Critical care nursing organizations and activities: a third worldwide review

G. Williams[1,2,4] RN, Crit. Care Cert, LLM, MHA, FRCNA, FACHSE, FAAN,
N. Bost[5] RN, MN, **W. Chaboyer**[3] RN, PhD, **P. Fulbrook**[6,7] RN, PhD,
L. Alberto[8,9] RN, BN, Specialist of Education, Master Candidate of Education,
R. Thorsteinsdóttir[10,11] RN, CCN, BSc, **S. Schmollgruber**[12] RN, CCRN and
D. Chan[13] RN, ICU Cert (ENB100), BScN (HON), MN (Acute Care)

1 Foundation Chair, World Federation of Critical Care Nurses, 2 Professor of Nursing, Griffith University, Gold Coast,
3 Professor and Director, Research Centre for Clinical Practice Innovation, Griffith University, Gold Coast, 4 Executive
Director of Nursing & Midwifery, Gold Coast Health Service District, 5 Research Nurse Officer, Gold Coast Hospital,
Southport, 6 Professor of Nursing, Australian Catholic University, 7 Nursing Director Research & Practice Development, The
Prince Charles Hospital, Brisbane, QLD, Australia, 8 Specialist on Education, Master Candidate, Universidad de San Andrés,
9 Intensive Care Unit Liaison Nurse, Sanatorio Sagrado Corazón, Buenos Aires, Argentina, 10 President of the European
federation of Critical Care Nursing associations, EfCCNa, 11 Recruitment Manager, Sun Medical AS, Employment Agency,
Reykjavik, Iceland, 12 Lecturer, Faculty of Health Sciences, Department of Nursing Education, University of the Witwatersrand,
Witwatersrand, South Africa, 13 Senior Clinical Associate (Critical Care), School of Nursing, Hong Kong Polytechnic
University, Hong Kong

Aim: The study aim was to profile the issues and activities of critical care nurses and professional critical care
nursing organizations (CCNOs), and to identify expectations of the role of the World Federation of Critical
Care Nurses. This information will determine how the critical care nursing specialty is changing over time and
assist to formulate strategies that provide ongoing support to critical care nursing internationally.

Background: This study is the third worldwide review of CCNOs. Two previous surveys were undertaken in
1999–2000 and in 2005. Data were collected from 23 and 51 countries, respectively.

Methods: An online descriptive survey was e-mailed to 97 countries with CCNOs or known nursing leaders.
Responses were analysed descriptively by geographical region.

Results: Sixty-five respondents completed the questionnaire, achieving a 67% return rate. The most common
issues identified were teamwork, access to educational programmes, formal practice guidelines/competencies,
staffing levels and working conditions. Respondents perceived professional representation, national
conferences, practice standards/guidelines, educational course standards, website provision, skills courses
and educational workshops as the most important activities that should be provided by national CCNOs.
Furthermore, less affluent countries showed greater emphasis on educational and training needs compared
with wealthier counties and had poorer access to Internet and other supportive infrastructure.

Conclusions: Teamwork, education, development of practice guidelines and workforce remain important
issues to critical care nurses and have changed very little over the last 10 years, although the emphasis on
teamwork is stronger than a decade ago. Differences in emphasis occur between affluent and less affluent

Corresponding author: Professor Ged Williams, Gold Coast Hospital, 108 Nerang Street, Southport, Qld 4215, Australia; Tel: +61 7 5519 8464; Fax: +61 7 5519 8439; E-mail:
Ged_Williams@health.qld.gov.au

countries and need to be acknowledged. Future research is recommended to better understand those priorities to enable the global community of critical care nurses to respond constructively.

Introduction

Critical care nursing is a sphere of practice that covers a variety of specialist areas in which critically ill patients are cared for (Aitken et al. 2007). Although the terms 'critical care' and 'intensive care' are often used synonymously, they are different. Critical care is an umbrella term, which encompasses a relatively broad field of specialist practice that includes intensive care and many other areas such as coronary care, perioperative care and emergency care. The term 'critically ill' is used to define patients according to both the seriousness of their condition and the environment in which they are cared for, which provides staff and facilities over and above that normally available in general ward areas (World Federation of Critical Care Nurses [WFCCN] 2007). However, regardless of the environment, the focus of critical care nursing is on the care and treatment of the critically ill patient and their family (WFCCN 2007).

Over the last three decades, professional critical care nursing organizations (CCNOs) have been established in many countries. Their primary purpose is to provide a professional body that assists the development of critical care specialist practice and promote high quality nursing care of critically ill patients and their families (Williams et al. 2007). CCNOs are well established in many western countries and, more recently, are emergent in developing and underdeveloped countries (Kabara & Williams 2006). In regions such as South America and Asia, relatively new critical care nursing networks and CCNOs are providing professional leadership, support and guidance for critical care nurses (Rogado 2006). Key areas of influence for CCNOs are advocacy and support regarding specialist nursing education (Baktoft et al. 2003), workforce modelling (Williams et al. 2006), clinical protocols and guidance (Aitken et al. 2011; Kleinpell et al. 2011).

In 2001, CCNO leaders met to form the World Federation of Critical Care Nurses (WFCCN). One driving force for its establishment was the first world survey of CCNOs, which identified consensus support for a worldwide professional organization (Williams et al. 2001). A second survey was conducted several years later and identified a growth in national CCNOs (Williams et al. 2007). These surveys provided an environmental scan (Costa 1995) of critical care nursing needs, trends and developments. Environmental scanning is useful because it helps to identify opportunities for growth and development, highlights potential problems and provides a foundation for strategic decision making (Costa 1995).

This paper presents the findings from the third world survey of CCNOs, which was conducted during 2009, to help determine ongoing WFCCN priorities, inform international collaborations and advance critical care nursing practice globally.

Background

Since the 1960s, critical care nurses have developed professional organizations to provide a voice and support network for the specialty and those nurses who identify with it (Aitkin et al. 2007; Ristagno & Weil 2009). The WFCCN is one such organization that globally represents the professional interest of critical care nurses by establishing documented standards of practice, advocating for patient and professional rights and expectations, and facilitating international educational programmes and research (WFCCN 2007).

Two worldwide surveys that investigated issues and needs of CCNOs have been conducted previously. The first survey, conducted between 1999–2001, yielded data that enabled international profiling of critical care nursing needs across 23 countries (Williams et al. 2001). Fifty-one countries participated in the second survey, which was undertaken in 2005 (Williams et al. 2007). These surveys were significant because they provided information that had not been collected previously. The information provided the foundation for strategic planning by the WFCCN. However, the surveys were complex to administer and were subject to several limitations. For example, the first survey was in English and responses were received from predominantly English-speaking and Westernized countries. While the second survey had English, French and Spanish versions, and many more Spanish-speaking countries responding to it, only one French-speaking response was obtained. Responses from regions such as the Middle East and Africa were very limited. Both the 2001 and 2005 surveys were distributed predominantly via e-mail, which was relatively inaccessible in developing countries. Also, when the first survey was conducted, there was no known database of CCNOs, which made it difficult to contact potential respondents, resulting in a relatively small sample. This also impacted the duration of data collection, which took nearly two years. By the time the second survey was ready for distribution,

the WFCCN had established a network of CCNOs and reliable contacts in many countries. This helped considerably to expedite data collection.

The first two surveys revealed consistent concerns about staffing levels, working conditions, access to quality education programmes, wages, and the need for practice guidelines and competencies. Respondents' views about the most important activities of national CCNOs, including professional representation, national conferences, standards for educational programmes, practice standards and guidelines, workshops and educational forums were also consistent. Together, the surveys provided valuable data that informed WFCCN development and activity. The findings from the surveys were published and presented at international conferences. This resulted in the development of educational tools, such as sepsis guidelines for critical care nurses and other online critical care nursing materials, as well as regional and local initiatives. In addition, initiatives such as the formation of national CCNOs in developing countries were designed to respond to the priorities identified in these earlier studies.

Aim

The aims of this survey were to obtain a global overview of critical care nursing issues and CCNO activities and to identify expectations of the role and activities of WFCCN. We hypothesized that responses might be different for i) respondents from various regions and ii) for respondents from wealthier compared with less wealthy countries as identified by gross domestic product (GDP). This information will determine how the critical care nursing specialty is changing over time and assist to formulate strategies that provide ongoing support to critical care nursing internationally.

Method

An online survey was used to collect data using a questionnaire that was available in two languages: English and Spanish. A paper-based questionnaire was also provided for some respondents who had difficulty accessing the Internet. Ethical approval for the study was obtained from the WFCCN Council. It was considered to be low risk, as it did not involve patients or require the collection of data specific to individuals or individual departments. Participation in the survey was voluntary, and consent was implied by its submission.

Sample

The WFCCN network and list of contacts from previous surveys were used to identify CCNOs and potential respondents worldwide. In countries where there was no CCNO, a critical care nursing leader who could represent their national perspective was identified through the WFCCN Council members' network. A total of 97 potential respondents were invited to participate in the survey. For the purpose of data collection, respondents were grouped into five geographical regions: Africa, the Americas (including North, Central and South America), Asia and the Pacific, Europe, and the Middle East.

Survey tool

The questionnaire used in this survey was based on the previous survey (Williams et al. 2007) and was reviewed and revised by the authors to include several new questions associated with intensive care unit staff profiles and access to the Internet by critical care nurses. These additional questions were added to reflect the feedback given by the WFCCN reference group members. Validity and reliability of the survey tool was achieved through piloting. As with previous survey tools, this tool was piloted through the research group asking colleagues to complete the tool to test the ease of comprehension and the validity of the responses that would be elucidated. The questionnaire consisted of 21 questions and was divided into five sections. The first section incorporated demographic details of the respondent, their country and their CCNO. The second section required respondents to rate the importance of 14 critical care nursing issues and to identify the three most important issues facing critical care nurses in their country. Issues were scored using a 10-point scale ranging from 1 to 10, where a score of 1 was rated as 'not important', up to a maximum score of 10, which was rated as 'very important'. The third section asked respondents to indicate, from a list of 15, the services provided by their national organization. Respondents were then asked to rate the level of importance of the service to critical care nurses on a 10-point scale as above, regardless of whether the service was currently provided by their CCNO.

In the next section, respondents were asked about their awareness of the nine services and activities provided by WFCCN and to rate the level of importance to their CCNO. Respondents were also asked to list other activities that their organization would want the WFCCN to take a leading role in and to identify which areas of nursing practice they would like the WFCCN to develop position statements or guidelines. With respect to their own country, the final section required respondents to identify critical care nurses' levels of education, levels of responsibility and autonomy, access to specialist critical care nursing programmes, and access to the Internet and online nursing journals.

Data collection and analysis

Data were collected between March and August 2009. Initially, respondents were contacted by e-mail and requested to complete the questionnaire via an online survey tool. A web link was

provided within the email body, which enabled identification of the respondent according to geographical region. For those respondents who had difficulty accessing the online survey, a paper-based version was provided (which was returned via e-mail and inputted manually into the online database).

All data collected were downloaded as an Excel file and then imported into a statistics program (SPSS version 17, SPSS Inc., Chicago, IL, USA) for analysis. Each country's data were entered into the SPSS program and grouped into regions. The numbers, proportions and mean scores of the response rates were calculated. An independent samples t-test was conducted to compare affluent and less affluent countries (level of significance <0.05). Frequency distribution was used to calculate the proportion of Internet usage by region and GDP. Frequencies (and percent frequencies) were calculated for categorical data whereas means and standard deviations were calculated for continuous data.

Results

Of the 97 potential respondents invited to participate, 65 surveys were completed, achieving a 67.0% return rate. Seven (10.5%) responses were from Africa, 13 (20.0%) from the Americas, 12 (19.0%) from Asia–Pacific, 26 (40.0%) from Europe and seven (10.5%) from the Middle East (Supporting Information Table S1).

Within the Europe region, Belgium had two CCNOs, a Flemish-speaking organization (Flemish Society for Critical Care Nurses – Vlaamse Vereniging Intensive Zorgan Verpleegkundigen) and a French-speaking CCNO (Association of Critical Care Nurses in Belgium – French area). Hence two responses were from Belgium. There were also two responses from Switzerland. One response was from the national CCNO in that country and one from the European pediatric intensive care nursing group (European Society of Paediatric and Neonatal Intensive Care) whose representative is based in Switzerland.

The majority of surveys ($n = 47$, 72.3%) were completed online. Twelve (18.5%) of the 65 countries in the sample were among the poorest in the world. Less affluent countries were identified as having a GDP per capita of US$6100 or below (Aneki.com). The African region was represented by a majority of less affluent countries and nearly half of the countries in the Asia–Pacific region were less affluent. In contrast, there were two less affluent countries out of eight countries in the Middle East region, and none in the Americas or in Europe. Forty-seven (72.3%) countries had at least one CCNO. Three of the 12 (25%) less affluent countries had an official CCNO compared with 41 of the 53 (77%) affluent countries. Thirty-three (70.2%) of all CCNOs indicated that their organization was a member of the WFCCN. The reasons given for membership were that the WFCCN provided a network for critical care nurses to share information, to learn from others and to develop critical care nursing expertise to improve quality of patient care. Reasons for not having membership varied. Some countries were members of a similar organization and did not feel the need to have the WFCCN membership. Other countries did not know about WFCCN or did not have a CCNO to have membership. Few countries were not in a financial position to have membership and attend the meetings.

Respondents ranked all of the critical care nursing issues identified in the questionnaire as important. Of these, teamwork was considered to be the most important (Supporting Information Table S2). This was closely followed by access to educational programmes and formal practice guidelines and competencies. Wages and relationships with other healthcare groups were considered the least important issues. There was a slight difference between regions regarding the importance of some issues. For example, the Middle East region ranked wages as most important and teamwork as less important while the Americas ranked the use of technology as more important than wages. There were no statistically significant differences between the less affluent and affluent countries for the importance of these issues.

The service most commonly provided by CCNOs was professional representation. The most important services and activities provided by CCNOs were ranked as the provision of practice standards and guidelines, national conferences, and professional representation. Provision of educational standards was the next most important. Although provision of practice standard/ guidelines were considered one of the most important services, only 48 (74%) CCNOs provided them. Conferences and websites for critical care nurses were available in 51 (78%) countries. The provision of newsletters and journals by a CCNO were reported to be less important than other services. The least important services/activities were funding grants and industrialization or union representation. Although not statistically significant, the more important activities for the less affluent countries were related to CCNOs providing training courses and standards for education while the responses of the wealthier countries suggested that CCNOs provision of national conferences, professional representation and research databases were more important.

Internet access at work varied according to region: 21% in Africa, 39% in the Middle East, 50% in the Americas, 62% in Asia–Pacific and 77% in Europe. The African region's access to online journals (20%) was similar to their work Internet access (21%). However, access to online journals did not correlate with access to the work Internet for the European, American, Asia–Pacific or Middle Eastern regions. When data were divided into countries and compared according to their GDP, wealthier countries were twice as likely to have access to the Internet at work.

Access to online nursing journals was limited for the less affluent countries (15% compared with 46% for wealthier countries). Nearly 70% of the wealthier countries had Internet access at home compared with 22% of the less affluent countries.

Respondents were asked to elaborate upon their main issues. Of concern for 34 (52%) countries was the ongoing need and access to high-quality education and specialty training. Other major issues for 39 (60%) countries were the need for improved staffing levels, wages and working conditions. Three respondents acknowledged that lack of resources, such as inadequate numbers of qualified staff, led to higher patient death rates, staff burnout and attrition. Regarding their identified issues, respondents were asked to comment on the CCNO strategies that had been implemented. Several organizations had developed educational programmes, and provided workshops and conferences. Other organizations had collaborated with government policy makers to campaign for improved staffing, wages and working conditions.

Supporting Information Table S3 provides an overview of WFCCN activities and indicates the level of awareness of these services. All activities were ranked as important and were rated above 7. Activities that were viewed as most important were the provision of standards for clinical and professional practice. Many of the European countries were aware of most of the WFCCN services/activities. Those least aware were in the African and Middle Eastern regions.

Respondents identified several other lead roles for the WFCCN. Major themes identified by developing countries included providing support and assistance for educational programmes, helping to establish CCNOs, developing policies, assisting with government lobbying, providing study grants and exchange programmes to support learning, and promoting international standardization of clinical guidelines, nursing standards, and training. There were many areas of nursing practice where responders would like the WFCCN to develop position statements or guidelines, covering the breadth of critical care nursing. These included organ transplantation, family visiting policy, legal issues, level of education, paediatric conditions and critical care nursing guidelines.

Discussion

The response rate from the original survey to the second survey improved significantly, suggesting that the WFCCN was an important central network to facilitate communication and collaboration between CCNOs of the regions. This current study had an additional improved response rate over the second survey emphasizing the continued improvement in international communication and collaboration between CCNOs. The third world survey of CCNOs revealed that there is a growing network of CCNOs available and responsive to this type of survey approach.

Of interest this time has been the engagement of less affluent countries, as defined by their GDP, which we did not specifically isolate in the analysis in previous studies. It is clear that these countries have differing emphasis on some needs, especially access to education and training, when compared with wealthier countries. More affluent countries may be able to assist CCNOs and nurses in these less affluent countries. We have seen exchange programmes of nurses from developing countries visiting developed countries to gain new skills and abilities. They then take the skills back to their country to help advance the level of practice. Language barriers and access to resources such as the Internet remain a challenge, though these challenges are slowly being overcome in developing countries (Cañón et al. 2008; Danladi 2001).

The issues that respondents rated as the most important have changed slightly since 2005. In the current survey, the three most important issues were teamwork, access to quality education and provision of formal practice guidelines/competencies, while the 2005 survey suggested staffing levels, teamwork and wages to be the priorities. Teamwork remains a consistently highly ranked priority. Teamwork implies critical care nurses working collaboratively with the medical and other professions (Williams et al. 2007). In this survey, the respondents indicated that their relationship with doctors was not a high priority and the relationship with other professions was the lowest score. Therefore the term 'teamwork' requires more clarification both for the researchers and the respondents. It may be that teamwork for the respondents implied a team of nurses only. We believe that critical care nurses value the collaborative relationships they have with doctors and other health professionals. Occasionally these relationships are strained (Roy & Brunet 2005), but the findings in this study suggest that creating a collegial and supportive work environment will benefit all, including the patients. The importance of this has been described elsewhere (Alves & Mello 2006; Manley 2008).

The importance of access to quality education and to formal practice guidelines has increased since 2005. This may be due to WFCCN activities that have facilitated communication between critical care nurses, sharing of ideas at an international level and increasing the awareness of the importance of current evidence-based education. Although staffing levels, wages and working conditions were major issues for over half of the countries, access to education and practice guidelines ranked as the higher priority. Access to education was an imperative for all countries regardless of wealth status. The survey indicated that developing countries were continuing to struggle with lack of resources, qualified staff and access to education. Regarding education, the WFCCN may have an instrumental role to facilitate nurse exchange programmes with the provision of study grants. This may assist developing countries to work from clinical guidelines

that could be taught through education and training pro-grammes or made accessible via the Internet or through other means.

Although the total number of African countries was the same as in the second survey (7), only two of the countries were represented in both surveys. The African countries were among the poorest with their contribution and commitment to endorse regional CCNOs and leadership ebbing with each situational change. The results indicated that the African countries were unaware of many of the WFCCN activities and the opportunity to obtain membership free of charge (WFCCN 2007). The Middle Eastern countries were similarly unaware of the services that WFCCN provide so working with and continuing to increase awareness in these regions is vital. The use of technology is essential to provide education and some resources that are needed by the region. Our results indicate a significant difference between the affluent and less affluent countries regarding access to the Internet. Providing computers and support may be one way to address the important issues for the developing countries related to training, workshops, standards for education courses and clinical practice guidelines.

The response rates of three regions increased from the 2005 survey. This result reinforces the principle that CCNOs have a positive impact to their members by providing services and activities. Each of the European, the American and the Asia–Pacific regions have a federation of critical care nurses that have been key in progressing international and multinational communication, cooperation and collaboration (Williams et al. 2007). There was a significant shift in the expectations of WFCCN when it was formed in 2001 and after it had been in place for 3–4 years in 2005. In the first survey (before the WFCCN was formed), respondents identified the most important things they wanted from the WFCCN in descending order: a website, international conference, international study exchanges and international guidelines. However in the second survey, after the WFCCN had been active for 3–4 years, the most important activities in descending order were guidelines on education and workforce standards, and international professional representation. Other activities such as a journal, website and international conferences were ranked slightly lower overall, although there were no statistically significant differences. One indicator of the changing importance of the Internet as a communication medium was that in the first survey, it was not considered to be important, whereas in the second survey, provision of an Internet site was ranked as the fifth most important CCNO service.

Limitations

The limitations to this study are similar to those of our previous studies that utilized a survey design. The survey relied on the scores and comments of one individual representing the critical care nurses in their country. The individual may or may not have been in a leadership role in a CCNO. Eighteen (28%) countries did not have a CCNO, and the survey was completed by a critical care nurse identified through the WFCCN Council member networks. Likert scale and rank ordering of issues resulted in relatively low variation in overall scores. A greater use of descriptive or interview-style questions may provide richer understanding of the issues and perspectives of different countries in future studies of this type.

Although the cost may be prohibitive, a more in-depth understanding of the perceptions of critical care nurses would be accomplished by surveying larger numbers of critical care nurses in each country. Another limitation was the use of language. Questions regarding nursing workforce, staff numbers and nurse designation were asked in the survey. Some of the answers given by respondents revealed a discrepancy linked to language. The survey was written in English and translated into Spanish. In many countries, there were other dominant languages. For these countries, the translation process may be difficult when using English or Spanish, rendering some answers to survey questions less than accurate. Such issues would be addressed through the use of professional translators in multiple languages. However, for now, the cost of translation beyond English and Spanish is beyond the capacity of the author group and the WFCCN.

The increasing response rate to each consecutive survey signals that the growing awareness of issues, regional support and communication networks are having a positive impact across the globe for critical care nurses. As with the second survey, almost one third of identified potential participants did not complete the survey. Lack of time, interest and language barriers have been speculated to be the cause of non-response for survey completion; however, another reason may be that changes in CCNO leaders or no CCNO in some countries lead to an incorrect person being identified and subsequent lack of confidence to complete the survey. The African and the Middle Eastern regions were under-represented in this survey with only seven countries from each region responding. Out of the seven African countries, five were classified as less affluent countries. This may indicate that opportunities for African countries are limited.

Recommendations

We have found that the method used in this study continues to build and improve upon the previous studies, and ought to be continued. The use of online survey tools help to improve the efficiency of data collection. We recommend the continued use of the Internet for international surveys. The Internet remains a powerful tool to facilitate communication; however, access to

Internet is limited in the less affluent countries. Those wishing to access nurses in these countries will need alternative methods to yield the best result where countries or individuals are unable to use this approach.

The formation of regional multinational federations appears to assist the dissemination of information, networking and growth in professional collaboration. Such regional groupings seem to be a useful structure to aid communication and supportive networks. It is recommended that the WFCCN continues to pursue the development of professional and clinical position statements and guidelines, international research projects, and improve communication and access to pertinent information through the web. National CCNOs need to continue to pursue development of practice guidelines, conferences and professional representation at a national level. We also recommend that in less affluent countries, emphasis is placed on establishing CCNOs and assisting in the development of education standards and the provision of training programmes. Finally, while this study has found some issues and questions are changing in importance over time, the majority of issues have remained relatively constant. If there is to be future studies of this type with CCNOs, we recommend more in-depth studies of the significant issues already identified. A greater use of detailed narrative would elicit an enhanced understanding of the particular issues in each setting.

Conclusion

Critical care nursing is an expanding and dynamic specialty of nursing practice, sometimes seen as an area of leadership for acute care in the health system. Therefore it is important that critical care nursing leadership keeps abreast of the changing needs and interests of this specialty. While our surveys suggest that the issues have not changed dramatically over time, we have seen different emphases on some issues. It is important that critical care nursing leaders are sensitive to these changes and find ways in which an appropriate response and support can be found to keep nurses and patients secure in the critical care environment. The findings from this study will help focus the activities and priorities of future researchers, academics, and nursing and health leaders throughout the world as they continue to govern and support the critical care nursing specialty over the coming decade.

Author contributions

Ged Williams: study conception/design, data collection, analysis, drafting of manuscript and critical revisions for important intellectual content.

Nerolie Bost: data collection, analysis, drafting of manuscript and administrative support.

Wendy Chaboyer: study design, analysis and critical revisions for important intellectual content.

Paul Fulbrook: study design, data collection, analysis and critical revisions for important intellectual content.

Laura Alberto: data collection and critical revisions for important intellectual content.

Rósa Thorsteinsdóttir: data collection and critical revisions for important intellectual content.

Shelley Schmollgruber: data collection and critical revisions for important intellectual content.

David Chan: data collection and critical revisions for important intellectual content.

References

Aitken, L., et al. (2007) Scope of critical care nursing practice. In *ACCCN's Critical Care Nursing* (Elliott, D.L., Aitken, L. & Chaboyer, W., eds). Elsevier, Sydney, pp. 3–14.

Aitken, L., et al. (2011) Nursing considerations to complement the Surviving Sepsis Campaign guidelines. *Critical Care Medicine*, **39** (7), 1800–1818 (In Print).

Alves, M. & Mello, R.A. (2006) Trabolho em equipe entre profissionais da enfermagem em um centro de terapia intensiva (Teamwork among nursing professionals at an intensive care center). *Ciência, Cuidado e Saúde*, **5** (3), 299–308.

Aneki.com *List of poorest countries in the world.* http://www.aneki.com/countries2.php?t=Poorest_Countries_in_the_World&table=fb129 places=*=*&order=asc&orderby=fb129.value&decimals=--&dependency=independent&number=all&cntdn=asc&r=-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94&c=&measures=Country--GDP%20per%20capita&units=--$&file=poorest (accessed 15 June 2011)

Baktoft, B, et al. (2003) A survey of critical care nursing education in Europe. *CONNECT: The World of Critical Care Nursing*, **2** (3), 85–87.

Cañón, W., et al. (2008) Critical care nursing in Colombia: the formation of a new critical care nursing association. *CONNECT: The World of Critical Care Nursing*, **6** (3), 51–53.

Costa, J. (1995) An empirically based review of the concept of environmental scanning. *International Journal of Contemporary Hospitality Management*, **7** (7), 4–9.

Danladi, H.M. (2001) *Fundamentals of Nursing Care For Intensive Care Nurses.* Zinek Communications, Jos, Nigeria.

Kabara, H.S. & Williams, G. (2006) Nigerian critical care meeting October 2006. *CONNECT: The World of Critical Care Nursing*, **5** (4), 104–105.

Kleinpell, R., et al. (2011) Web-based resources for critical care education. *Critical Care Medicine*, **39** (3), 541–553.

Manley, K. (2008) 'The way things are done around here' – developing a culture of effectiveness: a pre-requisite to individual and team effectiveness in critical care. *Australian Critical Care*, **21** (2), 83–85.

Ristagno, G. & Weil, M.H. (2009) History of critical care medicine: the past, the present and the future. In *Intensive and Critical Care Medicine*

(Gullo, A., Besso, J., Lumb, P.D. & Williams, G.F., eds). Springer Verlag, Italy, pp. 3–17.

Rogado, I. (2006) Asia-Pacific critical care nursing. *Proceedings of the 3rd World Congress of WFCCN*. 28 February 2006, Manila, Philippines.

Roy, K. & Brunet, F. (2005) The role of leadership in overcoming staff turnover in critical care. *Critical Care*, **9** (5), 422–423.

Williams, G., et al. (2001) Worldwide overview of critical care nursing organizations and their activities. *International Nursing Review*, **48** (4), 208–217.

Williams, G., et al. (2006) Consensus Forum: worldwide guidelines on the critical care nursing workforce and education standards. *Critical Care Clinics of North America*, **22** (3), 393–406.

Williams, G., et al. (2007) Critical care nursing organizations and activities – a second worldwide review. *International Nursing Review*, **54** (2), 151–159.

World Federation of Critical Care Nurses (2007) *Declaration of Sydney – Constitution*. Available at: http://en.wfccn.org/pub_constitution.php (accessed 10 August 2009).

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1 Regions of the world responding to the survey

Table S2 Average (mean) responses for important issues for critical care nurses by region and world (1 = not important, 10 = very important)

Table S3 Ranking of the WFCCN services and activities (1 = not important, 10 = very important)

Please note: Wiley-Blackwell are not responsible for the content or functionality of any supporting materials supplied by the authors. Any queries (other than missing material) should be directed to the corresponding author for the article.