ben Nunn, M., Ryan, H., Chamberlain, W., et al. 2012. Communication related to end of life care during shift handovers in ICUs in Israel, the UK and Australia [abstract] *Intensive Care Medicine* 38, S7
- Fisher, M., Ridley, S. 2012. Uncertainty in end of life care and shared decision making. *Crit Care Resusc* 14 (1), 81-87.
- Glavan, B.J., Engelberg, R.A., Downey, L., et al.. 2008. Using the medical record to evaluate the quality of end-of-life care in the intensive care unit. *Critical Care Medicine* 36(4), 1138-46.
- Halpern, N.A., Pastores, S.M., Chou, J.F. et al. 2011. Advance directives in an oncologic intensive care unit: A contemporary analysis of their frequency, type, and impact. *Journal of Palliative Medicine* 14 (4), 483-489.
- Intensive Care National Audit and Research centre (ICNARC) 2012. Key statistics from the Case Mix Programme database. Available at: <https://www.icnarc.org/documents/Summary%20statistics%20-%202011-12.pdf> (accessed 12/06/2014).
- Israel Ministry of Health (2011). Mortality in Israel [in Hebrew]. www.health.gov.il
- Joint Commission on the Accreditation of Healthcare Organisations. 2006; National Patient Safety Goals

- Kemp, K.R., Emmons, E., & Hayes, J. 2004. Advanced directives and do not resuscitate orders on general medical wards versus the intensive care unit. *Military Medicine* 169(6), 433-436
- Lautrette, A., Darmon, M., Megarbane, B., et al. 2007. A Communication Strategy and Brochure for Relatives of Patients Dying in the ICU. *New England Journal of Medicine* 356, 469-78.
- Leske, J.S. 1991. Internal psychometric properties of the critical care family needs inventory. *Heart & Lung* 20 (3), 236-44.
- Leung, J.M., Urdis, E.M., Ulman, J. et al. 2012. The effect of end of life discussions on perceived quality of care and health status among patients with COPD. *Chest* 142 (1), 128-133.
- Martin, B. & Koesel, N. 2010. Nurses' role in clarifying goals in the intensive care unit. *Critical Care Nurse* 30 (3), 64-73.
- Meisner, A., Hasselhorn, H., Estryng-Behar, M., et al. 2007. . Nurses' perception of shift handovers in Europe –results from the European Nurses' Early Exit Study. *Journal of Advanced Nursing* 57(5), 535–542
- Moran JL, Soloman PF, ANZICS Centre for Outcome and Resource Evaluation (CORE) of the Australian and New Zealand Intensive Care Society (ANZICS). 2013. Statistical process control of mortality series in the Australian and New Zealand Intensive Care Society (ANZICS) adult patient database: implications of the data generating process. *BMC Medical Research methodology* 13: 66
- Nelson, J.E., Angus, D.C., Weissfeld, L.A. et al. 2006. End-of-life care for the critically ill: A national intensive care unit survey. *Critical Care Medicine* 34, 2547–2553.

- Nelson, J.E., Mulkerin, C.M., Adams, L.L., & Pronovost, P.J. 2006. Improving comfort and communication in the ICU: a practical new tool for palliative care performance measurement and feedback. *Quality and Safety in Health Care* 15:264–271.
- Nworah, U. 2012. From documentation to the problem: Controlling postoperative pain. *Nursing Forum* 47 (2), 91-99.
- O’Connell, B., Macdonald, K., & Kelly, C. 2008. Nursing handover: It’s time for a change. *Contemporary Nurse*, 30, 2–11.
- Phipps, L.M. & Thomas, N.J. 2007. The use of a daily goals sheet to improve communication in the paediatric intensive care unit. *Intensive & Critical Care Nurse* 23, 264—271.
- Pickering, B.W., Hurley, K., & Marsh, B. 2009. Identification of patient information corruption in the intensive care unit: Using a scoring tool to direct quality improvements in handover. *Critical Care Medicine* 3, 2905–2912.
- Poletick, E. & Holly, C. 2010. A systematic review of nurses’ inter-shift handover reports in acute care hospitals. *JBIC Library of Systematic Reviews* 8(4), 121–172.
- Pronovost, P.J., Berenholtz, S.M., Ngo, K. et al. 2003. Developing and pilot testing quality indicators in the intensive care unit. *Journal of Critical Care* 18, 145-155.
- Scovell, S. 2010. Role of the nurse-to-nurse handover in patient care. *Nursing Standard*. 24 (20), 35-39.
- Sexton, A., Chan, C., Elliott, M., et al. 2004. Nursing handovers: do we really need them? *Journal of Nursing Management* 12, 37–42.

- Siegel, P 2009. . Enhancing outcomes in a surgical intensive care unit by implementing daily goals tools. *Critical Care Nurse* 29 (6), 58-70.
- Somogyi-Zalud, E., Zhong, Z., Lynn, J. 2000. Dying with acute respiratory failure or multiple organ system failure with sepsis. *Journal American Geriatric Society*, 48:S140–S145.
- Spooner, A.J., Chaboyer, W., Corley, A. et al. 2013. Understanding current intensive care unit nursing handover practices *International Journal Nursing Practice* 19, 214–220.
- Sprung, C.L., Woodcock, T., Sjøkvist ,P., Ricou, B., Bulow. H.H., Lippert, D. et al. 2008 Reason, considerations, difficulties and documentation of end-of-life decisions in European intensive care units: the ETHICUS study. *Intensive Care Medicine*. 34: 271-277
- Street, M., Eustace, P., Livingston, P., et al. 2011. Communication at the bedside to enhance patient care: A survey of nurses' experience and perspective of handover. *International Journal of Nursing Practice* 17 (2), 133-40.
- Truog, R.D., Campbell, M.L., Curtis, J.R. 2008. Recommendations for end-of-life care in the intensive care unit: A consensus statement by the American College of Critical Care Medicine. *Critical Care Medicine* 36 (3), 953-963
- World Health Organization. Definition of palliative care.
www.who.int/cancer/palliative/definition/en. Retrieved Jan 2014

Table 1: Frequency of presentation of end-of-life handover content by country
(N=157)

Item	Total Sample n (%)	Australia n (%)	Israel n (%)	UK n (%)	F	p
DNR status*	44 (28%)	3 (7%)	10 (15%)	31 (69%)	53.22	<.001
Proxy/surrogate Identified	15 (7%)	1 (2%)	10(15%)	4 (9%)	2.0	NS
Advanced Directive Status	2 (1%)	0 (0%)	1 (2%)	1 (2%)	0.5	NS
Limits to treatment*	43 (27%)	2 (4%)	13 (20%)	28 (62%)	41.7	<.001
Pain management	115 (73%)	30 (65%)	48 (73%)	37 (82%)	1.7	NS
Goal/plan of care ⁺	120 (76%)	26 (57%)	52 (79%)	42 (93%)	17.46	<.001
Information given To family*	92 (59%)	18 (39%)	34 (52%)	40 (89%)	22.57	<.001
Family needs discussed						
Assurance**	46 (29%)	0 (0%)	22 (33%)	24 (53%)	32.13	<.001
Information ⁺	54 (34%)	0 (0%)	32 (49%)	22 (49%)	34.11	<.001
Proximity ⁺	55 (35%)	2 (4%)	27 (41%)	26 (58%)	30.26	<.001
Comfort ⁺	31 (20%)	2 (4%)	17 (26%)	12 (27%)	9.75	.008
Support ⁺	30 (19%)	0 (0%)	14 (21%)	16 (36%)	18.93	<.001
Family dynamics*	81 (52%)	20 (50%)	27 (41%)	31 (69%)	8.45	.015
Plan for communicating with the family**	82 (52%)	12 (26%)	32 (49%)	38 (84%)	31.69	<.001
Patient/family spiritual needs ⁺	19 (12%)	0 (0%)	7 (11%)	12 (27%)	15.45	<.001

Bonferroni post hoc comparisons:

*Significant difference between UK & Israel and UK & Australia, no significant difference between Australia & Israel

⁺Significant difference between UK & Australia and Australia & Israel, no significant difference between UK & Israel

** Significant difference between UK & Israel, UK & Australia, Australia & Israel

Table 2: Frequency of presentation of item during handover based on unit

Item	Range	Chi Square, p
<u>Patient/Nurse Data</u>		
Oncoming nurse cared for patient	25-97%	57.5, p<.001
Patient is conscious	0-100%	39.26, p<.001
All nurses are present for handover	0-100%	117.99, p<.001
Patient expected to die	0-77%	79.34, p<.001
<u>Environment/Process</u>		
Family present during handover	0-33%	29.70, p<.001
Opportunity to ask questions	67-100%	20.34, p=.002
Limited interruptions	50-100%	6.64, p<.001
RN who cared for patient does handover	100%	-
Notes used during handover	40-100%	44.32, p<.001
<u>Content</u>		
DNR status	0-60%	66.92, p<.001
Proxy or surrogate identified	0-33%	28.02, p<.001
Advanced directive status	0-5%	4.60, p=.60
Limitations to treatment	0-55%	61.31, p <.001
Pain management	65-100%	27.09, p <.001
Goals of care	0-100%	34.09, p < .001
Information provided to family	0-100%	80.18, p < .001
Family need: assurance	0- 70%	69.04, p < .001
information	0-100%	97.70, p < .001
proximity	0-87%	94.17, p < .001
comfort	0-53%	49.09, p < .001
support	0-70%	59.75, p < .001
Family dynamics	0-85%	40.36, p < .001
Plan for communication with family	0-93%	76.58, p < .001
Spiritual needs of patient/family	0-55%	59.75, p < .001

Appendix 1: Items of the ICU End-of-Life Handover Tool

Patient/nurse characteristics:	Yes	No
1. Has the incoming nurse cared for the patient in the past 48 hours?		
2. Is the patient conscious?		
If yes, was the patient consulted during the handover?		
3. Is the patient expected to die in the ICU?		
Handover Process:		
4. Are all nurses present for this patient's handover?		
5. Is handover given by the nurse caring for the patient?		
6. Is there opportunity for the incoming nurse to ask questions?		
7. Are there limited interruptions?		
8. Are patient notes/patient record/chart/other written documents used during handover?		
9. Is the family present?		
If yes, are they consulted?		
Handover Content		
10. Is DNR status mentioned?		
11. Is a proxy identified?		
12. Is the advanced directive status specified?		
13. Are treatment limits described?		

14. Is pain management described?		
15. Is the plan of care made explicit?		
16. Has information been provided to the family?		
17. Have the needs of the family been addressed		
a. Assurance (e.g. <i>to know the expected outcome/prognosis</i>)		
b. Information (e.g. <i>to talk to the doctor every day</i>)		
c. Proximity (e.g. <i>to be called in if there is any change</i>)		
d. Comfort (e.g. <i>to know they can leave the room</i>)		
18. Have the family dynamics been described?		
19. Is there a plan for communicating with the family?		
20. Have the spiritual needs of the patient/family been addressed?		

The Quality of Intensive Care Unit Nurse Handover Related to End of Life: A Descriptive Comparative International Study

What is already known about the topic?

1. Good communication is an important component of quality end-of-life ICU care
2. Handover is an important form of communication
3. Information can get lost or inaccurately transferred during handover.

What this paper adds?

1. All aspects of handover communication related to end of life were found to be in need of improvement in all of the units studied, irrelevant of location.
2. Pain management and goals of care were the elements of shift handover related to end of life found to have the highest level of reporting while areas related to legal issues such as proxy determination and advanced directives were rarely reported.
3. There is a large variation between unit practices related to end-of-life handover communication