

From the Staff of ACPNet:

Welcome to ACPNet's newest newsletter. This publication will update you on the latest research and infrastructure developments and accomplishments. With your help, we've made great strides and elicited the attention of important stakeholders in healthcare. In the future, we hope to be an even more valuable resource to you in your research endeavors.

Inside you will find:

- ❖ A "Featured Investigator" column that will single out a network physician-investigator who has dedicated himself or herself to the network's success;
- ❖ An article review relevant to the research being conducted;
- ❖ Part Two of our series on purchasing an EMR for your practice; and
- ❖ An update on the network, our diabetes management study, and upcoming opportunities.

As we move forward in our development, there will be even more opportunity to become involved in the life of the network. Remember, this is your network! ACPNet exists to provide the support and infrastructure to help you answer questions from your practice. We welcome any questions or comments.

This project is supported by an exploratory grant from the Agency For Healthcare Research and Quality (AHRQ: 1 R21 HS13508) to develop practice-based research networks.

Featured Investigator - Christine A. Sinsky, MD



Rapid Access: A Clinic Wide, Patient-centered, Multi-disciplinary Initiative for Improving Quality by Improving Access

Can you see your doctor today? That is the question we asked for our patients six months ago. If you have a concern, will your own doctor usually be able to see you? Will you be given an appointment at the first phone call, or do you have to plead your case first to the receptionist, next to the nurse, and then wait for a return call? If you don't have a regular physician, will the physician who sees you become your personal doctor for ongoing care?

Our answer to these questions last fall was not as good as we would have liked. We wanted our patients to be able to answer yes; yes, my doctor can generally see me the day I call in; yes, the first person who takes my call can give me an appointment; and yes, the doctor I saw is now my doctor. With the implementation of our "Rapid Access" initiative, most of our patients can now answer these questions with a resounding "yes!"

In our 100 physician, multi-specialty clinic in a town of 60,000, access had always been one of our biggest complaints on patient satisfaction surveys. While some of our physicians had an "open-door policy" where their own patients would be seen the day they called in with a problem, other physicians routinely directed those patients to our Acute Care Center. In addition, many patients received only episodic care, and never established a relationship with a primary care physician. We wanted to create a system wherein most patients would be able to see their personal physician on the day they request for acute needs, and a system where patients receiving episodic care in the Acute Care

You could be the next featured Investigator! We encourage you to share your practice experience with us.
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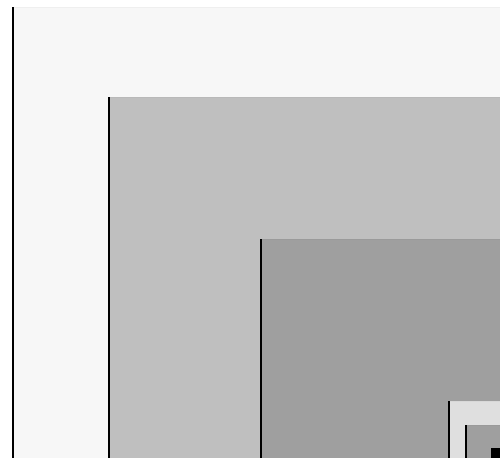
WIN a free copy of an ACP book!

Electronic Medical Records: A Guide for Clinicians and Administrators
Edited by Jerome H. Carter, MD, FACP (reg. \$45)

Be one of the first **3** ACPNet members to contact us with the correct answer to the following question:

WHAT IS THE TITLE OF THE 1961 NEJM PAPER THAT MADE THIS CHART FAMOUS?

Contact information is available on Page 7.



Center would be offered an opportunity to convert to continuity of care.

To meet these goals we established "Rapid Access" a system-wide initiative designed with input from physicians, nurses, receptionists, phone schedulers, and information technology staff. We assessed capacity, and tried to match our primary care capacity to demand. Each physician designated certain appointments each day as "rapid access" appointments. When a patient presents or calls in requesting an appointment, their preferences for physician and time are solicited and available options offered. Our goal is to "schedule to request" as often as possible.

Flexibility was a priority in the system design, for example, a physician with several cancellations or an unusually slow day can open up more "rapids" on the spot. Customizability was also a priority. Each physician has their own unique practice style, and we tried to accommodate their needs to support physician satisfaction. We refined our electronic scheduling tool to allow schedulers at all portals of entry (phone lines, reception desks, 24 hour help-line nurse, clinical departments) to view the available "rapid appointments" of each of our 18 adult primary care physicians on a single screen.

We strengthened our linkage with community partners for referrals from emergency room staff, community nurses, home health organizations, and directly from patients calling in after hours for advice. Our goal was to give patients or referring clinicians an appointment that met their request on the first call. For example, a patient is seen in the emergency room in the evening with an exacerbation of asthma; a follow-up appointment time for the next day with the patient's regular physician can be given to the patient in the ER. No further phone calls required.

We intentionally did not chose an "open access" model, choosing to develop instead a model consistent with our goals of providing patient-centered, quality chronic disease management and preventive services, as well as acute symptom evaluation. Chronic disease management and preventive service needs are met by reserving a time in advance for the patient, and planning ahead for the appointment. A patient with diabetes, for example, is given a reserved time they can plan around for their 3 month check up. FBS and HgA1c are obtained before the appointment, so that the results are available when the patient sees the physician in consultation. A patient with multiple medical problems who is due for their annual exam at next appointment is scheduled for disease pertinent lab, as well as screening lab and mammography, all the week before the next appointment.

This mix of "Rapid Access" appointments and "pre-planned" appointments accommodates the three strands of care provided by our adult primary care physicians: acute symptom evaluation, chronic disease management, and preventive services. It allows patients access for their acute needs, and planning for their ongoing health-care needs, and it provides an even distribution of patients over time, minimizing waiting room wait times, and maximizing physician efficiency.

Our Rapid Access program has been wildly popular with our patients. It has brought new patients into our system. Our physicians enjoy seeing their established patients who present with acute concerns, as well as new patients. Other clinical departments are following suit. Our pediatric department, which had an informal history of providing this type of access, has formalized their processes, and begun to utilize the multi-port electronic scheduling tool. Our single system specialists are beginning to follow suit as well. Orthopedics, ENT, and Cardiovascular services have designed the capacity to see patients in referral on a same day basis. Our Acute Care Center serves as the buffer for the inevitable swings in patient demand, and remains the location of service for that segment of our population who prefers only episodic care.

A patient of mine presented through our Rapid Access scheduling for a same day appointment for a discolored toe. I suspected peripheral vascular disease. Although it was an urgent problem, it was not an emergency, and did not require same day evaluation or hospitalization. With our Rapid Access initiative, she was seen the day she called in by her personal physician, seen later that same day by one of our cardiovascular surgeons, and then went on to have her angiogram later that day. She is from out of town and appreciated the efficient, convenient evaluation.

How can you see your doctor today? How do we design and evaluate systems for improved patient care? These are issues of great importance to the quality of health care delivery, and are the type of questions ideally raised and examined in the settings in which most patients receive their care, that is in community-based practices. Practice based research networks can provide a forum for the generation of questions of clinical relevance in the real world, as well as providing the infrastructure and research capacity to analytically evaluate clinical practice solutions.

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Planning a trip to Philadelphia?
Come visit us! Contact info on Page 7.

This newsletter edits Featured Investigator columns for style only; therefore, the comments or endorsements by the Featured Investigator do not necessarily represent the views of ACPNet or the American College of Physicians.

(continued from page 5)

Learning Session 2 will focus on office systems and clinical issues. We will discuss chronic care model and its components in concrete terms in the context of depression care. There will also be structured as well as informal opportunities for dialogues between primary care and psychiatry participants. LS2 will also prepare participants for the third Learning Session, the emphasis of which will be on dissemination and sustainability.

The Depression Initiative is a participatory research project, in which participants and researchers are both teachers and learners. The ultimate goal is to empower participants to initiate, disseminate, and sustain change to improve depression (and other chronic disease) care. The project is scheduled to conclude in spring 2006, and is expected to provide preliminary data and insights for a national research study of a much larger scope.

Diabetes Pilot Study

We are now more than halfway through the diabetes pilot study. Participants have completed the second (of three) data collection. Each participating physician has also received the feedback reports comparing his/her diabetes management performance with the group aggregates. The next and final data collection is scheduled to start in late summer 2005.

This simple pre-post chart review study is designed to assess the feasibility of Internet-based diabetes management module for physicians, and to stimulate care quality improvement in diabetes care through individual feedback reports comparing each physician's aggregate results against those of the entire group in key performance indicators.

Diabetes Referral Study

ACPNet will launch a study to explore patterns and determinants of diabetic patient referral from primary care to specialty care providers. A key aim is to ascertain under what circumstances general internists refer their diabetic patients to specialists, particularly endocrinologists. The referral interface is poorly understood, and ACP's diverse membership in the thirteen internal medicine subspecialties can be a great resource for research in this area. We are currently analyzing data from focus groups, and will keep you up-to-date with the development. Recruitment for this study will begin roughly in the fall of 2005.

For questions, comments, or suggestions, contact:

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Obesity Toolkit Project (in development)

We are proposing a two-year project to develop an obesity treatment and management toolkit for internists, and to pilot test its implementation and effectiveness in primary care practices.

HCT 250mg po daily

What's wrong with this picture?
Find out through ACP's Patient Safety Initiative!
<http://www.acponline.org/ptsafety>
For more information, contact Kyle Bartlett, PhD at
kbartlett@acponline.org or 215-351-2838.

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Tools and Techniques:

Purchasing An EMR, Part II:

Standardized data codes and the application of open-source software in cutting EMR costs

There are three common barriers physicians face with regards to the adoption of the electronic medical record: excessive cost, transience of vendors, and a lack of common data standards. Many physicians are also reluctant to adopt Electronic Medical Records (EMRs) due to the possibility that office productivity may decline, the possibility of a null return on investment, and concerns of data security, especially with the advent of the Health Insurance Portability and Accountability Act (HIPAA). One option that addresses all these barriers is Open Source Software (OSS). Authors of OSS say it has the potential to become a financially accessible EMR for the following reasons: 1) Relatively low development and ownership costs due to no licensing fees, 2) reduced software upgrades, and 3) no license expiration. OSS has no restrictions on software use or modification and allows for free distribution.¹ By using open standards and having access to the code, the software is compatible with other technologies. Considering the high cost of commercial EMRs - ranging from a few hundred dollars to over a million - the medical community has been very receptive to using OSS.⁹

Because of the shared development cost between developers and users, the savings can be used for customer support and training, as well as software customization and project implementation. The code of OSS is available to anyone, which centers competition on service rather than software secrets. However, the level of support isn't as extensive as with commercial EMRs. What many open source EMRs do offer for customer service is on-line forums and "frequently asked questions" sections. Users can also submit emails - although response time is not always quick. Another benefit of OSS is the lack of vendor lock-in. Consequently, if a vendor goes out of business, the customer is not lost, and he or she can hire another company to support and maintain the EMR. In addition, open source EMR users aren't forced to upgrade or buy new hardware continuously.¹

While development of the EMR system itself is important, the creation of interfaces between systems is vital to the future of integrated medicine. The problem in constructing an EMR is that the existing electronic data sources, such as laboratory systems, pharmacy systems and physician dictation systems, are separate entities with individual structures, different levels of granularity and different code systems. These different data sources are referred to in the literature as "islands." The cost of integration of both internal and external islands of information is very expensive. External islands

may have different patient identifier, provider, and location numbers. Internal islands can differ with various codes for billing, payroll, paging, telephone and administration.

The problem for large entities, such as hospitals, is the disconnection of information. A patient may receive a prescription while at a hospital, but then fill it at an outside pharmacy. OSS authors have proposed that open standards, particularly internet standards, could bridge these islands at a low cost.² HL7 is the message standard of choice for communicating clinical information such as diagnostic results, notes, referrals, scheduling information, nursing notes, and clinical trials data.⁷ The data are transferable between laboratories, dictation, electronic patient records, performance databases, data repositories and pharmacy systems. It is currently used both domestically (e.g., by the CDC) and internationally (in Canada, New Zealand, and Japan). Any EMR you consider should use this standard. MEDCIN and Read codes are in-progress standard vocabularies to record the information that is contained in a free text progress note. These standards will aid the evolution of EMRs in creating a searchable, fully-encoded progress note. LOINC is a coding system used for lab data, such as lab observations and common clinical measurements. DICOM, supported by all imaging vendors, is the standard of choice for transmitting diagnostic images and works closely with HL7.²

The problem with external linking, as stated previously, results from different patient, provider and place of service identifiers. Without standard patient, provider, and service location identifiers, external linking is a huge headache. OSS authors plan on creating linking algorithms with nearness metrics for identifiers such as patient name, and making local choices of standards such as the state license number for provider's identifier. A bill named P.L. 104-191, which would standardize national provider and patient identifiers, is projected to be implemented soon in the United States.² As with any electronic data, EMR use is subject to security issues. To ensure patient confidentiality, as well as follow HIPAA regulations, a practice should apply multi-level password access. This would allow billing clerks, lab clerks, and administrative staff to review only data pertinent to their respective fields. An EMR which includes an automated audit trail of user login and access attempts will further add to increased security. Another security matter would be that of file preservation, which would include backing-up files on a regular basis. When planning on an EMR one should consider taking inventory of the data sources against the data needs of the users. For example, if something is stored under free text as opposed to coded and structured results, it may not be easily retractable. In this case, outsourcing manual data collection may be an option to consider.⁷

The experience of the Internet is testimony to the success that open source strategy has for interoperability between systems. Authors of OSS embrace the application of standards, and are exploring ways to implement them effectively into their system. Currently two systems are solely focusing on this interoperability: OpenEHR and OpenGalen. Upcoming features include: 1) find first available

appointment by provider, 2) extensive patient demographic information, 3) different calendar views for medical provider and office staff, 4) add prescription to patient history, 5) send prescription to in-house pharmacy, 6) special interface for in house pharmacy to manage prescriptions, and 7) send prescription by email or fax to other pharmacies. A very attractive feature of the OpenEHR is its customizable superbill for medical claims. This allows clinics to create codes for services that are otherwise not covered by ICD, CPT, or HCPCS codes. It also allows for a search of existing ICD, CPT, and HCPCS codes for medical claims.³

Several cost studies have been done to see if EMRs actually save money, and most show they do in time. Because OSS systems are new, established cost studies are not readily available. However, as the initial investment is significantly lower than a vendor-purchased system, one can imagine the cost savings and accessibility of adopting an open source EMR. The data presented below examine long-term cost savings using commercial EMRs; when contemplating an OSS, consider both lower start-up costs and the potential costs of software support over time.

In 1996, Wang et al. looked at implementing an EMR in 40 primary care practices as compared to the paper based chart. The system costs were \$13,100 initially and \$3,100 each year plus hardware and the induced costs were \$11,200 in Year One. The savings were: \$2,700 in transcription savings, \$5 per chart pulled, \$2,200 in drug cost savings and prevention of adverse drug events, \$10,700 in laboratory and radiology cost savings, \$7,700 in charge capture improvement, and \$7,600 in decrease in billing errors. This total resulted in a net benefit of \$86,000 per provider in Year Five.⁴

A study performed by John Janas, MD with Capital Region Healthcare (CRHC), an evolving integrated delivery network in New Hampshire, produced similar results. CRHC includes three acute-care hospitals, two visiting nurse associations, and an affiliation with a mental health system. CRHC implemented an EMR to increase productivity and improve clinical outcomes of its patients. The initial financial investment in 1997 was \$87,000 for hardware, software, and implementation. Annual costs totaled \$37,000. This figure included software maintenance fees, upgrades, information technology support staff, and depreciation. The savings were: \$43,780 in elimination of transcription costs, \$24,500 per year in chart pulls, \$71,400 annually in prescription generation, \$5,950 in coding costs,

\$5,525 annually in reduction of data entry and filing time, and \$7,140 yearly savings from not having to manually fill out paper-based payer forms, resulting in \$30,324 net benefits per provider. In addition to monetary savings, quality of service also improved. By using qualitative reporting through the system, 199 out of 200 diabetic patients received annual eye exams. This is compared to the 60% average compliance rate. This high compliance qualified the practice for maximum quality bonuses provided by the respective payer. The EMR also generated drug recall letters. Since the beginning of the study, four recalls have been sent out a day after the recall was alerted. Patient satisfaction was determined via surveys. Before the onset of the study, patient satisfaction was 88.2%. After the study it was 88.9%, therefore the author determined that the EMR did not negatively affect the patient and may have added to the slight increase in satisfaction.⁵

So, how will the advent of EMRs affect Practice Based Research Networks (PBRNs)? A number of researchers believe EMRs will improve the quality of their data and collection process while saving money and cutting down secondary data entry. The use of EMRs has the potential to reduce the gap between the practice of medicine and the practice of research. As noted in the article, Electronic Data Collection Options for Practice-Based Research Networks: "As PBRNs expand their efforts at translational research, the line between quality improvement

and research will continue to blur, as will the distinction between clinically-oriented and research-oriented data systems." Endeavors made possible through the Agency for Healthcare Research and Quality and the National Institutes of Health aspire to seek connectivity between PBRNs, and to one day create a national infrastructure.⁶

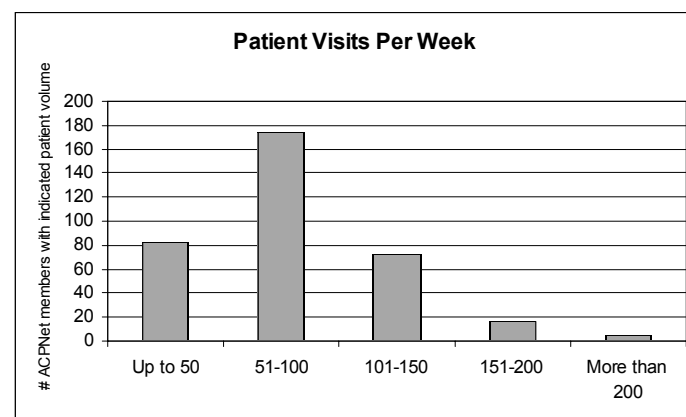
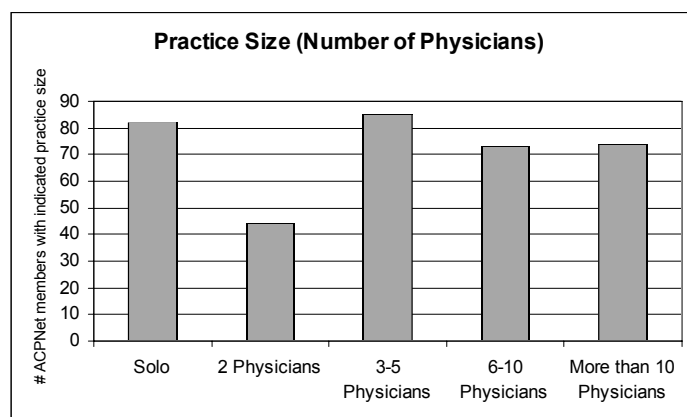
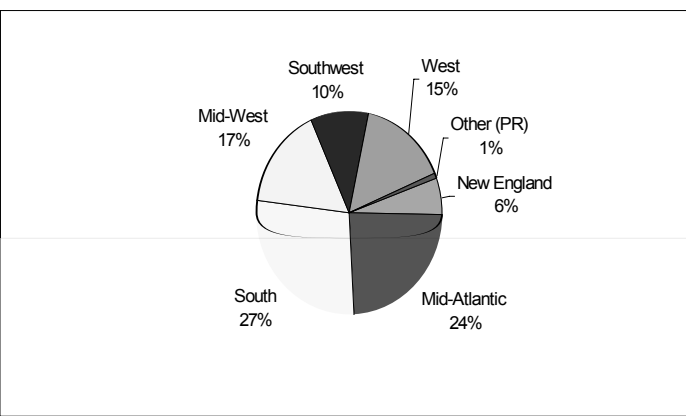
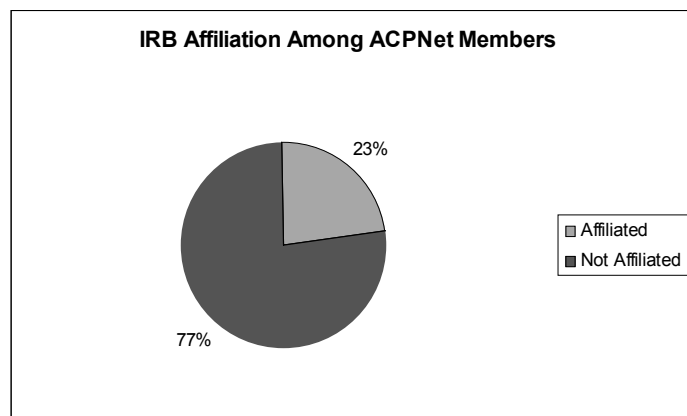
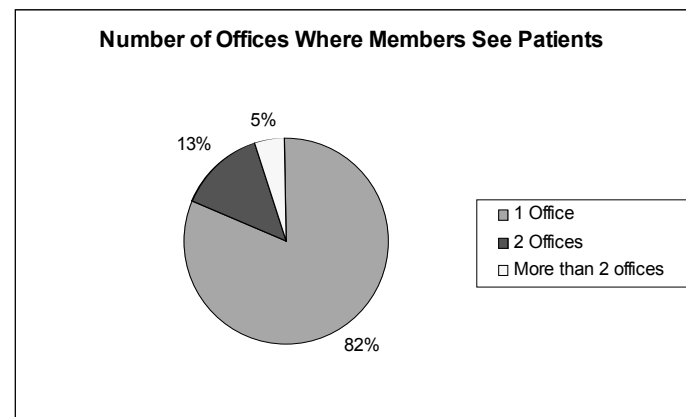
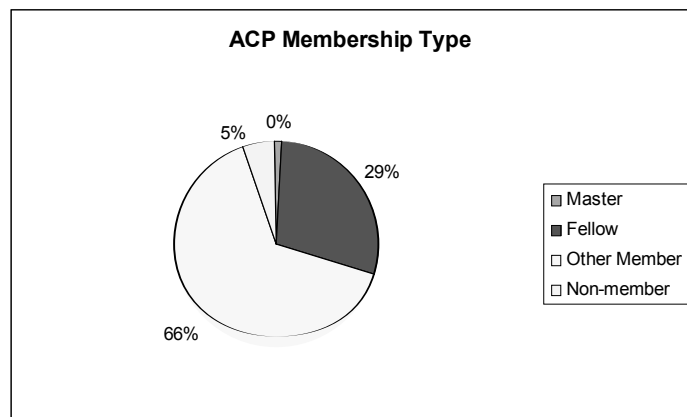
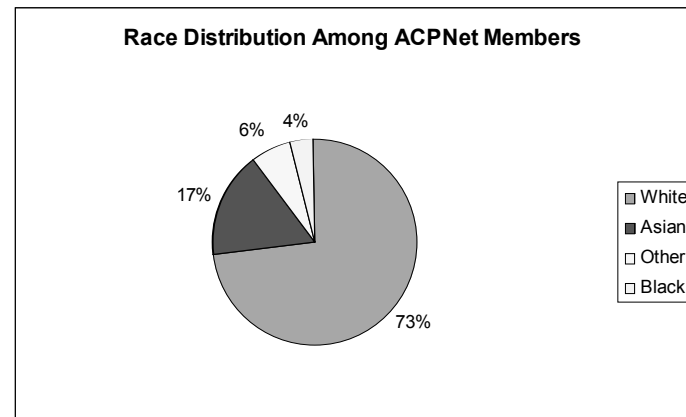
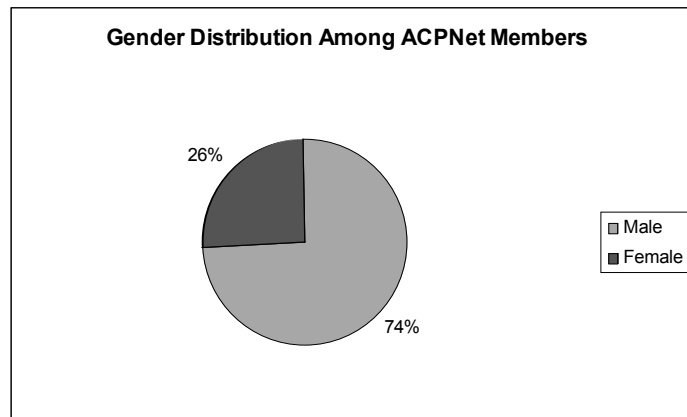
Open Source Software has the potential to be an affordable and effective reality for the medical community. By allowing interoperability between systems, it may improve care as well as better serve future research endeavors. Before choosing between an OSS EMR and a vendor EMR, you will need to spend some time analyzing the needs of your individual practice. Those with a larger budget or those who require extensive software support may opt to purchase an EMR from a vendor. Others, concerned with initial cost outlay, may choose to select an Open EMR. Investing in an EMR from either group, however, will generally prove to be effective in providing cost savings and quality improvement in the clinical setting.⁸

When considering an EMR, we recommend:

- ❖ the HL7 standard, and preferably the DICOM standard for imaging;
- ❖ automated audit trails of user login/access attempts and multi level passwords;
- ❖ that it has a reasonable amount of support and that it can be upgraded at a reasonable expense;
- ❖ an interface to the front office allowing clinical and research facilities;
- ❖ the ability to scan paper documents and images into charts that are easy to review (be sure to review the text/ image/ and printer compatibility before acquisition); and
- ❖ the ability to store text as a common template Word document.

Remember: no EMR or quality improvement effort will succeed without your commitment to promoting a culture of team-based, blame-free change.

Update on the ACPNet Membership (based on 360 [53%] responses)



Classic Article Reviews:

Translating Research to Practice: Lessons learned, areas for improvement, and future directions

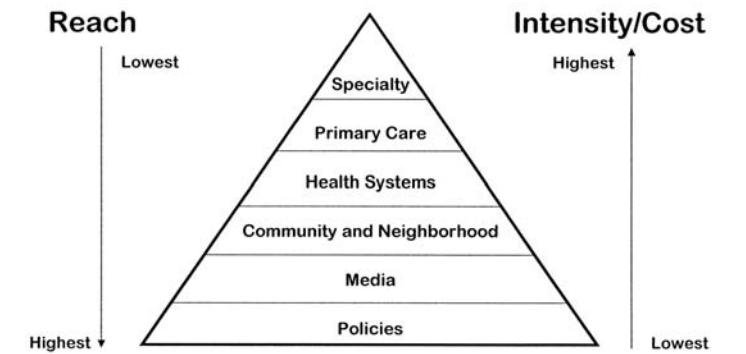
Glasgow, RE.
Diabetes Care. 2003 Aug;26(8):2451-6. [PMID: 12882877]

This article reviews the RE-AIM model to help narrow the “well documented...gap between what is known about diabetes care and what is commonly practiced.” It was originally published in *Diabetes Care* as part of a series of articles on the translation of diabetes research into practice.

The author, Russell Glasgow, PhD, is Senior Scientist in the Clinical Research Unit of Kaiser-Permanente in Denver, CO. This review will bring to light some of the issues which hinder the translation of research into practice.

- ❖ Successful quality improvement strategies are population based, proactive, and patient-centered.
- ❖ Two positive examples of the adoption of research-based changes are:
 1. shifting from “provider-centered ‘compliance’ approaches to more patient-centered ‘empowerment’ methods,” and
 2. ‘systems change’ approaches to improving the delivery of evidence-based medicine.
- ❖ Quality care delivery is a comanagement endeavor that needs to be supported by an appropriately designed system.
- ❖ Technology has immense potential in medical care if it is used for informing and facilitating - rather than attempting to replace - human interactions.
- ❖ RE-AIM is the acronym for the model developed by the clinical research unit to address quality care delivery issues:
 - ❖ *Reach* evaluates how a program diffuses into its intended target audience. The program should be broadly applicable and should look into how to “reach, recruit and retain” members that drop out of the program or decline to participate.
 - ❖ *Effectiveness* includes change on the dependent variable or intervention targets. Improvement in quality-adjusted life-years is the ultimate bottom line in care.
 - ❖ *Adoption* is similar to reach but is assessed at the level of settings (such as clinics). The focus should shift from 3° care centers and residency training settings into “real-world” primary care and the community.
 - ❖ Implementation, or intervention fidelity, is the extent to which different components of an intervention are delivered as intended across practice staff.

❖ Maintenance is important at both the individual and the setting/organizational level. To achieve sustainability it is important to look at how social and environmental factors impact behavior. Socioeconomic status, income inequity, and “social capital” have been shown to contribute to health outcomes and health disparities. Identifying characteristics of organizations and partnerships is important in successfully institutionalizing interventions.



We highly recommend reviewing the full article if this summary interests you. This article is available through the American Diabetes Association’s *Diabetes Care* website at <http://care.diabetesjournals.org/cgi/content/full/26/8/2451>.

PBRN News Update

The past few months have been a chance for our network to further establish existing projects and venture into new ones. Below is an update on where we are, and where we’re going.

Initiative to Improve Depression Care

The Initiative to Improve Depression Care, in collaboration with the practice-based research networks of the American Academy of Family Physicians and the American Psychiatric Association, is now well underway. The research team and participants are looking forward to getting together in the second (of three) Learning Session, to be held June 24-26 in Chicago O’Hare Hilton.

The first Learning Session (April 8-10, 2005) prepared participants, or “Practice Champions,” to become effective “change agents.” We discussed and shared experience on the implementation of PHQ-9, and learned about team building, holding effective meetings, and using the cycles of “reflection-action process” (RAP cycles) to facilitate discussions and change within the practice. It was a super-packed and extremely productive weekend.

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Questions or comments?
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Or call us at 800.523.1546, ext. 2603