Evidence-Based Practice at the Point of Care

Rick Amend, MSN, FNP-C, and Angela Golden, DNP, FNP-C

ABSTRACT
Evidence-based practice at the point of care gives advance practice registered nurses and their patients immediate access to the most current evidence and research-backed information to treat the specific issue or health concern with which the patient presents. Patients without current complaints, but with questions and concerns can receive education regarding current preventive guidelines and recommendations for many illnesses, such as diabetes and obesity. Because nurses are the primary patient educators, advance practice nurses are in a unique position to impart diagnostic, treatment, and preventive education that may otherwise go unsaid.

Keywords: APN, evidence-based practice, integration, outcomes, point of care, prevention
© 2011 American College of Nurse Practitioners

The availability of evidence-based practice (EBP) at the point of care (POC) is a necessary tool that will improve the way health care is supplied to the public. EBP at the POC may not change the interview, the history, or the examination; then again it may give better insight into the patient’s complaint and allow for more thorough processes. With proper inquiry EBP will give advance practice nurses (APNs) and their patients immediate access to the most current research-backed information to treat the specific presenting issue or health concern.

Patients without current complaints but with questions and concerns can at least receive education regarding current preventive guidelines and recommendations for many illnesses that appear in society, such as diabetes and obesity. Because nurses are the patient educators of the health care industry, APNs are in a unique position to impart diagnostic, treatment, and preventive education that may otherwise go unsaid. This communication and interaction, based in the honest and ethical conduct learned as nurses, are what place APNs in a unique position of trust with patients.

WHAT IS EBP?
Melnyk and Fineout-Overholt define EBP as “…a problem-solving approach to clinical practice that integrates: a systematic search for and clinical appraisal of the most relevant evidence to answer a burning clinical question; one’s own clinical expertise; and, patient preferences and values.” With research into health and disease treatment and prevention processes happening at all times, the ability to access and apply accurate and applicable research information at the POC is becoming the way for APNs to practice. Using the earlier definition, it becomes obvious that integrating the patient’s preferences and values into the application of EBP at the POC

www.npjournal.org
allows the patient to give immediate input and feedback to the care plan and implementation. This increase in communication can make for better patient/provider partnerships and increase positive outcomes while mitigating adverse outcomes.\(^3\)

**WHAT IS THE POC?**

POC is any place that a provider sees a patient and is in a position to offer advice, treatment, or information regarding health issues. The POC is the place that the patient thinks is most beneficial; it is his or her entry into the health care system, in the exam room, at a counter, or in the lab chair—all are locations that give rise to the idea of POC interaction. Being in a position to offer immediate information regarding a medication that the patient saw on TV, a malady that she researched on the web, or current data regarding screenings and recommendations from trusted and authoritative sources is what EBP at the POC is about.

An example of EBP at the POC is the use of lab values done daily in offices, clinics, and hospitals to support evidence used in treatment. The most common POC test is blood glucose, which has been found to improve outcomes because of its timeliness and accuracy.\(^4\) An Australian study showed that medication adherence among diabetics was improved when POC testing was included in the office visit.\(^5\)

Blood glucose is a great example of POC tools at work—a definitive data point is obtained while the patient is in the office, allowing for elaboration and in-depth discussion regarding the disease process and the patient response. Integrating real-time data into the discussion gives the ANP an excellent opportunity to draw research and evidence into the treatment plan, all at the POC.

Another example is spirometry. A 2009 study\(^6\) found that smokers who had lung function test results explained to them and compared to results of non-smokers of the same age were more inclined to quit smoking than those tested but not given an explanation. In this case the evidence is in the research, but to the patient the evidence is in the comparison. The POC data allow the APN to provide basic, easy to understand information so that a patient can make a decision based on real-time information.

Will EBP at the POC improve patient outcomes similar to how real time laboratory tests can? Possibly, as APNs apply EBP and devise and adapt more ways to use it, at a minimum it will make use of current research-based evidence in prevention, diagnosis, and treatment.

**HOW DO WE GET EBP AT THE POC?**

In this age of internet, smart phones, and instant access to data, many patients are doing their own research before seeing the practitioner. The APN who brings a computer, smart phone, or PDA into the visit may allow the patient to feel more comfortable, knowing they are getting up-to-date information. Bringing EBP to the POC is the next step in integrating research into daily nursing practice.

Because EBP is not fully integrated into all APNs' practice, many may find it difficult to get started. Current approaches to learning new information include using internet access in offices, personal digital assistants (PDAs) and smart phones, literature such as evidence-based journals and peer-reviewed research reports available in conference rooms or in the treatment room, and new treatment processes on “read and sign” documents that are passed around an office.

EBP depends on current, reliable information. Because the internet is a constantly updated and easily accessible medium, it has become the go-to source (provided the information posted is reliable) for up-to-date EPB resources. Literature, other than current research journals and periodicals, is typically old before it is even published. Research on this article has taken over 6 months. Textbooks and manuals are usually years from publication when we see them, then the data inside the publication had to go through the same vetting process before being included. While we have all grown up using textbooks as our primary learning tool, the easy access to current and relevant research and information via the internet makes them no longer the optimal source for patient-centered information.

PDAs are being pushed to the background by smart phones and other immediate interconnectivity technology,
but the premise is the same: internet capabilities or downloadable programs that are readily updated and research-based. By accessing the most up-to-date, well-researched, and applicable data during the patient visit, we bring EBP to the POC. Many of these information sources provide current information and reference the available evidence. These programs often allow the referenced EBP information to be accessed immediately.

Here’s an example of the use of EBP at the POC. A 24-year-old woman presents with urinary tract infection symptoms and her urinalysis supports the diagnosis. After verifying that she isn’t pregnant, the APN prescribes ciprofloxacin 500 mg BID x10 days. The patient says she has heard that the antibiotics can affect her oral birth control’s effectiveness. Because this link has been a subject of some research, the APN accesses an evidence-based article embedded in the birth control general notes of Pepid7. This EBP resource states that rifampin is the only antibiotic with enough enzymatic involvement to cause oral birth control failure.

Another example set in family practice: An 8-year-old boy has type 1 diabetes and asthma. He takes 70-30 at 14 units in the morning and 7 units in the evening and covers his carbohydrates with regular insulin. He uses albuterol SVN treatments a couple of times a week and uses his albuterol MDI daily. He has allergies to penicillin and grass. He comes into the clinic because his right ear has been hurting for 10 days, and his mother is concerned for her son and their finances because the family lost its insurance last month.

The boy’s exam shows acute otitis media. The APN uses Pepid7 on a PDA to check for second-line antibiotic medications to avoid the patient’s allergy. Once azithromycin is selected, dosages, interactions with his existing medications, and costs for the basic prescription are checked and the information is given to his mother. If the boy had insurance, the formulary for his insurance carrier may very well be available in Epocrates8 for cost comparison and suggested use.

The mother receives several pieces of information at this encounter: she knows that the antibiotic can be used with the boy’s existing medications, she has a very good idea of the new medication’s cost, and she knows that the APN took the allergy into account when prescribing medication.

The prescription for azithromycin, 10 mg/kg x 1 day then 5 mg/kg x 4 days is given knowing that the information used to verify it was updated 48 hours ago when the APN last synced the PDA. Additionally, the APN knows that a treatment failure may necessitate a cephalosporin because the information was included in the otitis media recommended medications.

Another example that brings EBP to the POC is evaluating a pneumonia diagnosis for inpatient or outpatient treatment. Using a pneumonia severity index computation at the POC, with the patient present, may be the detail that leads to an inpatient visit and complete recovery instead of a prolonged outpatient treatment that results in an emergency room visit.9

**PROS AND CONS OF EBP AT THE POC**

Identifying the impediments to EBP at the POC is important to finding the ways that the practice can be integrated better. By increasing access to and using EBP resources, such as handhelds as well as personal computers, difficulties can be overcome and the EBP process integrated more fully into health care.10 A 2007 study11 identified several perceived barriers to EBP. As far as knowledge was concerned, the foremost issue was converting information needs into a question, the second was research skills, and, interestingly, number 5 on the list was information technology skills. In regard to practice the study identified the critical appraisal of literature as the main barrier, which goes back to the need to ensure that the data accessed are factual and evidence-based, not just opinion.

Further questioning of attitudes toward EBP showed that workload was the number one barrier. This study didn’t specifically look at EBP at the POC; in fact, it looked at EBP in general. With these barriers exposed, the process of bringing EBP to the POC and overcoming these barriers can be studied and solutions integrated into daily practice.

Specifically, older clinics, provider offices, and hospitals were not constructed with EBP in mind. Interconnectivity issues with laptops and the cost to install the electronic
hardware necessary for easy access can be daunting. In fact, many offices still have a shadowbox on the wall to view x-ray films, even though most reports are distributed electronically or sent with the patient on CD to be viewed and examined. While the cost analysis of wireless access, a desktop computer in each room, or PDAs with software for staff members is beyond this article, the costs are not to be ignored as a barrier to EBP at the POC.

While access to EBP is the challenge, the significance of not using it is multifold. For the patient it can mean outdated treatment modes, use of medications or treatments that are no longer current, and anecdotal or historic processes that are not promoting the best outcomes. For the APN not using EBP it can be significant in regard to poor patient outcomes and loss of patients or their trust regarding technology and treatment. Increased use of and integration of informatics are essential for patient safety and EBP.12 The establishment of a robust informatics infrastructure, with internet access, will lay the groundwork for EBP at the POC for those APNs who do not already have it.

No matter how EBP is obtained, it has to be a consistent, rapid, and thoroughly updated process to ensure its validity at the POC. Simply having access to the most current data is important, but having access to the most current data at the POC is the goal.

WHAT WE THINK WE KNOW ABOUT EBP
An Irish pediatrician questionnaire asked the practitioners what they used to answer daily clinical queries. Overwhelmingly, 67% of the respondents used the internet as the first choice to find information. Even more suggestive is the fact that 93.5% of the survey takers thought that answering clinical questions as they arise (at the POC) is an important component of EBP.13 This information shows that bringing evidence and research to the patient is recognized by providers as the best way to practice.

WHERE DO WE GO FOR ANSWERS?
Simply having an internet-capable laptop with you at the patient’s side, although a great starting point, isn’t enough. Understanding the question that needs to be answered and where to go to find an answer for the patient is the next step. The National Guideline Clearinghouse14 is an excellent source with a searchable database and evidence and research from multiple sources. Many commercial programs offer downloadable databases for PDA and smart phone devices that can be updated daily. These programs give access to laboratory information, medication and treatment guidelines, and pictures that can be shared with patients at the POC. Many opportunities exist for access to EBP.

No matter what the source, Table 1 shows examples of searchable databases that contain research and information to make clinical decisions at the POC. Using these programs to bring research and evidence to the patient is easy, with the proper computer, PDA, or in-room access to the internet, and promotes trust and comfort between patient and provider. Being able to explain a treatment option, show the patient a picture of the anatomy, and pull up a research article that explains why a treatment mode is best—all while in the room with the patient—is putting EBP to work at the POC.

USING EBP AT THE POC TO PREVENT ILLNESS
One of the most important things an NP can give his or her patients is knowledge and education. The American Academy of Nurse Practitioners has listed education in 2 separate areas on their Standards of Practice for Nurse Practitioners.15 Other studies have shown that patient education in the hospital setting regarding discharge care and planning can prevent readmission and rebound emergency room visits.16 Prevention and education are the cornerstones of nursing and being able to give your patients evidence-based and accurate recommendations for health and

### Table 1. EBP Resources and Databases

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downloadable Databases for PDA and Smart Phones (yearly charges, anytime updates)</td>
<td>Pepid PCP Suite7 (<a href="http://www.pepid.com">www.pepid.com</a>) Epocrates8 (<a href="http://www.epocrates.com">www.epocrates.com</a>) Skyscape26 (<a href="http://www.skyscape.com">www.skyscape.com</a>)</td>
</tr>
<tr>
<td>Websites that Collect Data Sources (continuously updated)</td>
<td>Trip31 (<a href="http://www.tripdatabase.com">www.tripdatabase.com</a>)</td>
</tr>
</tbody>
</table>
current recommendations for preventive care can build on a provider/patient relationship leading to better outcomes. The knowledge and education to prevent disease is the best and most fulfilling application of EBP.

The Centers for Disease Control and Prevention, as well as the American Academy of Pediatrics, have information regarding immunization schedules and catch-up recommendations. Shots has a PDA program that gives the same information and allows for on-the-spot auditing of shot records. This online database is updated yearly and available for free.

The National Osteoporosis Foundation has a guide to prevention and treatment of osteoporosis that can provide excellent information to those at risk and those in treatment. The American Cancer Society has recommendations for screenings and testing options that can be used with patients. These websites and programs are updated continually and give advice to both patients and providers.

The United States Preventive Services Task Force has built a PDA-downloadable program that allows searches by age and gender that includes all of the guidelines applicable to the Clinical Preventive Services. See Table 2 for specific information on preventive services.

### Table 2. Preventive Recommendations and Services

<table>
<thead>
<tr>
<th>Downloadable Databases for PDA and Smart Phones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shots19 (<a href="http://www.immunizationed.org/Default.aspx">http://www.immunizationed.org/Default.aspx</a>)</td>
</tr>
<tr>
<td>USPSTF22 ePSS Recommendations &amp; Guidelines (<a href="http://epss.ahrq.gov/PDA/index.jsp">http://epss.ahrq.gov/PDA/index.jsp</a>)</td>
</tr>
<tr>
<td>Websites with Searchable Databases</td>
</tr>
<tr>
<td>American Academy of Pediatrics18 (<a href="http://www.aap.org">http://www.aap.org</a>)</td>
</tr>
<tr>
<td>American Cancer Society21 (<a href="http://www.cancer.org">http://www.cancer.org</a>)</td>
</tr>
<tr>
<td>Centers for Disease Control and Prevention17 (<a href="http://www.cdc.gov">http://www.cdc.gov</a>)</td>
</tr>
<tr>
<td>National Osteoporosis Foundation20 (<a href="http://www.nof.org">http://www.nof.org</a>)</td>
</tr>
</tbody>
</table>

CONCLUSION

Garrett and Klein found that APNs easily integrated handhelds into their daily routines. The nurses in the study identified improved patient care as the reason for using these devices. While some nurses in the study were reluctant to use a handheld because of the quick obsolescence of the technology, others used PDAs to access drug and medication information, laboratory data, and wireless communication technologies. With the amount of allergy and medication interactions among common medications used today, the ability to input a list and show the known interactions and allergy substitutions is reason enough to use a handheld device.

Practitioner attitude is one of the overriding issues involved in use of PDAs and EBP at the POC. Adopting technology for specific purposes makes a great difference in the amount it is used. Early adopters of the technology are more apt to use it because of its ease and quick access to data. Late adopters are more apt to use it simply because it is useful to them.24

EBP at the POC is an excellent way to bring current research-based information to patients and integrate it into their plan of care. While EBP can be difficult to acquire at the POC, its use can improve outcomes, address preventive recommendations, and help instill a better partnership between the patient and the provider. Using the internet, handhelds, and other devices to bring current research and treatment modes to the POC is what patients need and APNs want.25

References


Rick Amend, MSN, RN, FNP-C, CEN, is a family nurse practitioner at East Valley Urgent Care in Phoenix. He can be reached at ramend@cox.net. Angela Golden, DNP, is an assistant professor in the NP program at Northern Arizona University in Flagstaff and practices as a family nurse practitioner in a private NP practice. In compliance with national ethical guidelines, the authors report no relationships with business or industry that would pose a conflict of interest.


JNP welcomes articles for many sections of the journal, including:

Awesome Assignments
This 600-word column recognizes outstanding faculty members, creative teachers, memorable clinicians, or remarkable students whose ideas or words were especially resonant.

Diagnostic Tips
The goal is to share specific strategies that help experienced NPs hone their physical examination skills. Maximum length is 1200 words, and photos, tables, or figures are encouraged.

In My Opinion
Essays in this column run between 1200-2000 words and cover everything from scope of practice to research projects to op-ed pieces.

Point/Counterpoint
Many topics spark debate among practicing clinicians, and this column showcases the pros and cons of hot issues. JNP welcomes contributions either for or against a particular topic. Each author biography runs about 90 words, and the supporting text for or against an issue should not exceed 300 words.

Manuscripts should be sent to JNP’s submission website, ees.elsevier.com. A guide for authors is available there and at www.npjournal.org. Queries to the editor also are welcome at jnpeditor@aol.com.