Mapping the literature of emergency nursing

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Purpose: Emergency nursing covers a broad spectrum of health care from trauma surgery support to preventive health care. The purpose of this study is to identify the core literature of emergency nursing and to determine which databases provide the most thorough indexing access to the literature cited in emergency nursing journals. This study is part of the Medical Library Association’s Nursing and Allied Health Resources Section’s project to map the nursing literature.

Methods: Four key emergency nursing journals were selected and subjected to citation analysis based on Bradford’s Law of Scattering.

Results: A group of 12 journals made up 33.3% of the 7,119 citations, another 33.3% of the citations appeared in 92 journals, with the remaining 33.3% scattered across 822 journals. Three of the core 12 journals were emergency medicine titles, and 2 were emergency nursing titles from the selected source journals. Government publications constituted 7.5% of the literature cited.

Conclusions: PubMed/MEDLINE provided the best overall indexing coverage for the journals, followed by CINAHL. However, CINAHL provided the most complete coverage for the source journals and the majority of the nursing and emergency medical technology publications and should be consulted by librarians and nurses seeking emergency nursing literature.

INTRODUCTION

Emergency nursing is one of the fastest growing specialties in the nursing profession, with almost 95,000 registered nurses employed in emergency departments (EDs) in the United States in 2000 [1]. Emergency nursing is defined as care of individuals of all ages with perceived or actual physical or emotional alterations of health that are undiagnosed or that require further interventions [2]. Emergency nursing expertise encompasses knowledge about all age groups and medical specialties. Emergency nursing work includes specialized professional nursing roles: advanced practice nurses, clinical nurse specialists, nurse practitioners, and flight nurses. Working in the emergency department requires mastery of the ED’s technology and equipment, awareness of social services, and the ability to collaborate effectively with pre-hospital care providers. Preventive health care, specifically injury prevention, is becoming a larger role for emergency nurses.

PROFESSIONAL ORGANIZATIONS AND CREDENTIALING

The primary organization in the United States for emergency nurses is the Emergency Nurses Association (ENA). In 1970, the Emergency Room Nurses Organization was launched in Buffalo, New York, by Anita Dorr, inventor of the crash cart. Meanwhile Judith Kelleher formed the Emergency Department Nurses Association in California. These two groups joined on December 1, 1970, to become the Emergency Department Nurses Association in California. These two groups joined on December 1, 1970, to become the Emergency Department Nurses Association in California. These two groups joined on December 1, 1970, to become the Emergency Department Nurses Association in California. These two groups joined on December 1, 1970, to become the Emergency Department Nurses Association in California. These two groups joined on December 1, 1970, to become the Emergency Department Nurses Association in California. 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emergency nurses, but nurses can join other emergency-focused associations. In Hong Kong, for example, nurses can join the Hong Kong Society of Emergency Medicine & Surgery as affiliated members [6].

Trauma nursing is a subspecialty in emergency nursing that has its own organizations and journals. The Society of Trauma Nurses [7] explains that trauma nurses have additional knowledge and expertise in the complex care required for the traumatically injured patient. They practice in all care delivery settings where injured patients are treated, including the pre-hospital setting, emergency department, perioperative arena, intensive care units, surgical floors, rehabilitation, and outpatient services. "The Trauma Nursing Core Course" is an international course that provides international standards for trauma training [5]. It was taught in the United Kingdom for the first time in 1990 [4].

Credentialing options for emergency nurses consist of the certified emergency nurse (CEN) and certified flight registered nurse (CFRN). The Board of Certification for Emergency Nursing (BCEN) is the independent corporation nationally and internationally responsible for the Certification Examination for Emergency Nurses [8]. Emergency nursing practice is dynamic, fluid, and continually evolving and requires lifelong learning. Like all nursing disciplines, the scientific basis of emergency nursing practice is constantly changing and new knowledge must be developed and validated through research. Gonnerman emphasizes that ED nurses and nurse managers require information from the literature to practice effectively [9]. Research in emergency nursing should extend to examining the emergency nursing literature.

Emergency medicine has been active in describing and analyzing its literature [10–12]. Authors have considered subject matter [13], number of research articles and case reports [14, 15], research methodology [16, 17], multiple authorship [15], sources of funding [18–20], accuracy of references [21], currency of the content [22], value of impact factors [23], and adequacy of PubMed/MEDLINE coverage of the Journal of Emergency Medicine [24]. These are all potential areas for emergency nursing literature research.

**PURPOSE**

The purpose of this study is to identify the core literature of emergency nursing and to determine which databases provide the most thorough indexing access to the literature cited in emergency nursing. A secondary purpose is to determine the relative frequency of cited format types and publication years. Searches of several computerized indexes did not identify any previous similar studies of the emergency nursing literature. This study follows the protocol set by the Task Force to Map the Literature of Nursing of the Medical Library Association's Nursing and Allied Health Resources Section [25] and is patterned after the effort to map the literature of allied health [26].

This study does not attempt to look at the incidence of citation errors in emergency nursing literature. Goldberg et al. determined the incidence of citation errors in the 3 major emergency medicine journals: Annals of Emergency Medicine, Journal of Emergency Medicine, and American Journal of Emergency Medicine [21]. A study of the number and types of errors in references in 4 widely read pediatric nursing journals showed that, of the 190 references examined, 79 contained errors, for an overall error rate of 41.6%. Major errors, which prevent the rapid retrieval of information, occurred in 28.9% of the references [27]. This mapping study relies on citations as reported by the authors, therefore it may be affected by an error rate which has not been quantified.

**METHODOLOGY**

This study has followed the common methodology described in the project overview article [28]. To select source journals for the study, the Brandon/Hill Print Nursing Books and Journals 2002 list was consulted [29]. Two emergency nursing titles appeared on the Brandon/Hill list: JEN: Journal of Emergency Nursing (listed as an initial purchase) and International Journal of Trauma Nursing (IJTN). IJTN also appeared on the Canadian Nursing Association's 1997 Suggested List of Periodicals for Nurses for the Canadian Health Science Library. Accident and Emergency Nursing appeared on Allen's list of key nursing journals [30]. It seemed important to make this review international in scope, so emergency nursing journals published outside the United States were identified through a search of the National Library of Medicine's LocatorPlus catalog and evaluated for inclusion.

Emergency nursing and pre-hospital emergency care are closely linked, and the ENA has a position statement on the role of the nurse in the pre-hospital environment [31]. The "Brandon/Hill Selected List of Print Books and Journals in Allied Health" [32] was also consulted in the emergency medical technology category, where the following titles were listed: Annals of Emergency Medicine, Emergency Medical Services, Emergency Medicine, JEMS: Journal of Emergency Medical Services, and Topics in Emergency Medicine. The amount of research literature in pre-hospital emergency care is scarce [33], with most of the publications such as JEMS providing news and practice articles with limited numbers of references. Therefore, no pre-hospital emergency care publications were selected for this review of the emergency nursing literature.

The four source journals selected were JEN, IJTN, Accident and Emergency Nursing, and Emergency Nurse. In discussions with New York emergency nurses, JEN was the only one of these emergency-specific journals mentioned as regular reading, and most of the nurses reported reading only general nursing journals.

JEN has been published since 1975 [34] and is ENA's peer-reviewed, bimonthly journal and an official publication. It offers original clinical articles by emergency department staff, and practical information from sections such as "Case Review," "Clinical Notebook,"
“Drug Update,” “Law and the Emergency Nurse,” and “Managers Forum” [35]. Accident and Emergency Nursing, the official journal of the Emergency Nurses’ Association of Australia, is published quarterly by Elsevier. Accident and Emergency Nursing is devoted to accident and emergency (A&E) nurses and their interests. The journal reflects the scope of the A&E nurse’s responsibilities, highlights the growing number of practical and personal skills needed in A&E nursing, covers the many medicolegal issues in A&E nursing, and caters to all levels of staff working in emergency settings throughout the world [36]. Published ten times a year by RCN Publishing in the United Kingdom, Emergency Nurse began as a newsletter in 1983 and became a journal in 1992/93. It now contains peer-reviewed articles on the latest clinical innovations and best-practice guidelines, as well as coverage of management and education issues [37]. IJTN was published by Mosby for the Trauma Nursing Coalition (TNC). The TNC comprises the American Association of Critical-Care Nurses, American Association of Nurse Anesthetists, Association of periOperative Registered Nurses (AORN), Association of Rehabilitation Nurses, Emergency Nurses Association, and Air & Surface Transport Nurses Association. IJTN ceased publication with the July 2002 issue [38].

All four of the journals have cited references in CINAHL. The availability of the cited references was particularly important for titles that were not held by libraries in the author’s geographic area. The Journal of Trauma Nursing, a quarterly publication of the Society of Trauma Nurses, was considered but not selected because it lacked full 1998 coverage in CINAHL at the time of source journal selection.

RESULTS

The reference lists of 1,270 articles in the 4 source journals were analyzed, resulting in 7,119 cited references. Table 1 shows the number of citations in each source journal by format. The 788 articles from Journal of Emergency Nursing provided 2,360 citations; 210 articles with 2,243 citations from Emergency Nurse; 157 articles with 1,897 citations from Accident and Emergency Nursing; and 115 articles with 619 citations in International Journal of Trauma Nursing. The majority of cited references, 64.6% (4,598), were to journal articles; 20.6% (1,467) were to books; and 7.4% (528) were to government documents. The remaining 7.4% (526) cited miscellaneous formats, including Websites.

Table 2 shows citation formats for publication period. For all formats, the 1991-to-present group had the greatest percentage of citations: 70.9% of journal citations, 64.4% of book citations, 84.1% of government publications, and 82.1% of miscellaneous citations. As expected, the most recent literature was heavily relied on, with 15.7% of all formats dating from 1997 to the present. Of all citations to all formats, 93.4% were published between 1980 and 1999. A total of 926 unique journal titles were cited.

Table 3 shows title distribution by zone. Only 12 ti-
Table 4

Distribution and database coverage of cited journals in Zones 1 and 2

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<tr>
<th>Cited journal</th>
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<th>CINAHL</th>
<th>PubMed</th>
<th>EBSCO</th>
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<th>PsycINFO</th>
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**Zone 1**

1. J Emerg Nurs 217 5 3 0 0 0 0 0 0 X
2. Ann Emerg Med 215 4 4 0 0 0 0 0 0 X
3. BMJ 174 0 4 3 2 2 0 0 0 1 3 X
4. J Adv Nurs 143 2 2 0 0 0 0 0 0 0 1 X
5. Nurs Times 139 5 4 0 0 3 0 0 0 0 0
6. Accid Emerg Nurs 112 5 4 0 0 0 0 0 0 0 0
7. Nurs Stand 105 3 3 3 2 2 0 0 0 1 1 X
8. J Trauma 105 3 4 0 0 0 0 0 0 5 1 X
9. JAMA 103 1 3 3 3 5 2 1 1 4 1 X
10. N Engl J Med 92 1 4 2 3 3 1 5 1 1 X
11. Emerg Med J (2001–) continues J Accid Emerg Med 77 1 4 0 0 4 0 0 0 5 0 X
12. MMWR Morb Mortal Wkly Rep 73 3 3 5 0 3 0 0 0 0 10 X

**Zone 1 average database coverage**

3.17 1.33 1.33 0.17 2.42 0.83 0.83 0.83

**Zone 2**

13. Pediatrics 69 1 2 2 2 2 0 5 1 X
14. Br J Nurs 65 5 4 0 0 0 0 0 0 0 0 X
15. Emerg Nurs 62 5 3 0 0 0 0 0 0 0 0 X
16. Lancet 59 1 3 3 3 2 0 5 1 X
17. Prof Nurse 53 5 3 0 0 0 0 0 0 0 0 X
18. Nursing 48 5 2 0 0 0 0 0 0 0 0 X
19. Am J Nurs 40 5 3 4 4 0 0 0 0 4 4 X
20. J Allergy Clin Immunol 39 0 2 0 0 0 0 0 0 5 0 X
21. Resuscitation 35 0 4 4 0 0 0 5 1 X
22. Chest 34 1 4 0 5 4 0 5 1 X
23. Paediatr Nurs 34 4 5 0 0 0 0 0 0 0 0 X
24. Am J Emerg Med 33 4 5 0 0 0 0 0 0 5 1 X
25. Heart Lung 32 5 5 0 0 0 0 0 0 5 1 X
26. Ann Intern Med 28 1 4 3 3 4 0 5 1 X
27. Nurse Educ Today 26 4 4 0 0 0 0 0 0 5 1 X
28. Nurs Res 25 4 4 0 0 0 0 3 5 5 X
29. J Toxicol Clin Toxicol 22 0 4 0 4 5 0 4 0 0 0 X
30. Care Crit Ill 22 5 0 0 0 0 0 0 0 0 0 X
31. Pediatr Emerg Care 22 0 4 0 4 0 0 0 5 1 X
32. Am J Public Health 21 4 4 4 4 4 1 5 5 X
33. J Emerg Med 20 0 5 0 5 0 0 0 0 0 0 X
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35. Nurs Manage 18 5 4 4 0 3 0 0 0 0 0 X
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46. Br J Psychiatry 15 0 3 0 3 0 3 5 5 X
47. Top Emerg Med 14 5 0 0 0 0 0 0 0 0 0 X
48. Nurs Clin North Am 14 5 0 0 0 0 0 0 5 5 X
49. Nurse Pract 14 5 4 0 0 0 5 0 0 0 0 X
50. Pain 14 1 5 0 5 0 0 3 5 1 X
51. Crit Care Med 14 0 4 4 0 0 0 5 1 X
52. Intensive Crit Care Nurs 14 5 5 0 0 0 0 0 0 0 0 X
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58. Am J Cardiol 13 1 3 0 3 0 0 5 0 0 X
59. Am J Med 12 0 4 4 5 3 0 4 1 X
60. Crit Care Nurs Clin North Am 12 5 4 0 0 0 0 0 0 0 0 X
61. Nurs Manage (London); continues Senior Nurse 12 5 4 0 0 0 0 0 0 0 0 X
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63. J Wound Care 11 5 4 0 0 0 0 0 0 0 X
64. Psychiatr Serv (1995–) continues Hosp Comm Psych 11 2 3 0 2 0 0 2 5 5 X
65. CMAJ Can Med Assoc J 11 1 3 3 2 0 0 5 1 1 X
66. Postgrad Med 11 1 3 4 4 4 0 5 1 1
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<td>96. Am J Crit Care</td>
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<td>97. Air Med J</td>
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<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>98. Arch OphthalmoI</td>
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<tr>
<td>99. J Nurs Adm</td>
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<td>4</td>
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<td>4</td>
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<td>0</td>
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<tr>
<td>100. J Pediatr Surg</td>
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<td>4</td>
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<tr>
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<td>4</td>
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<td>0</td>
<td>3</td>
<td>5</td>
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<tr>
<td>102. SocioI Health III</td>
<td>7</td>
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<td>0</td>
<td>3</td>
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<td>0</td>
<td>0</td>
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<td>103. AACN Clin Issues (1995-); continues AACN Clin Issues Crit Care Nurs</td>
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<td>4</td>
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<td>0</td>
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<td>104. ANS: Adv Nurs Sci</td>
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<td>5</td>
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<tr>
<td>Zone 2 average database coverage</td>
<td>2.57</td>
<td>3.37</td>
<td>0.65</td>
<td>1.82</td>
<td>0.80</td>
<td>0.28</td>
<td>2.53</td>
<td>1.33</td>
<td>80</td>
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<tr>
<td>Average Zones 1 and 2</td>
<td>2.64</td>
<td>3.39</td>
<td>0.74</td>
<td>1.76</td>
<td>0.87</td>
<td>0.27</td>
<td>2.52</td>
<td>1.27</td>
<td>86.5%</td>
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</tr>
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</table>

Table 4 shows indexing coverage scores for each Zone 1 and 2 journal in nine of the databases. No one indexing source provided comprehensive indexing coverage of the Zone 1 titles. PubMed/MEDLINE provided the highest overall indexing score for Zone 1 and 2 titles but did not offer complete coverage for any Zone 1 title. CINAHL was second in Zone 1 coverage but offered complete coverage for key nursing titles. CINAHL provided complete coverage for four of the Zone 1 titles, including two of the source journals, Accident and Emergency Nursing and Journal of Emergency Nursing.
Nursing. CINAHL was the only source to completely cover the two source journals that appeared in Zone 2. EBSCO Health Source Plus and EBSCO Health Business Fulltext were the only complete coverage sources for the MMWR.

For Zone 2 titles, PubMed/MEDLINE again offered the highest overall score. CINAHL scored second but provided complete coverage of many of the nursing and emergency medical technology titles. The medical specialty journals generally received little or no coverage in CINAHL, bringing down its total score. The total indexing coverage scores given in Table 4 indicate the relative indexing coverage for all Zone 1 and 2 titles in each of the databases searched.

DISCUSSION

Many of the cited references analyzed in the study (nearly 65%) were to journal articles, a much lower percentage than in many of the other disciplines studied. Similarly, most of all analyzed references (nearly 93%) were to materials published since 1980, indicating a strong reliance on more recent literature, typical of health sciences disciplines in general. Consistent with Bradford’s Law of Scattering, the study’s cited journal titles showed a wide distribution among a fairly small core, with about 11% of the titles accounting for 67% of all the citations. Emergency care requires not only knowledge of the emergency literature, but also of significant developments published in general medical and nursing journals, cardiology, trauma, and pediatrics journals [11]. Of the 12 indexes consulted, PubMed/MEDLINE provided the most complete coverage. PubMed/MEDLINE indexes all full-length articles and research reports as well as most letters, editorials, and commentaries. CINAHL ranked second but provided the most complete coverage of nursing and emergency medical technology publications. While OCLC ArticleFirst covers more titles than CINAHL, its usefulness is limited by the lack of abstracts and subject indexing.

The coverage of MEDLINE indexing of the emergency medicine literature was reviewed prior to the advent of PubMed. In 1994, Vilke et al. assessed MEDLINE’s coverage of the papers in Journal of Emergency Medicine (JEM) over a 10-year period [24]. In that time, 1,178 abstracts and 845 original contributions were included in JEM. Results showed 98.5% of all original work published in JEM and 99.74% of all abstracts referenced in JEM were found in MEDLINE [39]. However, PubMed/MEDLINE does not cover many of the international and non-English-language emergency medicine journals. In a study comparing hand-searching to MEDLINE searching of the emergency medicine literature, only 18 (29.0%) of the 62 journals identified by the researchers as important to emergency medicine were indexed by PubMed/MEDLINE [39]. For searchers needing comprehensive coverage of the literature referenced by emergency nurses, PubMed/MEDLINE appears to be the index of first choice. For the core literature of emergency nursing, especially the source journals, CINAHL is the best choice.

CONCLUSION

The results of this study show that the most current journal literature is of primary importance to the emergency nursing discipline. The multidisciplinary nature of emergency nursing makes the relatively wide dispersion of journals unsurprising. Analysis of indexing coverage of the Zone 1 journals showed that PubMed/MEDLINE provides the most coverage, while analysis of the coverage of the source journals in emergency nursing shows CINAHL to be the most comprehensive.

These results benefit librarians and emergency nurses seeking to explore the breadth of emergency nursing literature. Expanding nursing collections to include more of the core emergency medicine literature may guide users to relevant materials. CINAHL may wish to index more of the emergency medicine literature to increase the database’s utility for nurses and EMS personnel, while PubMed/MEDLINE could benefit from more in-depth coverage of nursing publications.

REFERENCES


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