Implementing the Advanced Practice Nursing Survey Results: Report by the Online Services and Education Team

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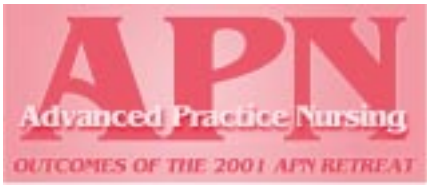
As one of the project teams formed after the 2001 Advanced Practice Nursing (APN) Retreat, the Online Services and Education (OS&E) Team was charged with

- Developing topics for online continuing education (CE) for oncology APNs
- Providing guidance and support to practicing APNs by facilitating educational programs that target topics identified by respondents as most important (Lynch, Cope, & Murphy-Ende, 2001)
- Working with the Oncology Nursing Society (ONS) Web site staff to develop educational programs, discussion forums, and resources to assist oncology APNs in clinical practice
- Examining the feasibility and content of resources for APNs with regard to personal digital assistant (PDA) technology.

Educational Needs Survey

Before locating or developing CE programs for the APN Virtual Community on the ONS Web site (visit http://apn.ons.wego.net/index.v3page?v2_group=0&p=160), as a first step, the team developed the Survey of Online Educational Needs to determine what educational topics would interest practicing APNs. Then the team wanted to determine the interest level in online CE courses and PDA technology, as well as current use of the two technologies.

The Survey of Online Educational Needs was comprised of 59 items in nine sections. Most of the items were presented as Likert scales, and participants were asked to rate their interest on a variety of educational topics: pharmacology, advanced physical assessment skills, laboratory findings interpretation, oncology procedures and skills, oncology disease management, symptom management, and general interest in online CE courses. Multiple-choice and open-ended questions were included in the sections for demographics and knowledge of PDAs.



Copies of the APN Educational Needs Survey were distributed to 1,800 clinical nurse specialists (CNSs) and nurse practitioners (NPs) who were members of ONS via e-mail and at the 2002 ONS Congress in Washington, DC. A total of 23.8% of ONS CNSs and NPs (i.e., 428 APNs) responded to the survey.

Demographic Data

The primary roles identified were NP (44%), CNS (35%), and a blended CNS/NP role (15%). The respondents had been practicing in oncology nursing for an average of 15 years and had been practicing in an advanced practice role for an average of eight years. Forty-nine percent of the respondents were employed in hospitals or multihospital systems, and an additional 41% of the respondents were employed in physician offices or ambulatory and outpatient clinics. Only 16% of the respondents stated that they visited the ONS Web site once or more per month, 27% stated they visited the site once every two to three months, 36% stated they visited the site one to two times per year or less, and 21% had never used the Web site.

Educational Needs

The mean rating of interest in almost all topic areas ranged from 3–3.7 on a scale of 1–4 (1 = no interest to 4 = high interest) (see Table 1). Oncology procedures and skills was the only topic that APNs rated as less than a 3, which may be related to the perceived difficulty in learning such technical skills over the Internet.

More than 700 additional topics of interest were listed by the respondents, and many of the topics were mentioned by several APNs. The extensive and varied list of topics reflects the wide range of responsibilities and activities in APN practice and the APNs' interest in a broad selection of educational topics.

APNs are interested in taking online CE courses, as evidenced by a mean rating of 3.5 on that question. Respondents were interested in taking online CE courses for a variety of reasons.

- To increase knowledge in a specific area of oncology (n = 354)
- To earn CE credits (n = 299)

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Table 1. Topical Areas and Mean Scores by Subcategory

Pharmacology	$\bar{X}$ Interest[a]
Chemotherapy and biotherapy: newly approved agents	3.7
Antiangiogenic drugs	3.6
Chemotherapy and biotherapy: old agents with new indications	3.2
Chemotherapy and biotherapy: old agents with new technology	3.2
New drugs to treat cancer and treatment-related symptoms	
• Neuropathies	3.6
• Pain	3.5
• Nausea and vomiting	3.4
• Chemotherapy-induced menopause	3.3
Advanced physical assessment skills	
• Neurologic examination to rule out brain metastasis	3.3
• Cardiac assessment	3.3
• General body systems assessment	3.3
Laboratory findings interpretation	
• Disease-specific laboratory results	3.4
• Interpretation of laboratory findings	3.4
• Tumor markers	3.3
• Understanding utilization of tests	3.3
Oncology procedure and skills	
• Bone marrow aspirate and biopsy	2.6
• Thoracentesis	2.4
• Lumbar puncture	2.4
Oncology disease management updates	
• Lung cancer	3.3
• Breast cancer	3.3
• Hematologic cancers	3.3
• Colorectal cancer	3.3
• Prostate cancer	3.1
Advanced symptom management	
• Pain	3.6
• Myelosuppression	3.4
• Nausea and vomiting	3.4

[a] 1 = none, 2 = low, 3 = moderate, 4 = high

- To have the flexibility of completing courses at home (n = 292)
- To pay lower costs for educational programs and related travel expenses (n = 244)

Several APNs expressed interest in working with ONS to develop content for online courses, as evidenced by 146 respondents willing to present a case study and 139 willing to moderate a discussion.

Personal Digital Assistant Technology

Considerable interest existed in the use of PDAs by the APNs who responded to the survey. Forty percent responded that they currently were using a PDA, and 25% responded that they planned to buy one in the next six months. However, the survey results reflected a low level of comfort in using PDAs, and most respondents still perceived that they had learning needs related to PDA use. Several APNs commented that they only used PDAs as appointment calendars but that they were interested in expanding their use. Multiple respondents listed the same online sites that they believed were the most beneficial in their practice and contained clinically relevant information (e.g., ePocrates). Other respondents stated that they were searching for a useful online site to obtain clinically relevant information. Pharmacology, medical calculations, and aides to differential diagnosis were the three most popular areas listed as areas of interest for downloading to PDAs.

Use of Survey Results

The data collected in the survey assisted the OS&E Team in achieving its objectives. While reviewing the data, the team noted that most of the educational topics of oncology practice were of moderate to high interest to APNs and determined that a great need existed to provide APNs with information to access programs in all of these areas.

The survey data identified and provided access to a variety of PDA resources that oncology APNs find useful in their practice. The team recommended that an extensive listing of the best PDA sites be listed on the APN Virtual Community and that the list be updated as more sites become available. These sites may provide resources to download for free or for a fee. A need exists for more educational programs on the use of these devices for APNs.

Criteria to Evaluate Advanced Practice Nursing Online Continuing Education Programs

Because of the increasing use of APNs in clinical practice settings, a growing need exists for additional CE programs for APNs, especially in the areas of current information related to diagnostic tests and procedures, laboratory and radiology interpretation, and treatment of people with cancer. To meet these CE needs, APNs may need to focus less on nursing CE programs and more on identifying online sites that provide medical CE.

When compared to the well-established history of distance-learning programs in the fields of business, marketing, engineering, and computer technology, online CE for healthcare professionals is in its infancy. In the future, nurses likely will develop and use more online CE programs. Online CE programs are practical options for APNs because they are convenient, easy to access, and reasonably priced.

A variety of formats has been developed for online CE programs for healthcare professionals. Some programs are text only, and some are adapted from oral presentations to include slides and recorded narrative. Other programs include multimedia and interactive components and are designed specifically for online use.

Online education, although available, is not used widely by APNs in ONS. This finding is consistent with the results of Charles and Mamary's (2002) statewide survey of NPs' preferences for CE programs. One hundred and ninety-one surveys were mailed to all licensed APNs in Nevada. The response rate was 54%, because 103 of the surveys were returned. The survey found that only 5% of the respondents reported using the Internet to earn CE credits in the previous year, although 75% reported interest in computer-based CE. Lack of computer skills or knowledge was cited as a reason for low use of the Internet.

The American Association of Colleges of Nursing (AACN) (1996) has stated that a master's education promotes analytical skills, integrates theory into practice, and creates a nurse with increased skills in a specialty area. To stay current in practice and techniques, some states require that RNs and APNs acquire CE credits for licensure and certification. The AACN *Distance Technology in Nursing Education* position paper (1999) addresses principles and guidelines for use of distance technology but does not provide definitive criteria to measure the quality or appropriateness of educational programs.

The OS&E Team identified a gap in the literature related to a tool to determine whether educational programs met criteria for advanced nursing practice. The team was challenged to develop its own APN CE evaluation tool and its criteria to accomplish this goal. The purpose of the CE evaluation tool was to identify appropriate CE programs for APNs and to examine CE programs for content that is relevant and helpful for APNs in a consistent manner. Providing this CE evaluation tool can be a positive strategy to encourage the use of online educational programs for APNs and to assist them in choosing appropriate online CE programs. The tool was developed by Carla Jolley, MS, RN, ARNP, CS, AOCN®, and was pilot tested and revised by the team based on the team members' knowledge of advanced practice and their experiences using the tool.

1. Educational Content

The first set of criteria used for defining an APN educational program was the presence of appropriate educational content for APNs and the presence of key components for advanced nursing practice. Building on the key components for advanced practice and on the ONS Educational Blueprint for Advanced Practice (ONS, 2004), the OS&E Team developed six criteria. The criteria were used to evaluate the content of existing CE programs and to determine whether content reflected advanced nursing practice and would be useful in the APN role. The following six criteria were used to evaluate existing CE programs.

1. Demonstrates advanced critical thinking skills and application of these skills to differential diagnosis and development of a treatment plan

2. Advanced pathophysiology, especially specific to identified cancer diagnoses and advanced symptom management
3. Pharmacology and prescribing practices
4. Contains interventions that are unique to APNs (e.g., interpreting laboratory results, interpreting computed tomography, learning new procedures related to oncology care)
5. Evidence-based practice, accurate presentation and interpretation of current or recent clinical trials, and research studies
6. Content is relevant to APN work, role, or practice standards.

To be recommended as a link on the APN Virtual Community, a CE program would need to meet at least two of the six criteria.

2. Authorship

Authorship was the second set of criteria that was deemed to be reflective of appropriate content for APNs. Acceptable authorship includes (a) master's prepared in nursing or above, (b) physician, or (c) recognized specialist in the field of study (e.g., music therapist, pharmacist, social worker in grief therapy).

3. Other Criteria

Other practical information to be assessed during a CE program evaluation includes a brief description of the program, number of contact hours, date of CE expiration, and sponsorship of the CE program, if applicable. Sponsorship could be by a for-profit organization, CE program company, or pharmaceutical company.

Educational programs may be open or closed, as described by Billings and Rowles (2001). Open offerings provide all of the content without requiring password access, and participation is available to anyone. Contact hours per credit are awarded when participants submit payment. Closed courses are offered only after participants have paid for them.

Reviewers' ratings are a subjective component included on the CE evaluation tool because graphic and technologic presentation plays a part in the appeal and satisfaction of the educational offering. These ratings, on a scale of 1 (poor) to 4 (excellent), may depend, in part, on reviewers' experience with the subject matter in the CE program. The rating provides one assessment of the program. The tool also provides a place for online community review, which will allow participants to contribute to an ongoing evaluation of the CE program. Rating of a program by a variety of reviewers and including commentary add to the richness and individuality of CE reviews. An evaluation tool such as this is a channel of communication among APNs and provides a consistent method for recommending and reviewing educational programs.

Helpful Advanced Practice Nursing Online Continuing Education Sites

Because APNs need CE programs to meet their specific learning needs, the OS&E Team evaluated multiple online CE programs using the evaluation strategy. A complete summary of the CE program evaluations was posted on the APN Virtual Community, and a sample of these evaluations are presented in Table 2.

Today, APNs can identify helpful online CE Web sites by accessing the APN Virtual Community (http://apn.ons.wego.net/index.v3page?v2_group=0&p=160) and then accessing the "Top Twenty Helpful Continuing Education Sites for APNs" (http://apn.ons.wego.net/index.v3page?v2_group=0&p=19507). The list provides CE Web sites and descriptions of the sites, types of CE offerings, sponsoring organizations, costs, and links to a variety of CE programs.

Clinical Practice Guidelines and Consensus Statements

In addition to CE programs for APNs, the OS&E Team proposed that links to clinical resources useful to APNs would be valuable on the APN Virtual Community. The team identified two crucial areas of information in relation to clinical resources for APNs: oncology clinical practice guidelines and consensus statements.

Clinical practice guidelines enable healthcare professionals to obtain recommendations regarding the care and treatment of specific diseases. Standards and guidelines for practice are crucial tools to improve the quality of health care (Yoos et al., 1997). These guidelines, which outline appropriate treatment and care, help healthcare providers in specific and often easy-to-follow formats. These guidelines usually are written by a panel of expert clinicians or a multidisciplinary team of experts that has extensive experience in a particular subject area (Curry, 2000). Recommendations are made based on the best evidence-based practice information available at the time. Research has shown that the use of evidence-based practice guidelines can improve the outcome of patient care (Weingarten, 2002). Two types of clinical practice guidelines exist: disease-oriented guidelines that provide information about particular clinical situations

Table 2. Sample of Three Online Continuing Education (CE) Programs That Were Evaluated Using the CE Evaluation Tool

Web Site and Continuing Education Program	Educational Content Criteria Met	Authorship Criteria Met	Characteristics	Brief Description
www.cancernetwork.com "Ovarian Cancer News and Reviews"	Yes 1–5	Yes	2 continuing medical education credit hours; category I Cost: free No sponsor listed Rating: 4 Includes an online content evaluation form	Discusses recent developments in the clinical management of ovarian cancer. Critiques the use of various diagnostic approaches in current oncology practice. Compares the efficacy of newer ovarian cancer treatment regimes
www.meniscus.com "Treatment of Advanced Nonsmall Cell Lung Cancer: Interactive Case Studies"	Yes 1–5	Yes	1.2 contact hours Cost: free No sponsor Expired November 17, 2003 Rating: 4	Three interactive case studies have scans and x-rays; questions include differential diagnosis and treatment. Provides references to update information (e.g., article review links)
www.ons.org Conventions, 2002 ONS Congress "Dyspnea: Recognizing and Managing an Invisible Problem"	Yes 1–3	Yes	1.7 contact hours Cost: $15 Sponsor: Schering-Plough Oncology Rating: 4	Reviews the assessment and management of dyspnea, especially pharmacologic interventions and novel therapies (e.g., complementary and alternative therapies)

and modality-oriented guidelines that outline information on procedures, medical products, or tests (American Society of Clinical Oncology [ASCO], 2004).

A variety of Web sites provides oncology clinical practice guidelines. ASCO guidelines include information about a variety of tumor types, treatments, and symptom management. Another valuable online resource for oncology clinical practice guidelines is the National Guideline Clearinghouse (2004). The site contains 228 cancer-related guidelines, including those for screening various tumor types and those on multiple subject areas. The National Comprehensive Cancer Network (2004) practice guidelines also were identified as a valuable resource. The guidelines cover more than 95% of all cancers and several symptoms, and they are updated annually.

Consensus statements help to increase healthcare providers' knowledge in a particular area. Such statements usually are generated as a result of a development conference, as in the case of the National Institutes of Health (2004) Consensus Development Conferences. Such conferences include expert panels of witnesses who help to create consensus statements based on the scientific evidence available at the time the statements are written. However, new knowledge accumulates continually; therefore, a consensus statement may be several years old before a new conference is convened to address practice changes. Healthcare providers need to be aware of possibly outdated information when viewing consensus statements.

After reviewing a variety of classic sources for retrieving information about guidelines and consensus statements, the OS&E Team identified the most useful Web sites for inclusion on the APN Virtual Community. Although the team included available Web sites with accurate and helpful information, it also recognizes that guidelines and consensus statements reflect the present state of oncology care and will change in the future. This reflects the importance of reviewing the literature on an ongoing basis and maintaining a current Web site.

- **www.palm.com**
  3Com Web site: links to downloadable programs
- **www.handheldmed.com**
  Handheldmed: compiles medically oriented software
- **www.pda.tucows.com**
  Tucows: downloadable programs and usefulness ratings
- **www.statcode.hypermart.net**
  Stat evaluation and management coder, state ICD-9 finder, growth chart, and more
- **www.healthypalmpilot.com**
  Healthy PalmPilot: more than 750 programs of medical shareware
- **www.palmgear.com**
  PalmGear H.Q.: collection of varied software and shareware
- **www.mdtool.com**
  MDTool.com:medical freeware, shareware, and software
- **www.pdamd.com**
  PdaMD: personal digital assistants, software, discussions, and learning center
- **www.pbrain.hypermart.net**
  Peripheral Brain: medical software, basic information, and links
- **www.pepid.com**
  PEPID+RN+ONS: oncology nursing point-of-care reference program
- **www.skyscape.com**
  Skyscape: medical and nursing software and many medical references

Figure 1. Web Sites for Personal Digital Assistant Information and Software

Table 3. Personal Digital Assistant (PDA) Medical Software Applications

Name	Description and Cost	Web Site
ePocrates qRx	Free drug reference and interaction program	www.ePocrates.com
ePocrates qID	Free antibiotic guide; several search modes	www.ePocrates.com
Documents to Go	Synchronizes Excel® or Word® documents with PDA	www.dataviz.com
Stat E&M Coder	Free evaluation and management coding algorithms	www.statcode.hypermart.net
Stat ICD-9 Finder	Comprehensive list of diagnosis codes	www.statcode.hypermart.net
5-Minute Clinical Consult	Fast and user friendly; comprehensive guide	www.skyscape.com
Patient Keeper	Free patient management program	www.healthypalmpilot.com
JournalToGo	Free downloads of selected journal abstracts	www.journaltogo.com
RiskyDisky	Breast cancer, hormone replacement, and tamoxifen risks	www.healthpalmpilot.com
AltMeds	Alternative medications, side effects, and interactions	www.e-medtools.com
PainStat	Pain medicine conversion calculator	www.goldenratiodesign.com
PalmEKG	Free electrocardiogram guide and illustrations	www.palmekg.com
PEPID+RN+ONS	Oncology clinical reference tool; free to download	www.pepid.com

Use of Personal Digital Assistant Technology in Health Care

The healthcare system has used computers for storage, retrieval, and transfer of information since the 1990s. PDAs have made a tremendous impact on healthcare professionals for these purposes (Embi, 2001). Hochla and Lubenow (2002) estimated that by 2007, 50% of U.S. physicians will use PDAs.

PDAs are electronic devices that work in conjunction with desktop or laptop personal computers (PCs). They are referred to as handheld computers, Palm Pilots, or a peripheral brain. PDAs are not minicomputers and do not manipulate data well without a PC. Most PDAs do not have keyboards but use handwriting recognition software that is simple to learn. PDAs are pocket sized, simple to operate, upgradable, and affordable ($125–$500).

PDAs originally were designed to be personal organizers and information managers with a date book, calendar, address book, memo pad, and to-do list. Today, PDAs are used to manage e-mail, play games, read e-books, listen to music, watch movies, take and store photographs, store reference materials, perform in-depth mathematical calculations, Web browse, exchange business cards, and much more.

In health care, PDAs have many uses. Information storage enables users to access medical references at the point of care. Clinicians can enter and manage data and then merge and receive data by linking to a central database. Prescriptions can be written into a PDA and sent via the Internet to a pharmacy, thereby reducing drug errors and eliminating the need for paper prescriptions (Harner, 2001). PDAs are used as clinical educational adjuncts in many medical residency programs (Beasley, 2002; Criswell & Parchman, 2002). PDAs are being used in clinical trials by patients and investigators. Using PDAs to capture billing charges has had a positive effect in hospitals, healthcare systems, and medical practices by improving accuracy, reducing denied claims, and obtaining faster reimbursement (d'Hemecourt, 2001). The quality of clinical documentation has shown improvement with PDA use (Wofford, Secan, Herman, Moran, & Wofford, 1998). Exchanging on-call information via PDAs makes for more efficient and timely patient handovers.

Many Web sites offer free software for PDAs, and many types of PDA software are on the market. Figure 1 lists some Web sites that offer PDA information and software useful for healthcare professionals. The sites have many medically oriented, downloadable PDA programs. Table 3 lists some useful PDA medical software applications.

When considering purchasing a PDA, several things should be considered. First of all, how will you use your PDA? Knowing this will enable you to decide what type of operating system (OS) you need. If you will be using a lot of medical software and references, you may find that the Palm OS (PalmSource Incorporated, Sunnyvale, CA) is preferred. If you need frequent interface between your PC and your PDA, the Pocket

PC OS (Microsoft, Redmont, WA) may be more useful.

Second, a PDA's amount of memory also is very important. In general, the more memory, the better. Many references may take up a lot of memory. The *Physicians' Desk Reference,* for example, uses about four to five megabytes of memory. Pocket PCs generally come with more memory than Palm OS PDAs. You also can add more memory to many PDAs by purchasing a memory card that will enable the PDA to store large amounts of information.

Other things to consider before purchasing a PDA are the size of the PDA, color or monochrome screen, battery life, type of battery, speed, type of data input (stylus or keyboard), screen size, expandability, and price.

The Advanced Practice Nurse Virtual Community on the Oncology Nursing Society's Web Site

Another objective of the OS&E Team was the development of an APN Virtual Community. Under the leadership of Editor Elizabeth Gomez, RN, MSN, AOCN®, virtual communities are being developed on the ONS Web site. The sites are great places to quickly access information specific to a nurse's area of interest, network with peers, and obtain current information on important clinical news, upcoming educational events, and ONS activities. The APN Virtual Community also can share documents such as CNS or NP job descriptions.

A discussion board allows APNs to post comments or questions for discussion with peers. The APN chat room allows real-time conversations among APNs at prearranged times or as drop-in discussions.

The Survey of Online Educational Needs reflected a low use of the ONS Web site by APNs. This may be the result of a lack of time, lack of knowledge about the Web site, or lack of identified advanced practice content on the site. Communicating information about the services and educational programs on the APN Virtual Community will be important to make the site successful. Updating posted information will be key to maintaining interest.

At the time this article was written, the APN Virtual Community was a work in progress. Now this site is operational, and it highlights the four areas addressed by the OS&E Team.

- Top 20 helpful CE sites for APNs
- Consensus statements and clinical practice guidelines
- Web sites for PDA information and software
- PDA medical software applications

The ONS Web site (www.ons.org) has proven to be a valuable tool and a wonderful resource for all oncology nurses. ONS continues to demonstrate its support of and commitment to APNs through the development of the APN Virtual Community.

The role of the APN is expanding in the field of oncology because of current trends in health care such as increased patient acuity and improved reimbursement. Online CE programs for APNs, PDA technology, the APN Virtual Community on the ONS Web site, and other online resources give oncology APNs an increased ability to stay current in this information age.

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