The Problem-Oriented Medical Record: Applications for Better Practice in Pri-Med InLight EHR

priymed™ InLight EHR
the EHR that learns with you

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Executive Overview

Electronic health records (EHRs) have not performed as anticipated. Instant access to all patient health information (PHI) for every clinical encounter would seem an obvious step toward improving care, reducing duplication, and preventing errors. How could this technological advancement not help physicians or their patients?

Physicians consistently rate their clinical documentation systems poorly. EHRs are blamed for distracting inefficiencies that interfere with patient care. Users complain of cumbersome interfaces that require too many clicks, clunky workflows, poor documentation of clinical thinking, and the inability to complete a patient note without getting behind schedule or working long tedious days.

A better approach to the EHR is needed and exists — the Problem-Oriented Medical Record (POMR), an information structure that facilitates the organization and presentation of patient data, the medical decision-making process and the outputs required for coordination of team-based care.

In this white paper, readers will learn about:

- Why physicians are so dissatisfied with the current state of EHRs
- The origins of the problem-oriented medical record (POMR)
- How Pri-Med’s InLight EHR employs the POMR
- Health information technology to improve patient care and physician work life

Why Are Physicians so Dissatisfied with EHRs?

In survey after survey, physicians in all specialties have expressed a strong dissatisfaction with current EHR solutions. The roots of this dissatisfaction cannot possibly be found in a lack of product choices. The “gold rush” mentality stimulated by the Federal Meaningful Use incentive program led to more than 300 “certified” EHR systems flooding the market.

Respondents to physician-surveys cite many causes for dissatisfaction with these EHR systems, including:

- Degradation of clinical documentation
- Interruption of face-to-face patient care
- Time-consuming data entry
- Less fulfilling work

Physicians cut and paste material into notes needlessly because EHRs facilitate this based on the fallacy that more and more verbiage is needed to support the choice of a specific service code. The physician user-experience is confusing with too many clicks and the workflows are cumbersome. If an EHR does not have optimal workflow, it slows the physician down, creating an added burden of finishing charts after hours. Physicians are understandably “burned-out” from the treadmill of diminishing personal rewards for hard work since there is less and less face-to-face time with patients. Existing EHRs have contributed to plummeting professional satisfaction.

EHRs for Administrators but Not for Physicians

At the root of the problem is that nearly all current EHRs have a legacy based on administrative needs. At the dawn of Health IT, the first functions to be automated were those associated with getting paid: capturing service codes, claims submission and tracking, etc. Hospitals and practices have inventory management tasks that are easily solved by electronic tools. This “inventory” includes equipment, materials and supplies, financial data, schedules, tests and labs, and so forth.

Some of these management systems were extended to include clinical documentation, but there was no focus on physician productivity and scant attention paid to the way patient health information was organized and presented. The purpose of medical documentation—to support optimal care of the patient—was subsumed by an administrative agenda. The resultant EHRs were archives, electronic filing cabinets with infinite capacity. Information was stored with minimal attention paid to future use by physicians for clinical care. Physician notes became part of a larger information pool. Searching through masses of laboratory and test data for the thought processes of physicians demanded contrived workaround strategies. EHRs were more likely to be disorganized, confusing and even misleading then they were to support clinical care. Data was presented based on its source: the labs, medications, the schedule, patient registration, and physician notes, regardless of specialty. These Source Oriented Medical Record systems grew to become confusing and distracting office companions, promising to help, but demanding too much attention and consistently underperforming.

The Challenge of Cognitive Overload

The modern practice of medicine offers an overwhelming amount of data for use in clinical care. A physician seeing a patient with three active problems must juggle an average of twenty individual pieces of data—such as medications, lab orders, and observations—as they assess and create a treatment plan. The range of inputs to a clinical encounter is astounding, ranging from the patient's story to a vast array of test results, consultant notes, medications, and endless interactions. All of this becomes the basis for the medical decision making (MDM) of the encounter. Likewise, there are countless outputs from a clinical encounter, ranging from testing, to medication reconciliation and prescribing, to consultations and referrals. Finally, there are post-visit implications from many of the visit outputs: tests that require action and results that must be communicated back to the patient.

These collective inputs, outputs, and actions stretch the limits of multitasking capacity and put the physician too close to cognitive overload. Cognitive overload impairs medical decision making and can lead to medical errors and misdiagnosis. The design of today’s EHRs only exacerbate the problem by presenting patient data without any attention to the information discovery needs of clinical care. The most important narratives summarizing medical decision making are presented as a series of disconnected files that must be searched individually (see Figure 1). When confronted with patients having multiple complex problems, physicians too often feel like they are “drowning in an ocean” of disorganized patient data.2

The Challenge of Care Documentation

Why can’t EHRs learn a physician’s habits? If a physician always prescribes metformin to a new diabetic, why doesn’t her computer remember? Why does she need to repeat herself every time? Clinical care has many repetitive steps, but EHRs have not been designed to facilitate throughput. Task completion is not intuitive and systems are not designed to adapt to and recall individual physician behavior. Physicians want systems that both anticipate need in specific situations and facilitate the generation of clinical encounter outputs. Clinicians use templates and order sets, but these are rarely personalized to reflect the preferences of individuals or presented to reflect the precise clinical issues with a given patient. Physicians need the right support at the right time.

Documentation needs to be sufficient to support billing code selection, but should not be onerous. New service codes, like Medicare’s Annual Wellness Visits and Transitional Care Managements codes, offer opportunities for physicians to provide better patient care and improve practice income. However, each of these codes has content requirements that can be confusing and intimidating. EHRs need to be designed to facilitate the use of these codes. Ideally, the system should track service code requirements and automatically assemble the correct documentation from a physician’s actions and notes.

The Challenge of Collaborative Care

Each role in a clinical practice is valued as all staff members work together to provide the best possible care. This requires electronic support systems that provide the right support for each member and allow the effective and efficient sharing of tasks. The doctor and nurse working to improve blood pressure control need an EHR that focuses on the most salient issues. A well-organized patient-specific database allows for the safest cross-coverage and consultation.

The patient is an active participant. Systems that support clinical practice must both allow meaningful engagement with the clinical staff and the most secure and private channels of communication.
The Challenge of Continuity

Systems need to support the continuous nature of modern health care. There are many chronic conditions such as hypertension that require a close and continuous relationship between the physician and patient. Many patients have multiple simultaneous conditions. Over time, one, two, or several may be active at a given clinical encounter. Furthermore, there are wellness and health promotion goals for all patients. These include screening and vaccination schedules. In the case of some medical conditions, such as diabetes, there are disease-specific monitoring and prevention goals.

The successful care of patients over time requires an accurate and reliable listing of their medical conditions, medications and tests organized for full physician visibility to ensure that each patient has the right care.

The POMR Solves Physician Dissatisfaction with EHRs

This section explores how the problem-oriented medical record can solve the clinical practice challenges outlined above.

The Problem-Oriented Medical Record (POMR) as the Solution

Dr. Lawrence Weed, a visionary in the field of healthcare informatics, saw this chaos coming decades ago. In 1968, Dr. Weed presented two landmark papers in the New England Journal of Medicine. He proposed that information in the medical record be organized and presented to serve the needs of patients; he thought that structuring data entry according to a patient’s “problems” would provide a “table of contents” to the specific issues that were clinically relevant.

Weed’s influence cannot be overestimated. For the last 50 years, every U.S. medical student has been schooled in the Weed model of information organization as they are taught to generate problem lists for their patients in their training rotations.

Pri-Med InLight EHR

In the early 1980s, the Laboratory of Computer Science (LCS) at Massachusetts General Hospital (MGH) became a focal point for the development of a new POMR based on the vision on Dr. Weed. A collaborative effort between computer scientists and physicians was led by Octo Barnett, the creator of the MUMPS programming language and one of the acknowledged founders of modern computer science.

In 2012, Pri-Med, a leader in medical education based in Boston, made two strategic acquisitions: (1) Linked Medical, a company formed by MGH physicians to bring 30 years of POMR development to the marketplace; and (2) Amazing Charts, an independent software vendor of EHRs for physician-owned practices. Pri-Med’s goal was to develop a completely new kind of EHR that would address the root causes of dissatisfaction with current solutions by combining usability experience of the highly rated Amazing Charts EHR with the power of the POMR to store information in a cross-referenced, interconnected manner (see Figure 2).

FIGURE 2 - ROOTS OF PRI-MED INLIGHT EHR
Pri-Med InLight EHR Thinks like a Doctor

The organizing principle of Pri-Med’s InLight EHR is the patient problem list. All notes, medications, labs, orders, referrals, etc. are associated with patient problems, as opposed to the source-oriented approach having separate lists of all notes, medications, labs, etc. for each patient (see Figure 3).

Visit 1
She has had more issues with her Abd pain. Knawing, relieved with AA. No E. Stooling ok.

Visit 2
H pylori ab was positive, will treat.

Visit 3
Abd pain has resolved.

With InLight, patient problems can exist in various levels of differentiation (e.g., abdominal pain can turn out later to be an ulcer or GERD); problems can resolve (e.g., acute viral pharyngitis); or problems can become enduring.

In all cases, the problem list is the index to the clinical conditions that characterize each individual patient. Test ordering is linked to the problems addressed at each clinical encounter. There may be overlap as some labs/tests/medications will apply to more than one condition, but these cases are accounted for and linkages are logical. You can always view information in traditional source-oriented format- all labs, mediations, etc.
The knowledge depth for each problem grows with time based on the clinical experience of the patient. Some problems will be stable for years only to return to activity later, some will remain active indefinitely. For each problem, the entire legacy of medical decision-making will be immediately accessible as part of the clinical information display of InLight EHR (see Figure 4).

FIGURE 4 - INLIGHT EHR CREATES A PLATFORM OF INFORMATION ORGANIZED TO SUPPORT PHYSICIANS

The organizing principle of InLight EHR is the patient problem list. All notes, medications, labs, orders, referrals, etc. are associated with specific patient problems.
Pri-Med InLight EHR Efficiencies of Documentation

The essence of clinical care is medical decision making. InLight EHR puts decision-making at the epicenter of the clinical encounter by allowing data to flow seamlessly to the point when information is assessed and plans are made. The cognitive complexity of these moments can be intense and powerful, but it is at these moments that the creativity of clinical care is most apparent and the joy of clinical practice most appreciated.

The problem-oriented medical record of InLight EHR is specifically designed to help physicians gain insight when they are faced with a challenging clinical situation, so they can “see” the right pathway forward based on an understanding of what has happened before, whether clinical notes, medications, or a set of diagnostic steps with test referrals or consultations. The inputs to clinical care are readily accessible.

Because InLight EHR uses the problem as the central organizing principle of the record, problems populate with relevant medications, labs, and study results as they are opened. When combined with the rapid reconstruction of all the prior narrative notes, this information display gives physicians an understanding of the whole patient without compelling them to “dig” through multiple encounter documents.

InLight provides a natural language vocabulary for problem names instead of the cumbersome ICD vocabulary. This allows physicians to refer to problems the way they choose, saving time in the exam room. Behind the scenes, InLight maps problems to appropriate ICD-10 codes for billing.

The problem-orientation of InLight also gives physicians a longitudinal view of the evolution of diagnosis and treatment of a patient’s conditions over time. Physicians can set a clear “agenda” for the patient encounter by loading problems from previous visits and adding new clinical problems (see Figure 5). Users of InLight EHR can also manage patient problems by refining vague diagnoses like “back pain” to “spinal stenosis” when diagnostic test results come back without losing the history. The previous clinical documentation is automatically carried over to the more specific problem.

FIGURE 5 – THE CLINICAL NOTE FROM INLIGHT
Collaborative care is facilitated because the POMR allows other members of the care team to focus on one or more problems. Patient problems can also be separated for more intense management as needed and assigned to others for work when appropriate. A registered nurse, for example, might take over the management of a patient’s diabetes or hypertension, but not attend to the patient’s stable low back pain. Furthermore, a referral is sharper and cleaner since the information needed by a consultant is organized and clear, (see Figure 6).

Pre-defined workflows and documentation tools support specific service codes. These include Medicare Annual Wellness Visits (AWVs), Transitional Care Management (TCM) and Chronic Care Management (CCM). Physicians can also create their own customer workflows.

**FIGURE 6 – THE PATIENT SUMMARY FROM INLIGHT**
Pri-Med InLight EHR Links Actions to Problems

InLight EHR makes it easy to document the medical encounter as it occurs, reducing or even eliminating the need to type notes and plans after the patient encounter has ended. For example, when a physician orders a medication, lab, study, or referral, InLight automatically adds the appropriate text to the patient’s note and organizes the information under the appropriate problem.

To facilitate testing and medication orders, InLight learns the preferences of each individual physician. Each time a physician initiates a test or a medication for a given problem, InLight remembers that behavior, and anticipates their needs by presenting the same choices when another patient with the same problem is seen (see Figure 7).

InLight EHR is designed for the production of all types of clinical care outputs at any rate and in any sequence so that each and every physician can develop plans in his or her own style. Visit outputs range from tests ordered, medications prescribed, consultations commissioned to wellness goals that are set as the doctor and patient work together on realistic and achievable expectations. Test result management needs after the clinical encounter range from simply communicating normal findings to ordering additional referrals, tests, and medication changes.

FIGURE 7 - SELF-SOURCING OF MEDICATION WITH ONE-CLICK ORDERING
Benefits Summary

InLight EHR solves many of the issues that reduce professional satisfaction for the medical professionals today, allowing physicians to rediscover the joy of practicing medicine.

All of the unique capabilities of InLight are enabled by the POMR and have a single common goal: to free up time for physicians to interact face-to-face with their patients. This addresses one the most significant causes of professional dissatisfaction, namely the barriers EHR systems place between physicians and patients.

The table below provides a summary of the immediate benefits of Pri-Med’s InLight EHR, as well as the long-term benefits promised by a systemically organized clinical data repository.

<table>
<thead>
<tr>
<th>IMMEDIATE BENEFITS</th>
<th>LONG-TERM BENEFITS</th>
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<tbody>
<tr>
<td>COGNITIVE OVERLOAD</td>
<td>QUALITY IMPROVEMENT</td>
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<tr>
<td>• Doctors are taught to think in problems</td>
<td>• Meeting all the regulatory expectations</td>
</tr>
<tr>
<td>• POMR as the organization tool for data</td>
<td>• Fulfilling professional society expectations</td>
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<tr>
<td>• Data presentation based on problems</td>
<td></td>
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<tr>
<td>• Clinical outputs linked to problems</td>
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<tr>
<td>• Self-sourcing: InLight learns your preferences</td>
<td></td>
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<tr>
<td>DOCUMENTATION</td>
<td>EDUCATION AND LEARNING</td>
</tr>
<tr>
<td>• Problems linked to ICD codes</td>
<td>• Precision decision support for specific problems</td>
</tr>
<tr>
<td>• Documentation of testing, medication reconciliation, referrals all linked to problems</td>
<td>• Continuing medical education (CME) linked to clinical problems you see and your personal preferences</td>
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<tr>
<td>• Billing options developed as you document</td>
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<tr>
<td>CARE COLLABORATION</td>
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<tr>
<td>• Patient data presented for clinical use</td>
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<td>• Specific problems can be addressed alone or in combination with clinical team members</td>
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<td>• Tools for panel management</td>
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<tr>
<td>CONTINUITY</td>
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<tr>
<td>• Problems identified for management</td>
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<tr>
<td>• Results linked to problems</td>
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<tr>
<td>• Medications linked to problems</td>
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<tr>
<td>• Problems can be separated and addressed by members of the care team</td>
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Pri-Med InLight EHR Aligns with What Doctors Want

In January 2015, the Annals of Internal Medicine published “Clinical Documentation in the 21st Century: Executive Summary of a Policy Position Paper from the American College of Physicians.”4 The organization reviewed the current state of clinical documentation in an effort to suggest a path forward such that care and clinical documentation in the 21st century best serve the needs of patients and families.

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<tr>
<th>ACP POLICY RECOMMENDATION</th>
<th>HOW INLIGHT SOLVES</th>
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<tbody>
<tr>
<td>EHR developers need to optimize EHR systems to facilitate longitudinal care delivery as well as care that involves teams of clinicians and patients that are managed over time.</td>
<td>InLight organizes all patient health information around specific problems, providing a longitudinal view of care over time. Team-based health care is easier with a problem-oriented medical record because the entire legacy of medical decision-making is organized and accessible.</td>
</tr>
<tr>
<td>Clinical documentation in EHR systems must support clinicians’ cognitive processes during the documentation process.</td>
<td>Doctors think in problems, therefore InLight EHR organizes and presents data according to patient problems, thus reducing cognitive overload. InLight learns how a physician practices and then suggests medications and tests based on past choices, which facilitates consistent care similar patients over time.</td>
</tr>
<tr>
<td>EHRs must support “write once, reuse many times” and embed tags to identify the original source of information when used subsequent to its first creation.</td>
<td>Embedded tagging system for document management ensures that patient health information authorship is visible and searchable. Furthermore, the work of all clinicians is linked to the appropriate problem(s).</td>
</tr>
<tr>
<td>Wherever possible, EHR systems should not require users to check a box or otherwise indicate that an observation has been made or an action has been taken if the data documented in the patient record already substantiate the action(s).</td>
<td>Doing is documenting. InLight EHR documents when you prescribe a medication, order, or lab, so you don’t have to go back and re-document what you’ve just done. This significantly reduces redundant data entry.</td>
</tr>
<tr>
<td>EHR systems must facilitate the integration of patient-generated data and must maintain the identity of the source.</td>
<td>InLight features secure messaging between the patient and provider that can be used in the record and on mobile devices such Android, iPhone, iPad and Windows Mobile devices. Physicians are able incorporate key messages into the clinical record easily.</td>
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Conclusion

InLight EHR represents a major evolution in the electronic health record. Its POMR technology transforms what was formerly a passive and cumbersome record-keeping tool into an intelligent decision-support and workflow management system that increases physician productivity and brings joy back to the practice of medicine.

Unlike traditional EHR’s, InLight was designed starting with the needs of the physician, not the administrator. It is built around an intuitive problem-oriented workflow that creates a longitudinal view of patients. As an organizational tool and information-indexing system, InLight facilitates the access and presentation of patient health information during the process of medical decision making.

The problem orientation of InLight EHR supports efficient documentation and workflow, and provides innovative decision support to answer questions quickly. All the elements of care are interconnected in logical and intuitive ways to support a wide range of styles and practice needs.

All of this reduces the distractions of documentation and data entry, allowing physicians to focus on patient care.

To learn more about InLight EHR or get a one-on-one demonstration, please call 1-844-899-4448, email sales@inlightehr.com, or visit www.inlightehr.com.
