Electronic Health Record Utilization and Education: Improving Role-Specific Confidence and Competence in the Outpatient Setting

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Electronic Health Record Utilization and Education:

Improving Role-Specific Confidence and Competence in the Outpatient Setting

Nicole M. Neuman

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Abstract

The call for meaningful use of electronic health records (EHR) and its universal benefits are well known. Despite mandates for change resistance to adoption of paper-less system remains problematic. Non-use of the EHR has persisted in the outpatient specialty care setting in spite of 4 all-staff trainings and stakeholder backing. This project suggests that implementing team leadership and educational tools provides staff with confidence and supportive resources to achieve proficiency. Objectives for this project include (a) providing staff with training and tools to access self-guided troubleshooting videos, follow quick-guide checklists for crucial tasks, and provide handouts for patient portal access, (b) verifying competency to complete role specific tasks, and (c) enhance morale. As of August 2017, 100% of staff were able to demonstrate self-efficacy to perform basic EHR functions and access resources. Data comparison of pre-/post-implementation survey data reveals staff self-confidence in EHR use increased from 40% to 90%. Staff feelings of support related using the software platform increased from 60% to 95%. Further research is recommended to promote understanding of how Microsystems with limited resources can achieve meaningful use of EHRs, promote staff engagement, and achieve financial benefits.
Electronic Health Record Utilization and Education:

Improving Role-Specific Confidence and Competence in the Outpatient Setting

The clinical microsystem encompasses an outpatient specialty care setting providing women’s health and integrative medicine services. The population of focus is comprised of the professionals and patients encountering process delays and diminished caliber of care related to non-use status of the electronic health record (EHR). The small private practice, comprised of eight professionals, relies upon antiquated paper-based documentation. The improvement project targets enhanced utilization of the EHR and improved patient portal usage. Staff adoption of the health information technology sustains streamlined documentation, consistent communication, promotes patient safety, and reduces billing errors. Patient Portal utilities support pre-registration, reminder notifications, access to personal records, and enhanced patient-centered care. The intent is to enhance safety, quality of care, patient satisfaction, and efficiency within the care setting through the software platform.

Urgent change of practice is supported by primary healthcare organization stakeholders including the overseeing obstetrician-gynecologist, healthcare providers, practice management, and owner of the facility. Integration of the EHR enhances continuity of care, patient safety, efficiency, communication, and access to information. Reoccurring errors related to core and supporting processes and patterns within the microsystem indicate the need to centralize information in an EHR platform. Resistant attitudes towards change and reliance on information stored in old paper charts by ancillary staff represent the greatest barriers to the quality improvement project. Thus, integrating Clinical Nurse Leadership (CNL) and providing support tools are the solution for success.

Clinical Leadership Theme
Transformational Lens. The microsystem’s improvement themes aim to optimize staff roles, enhance the patient experience, facilitate care access and follow-up, improve safety, and enrich patient-provider relationships, and support practice development. The electronic medical record is correlated with key themes and components of an ideal practice including access, integration, reliability, and vitality (Nelson, Batalden, & Godfrey, 2007; IHI, 2000). These improvement themes reflect the six dimensions for quality care and opportunity for advanced practice nurses as change agents, as mandated by the Institute of Medicine reports, STEEP principles (IOM, 2001; IOM, 2010), the Institute for Healthcare Improvement’s Quadruple Aim (IHI, 2016), and Meaningful Use criteria (HealthIT, 2013).

Broadly focusing on electronic medical record (EMR) utilization and patient portal usage in the healthcare microsystem guides the overall purpose.

Global Aim Statement:

We aim to improve electronic medical record (EMR) utilization and patient portal usage in the clinical microsystem. The process begins with the initial patient encounter (by phone and in-office). The process ends with provider evaluation and patient access to records/results/follow-up care.

By working on this process, we expect (1) improved efficiency and consistency of care, (2) enhanced patient satisfaction and follow-up, and (3) improved communication and staff satisfaction. It is important to work on this now because we have identified the need to improve (1) patient care experience, (2) prevention of error, (3) staff information exchange, (4) continuity of care and follow-up appointments.

Clinical Leadership Competency. The Clinical Nurse Leader’s core competencies provide skilled expertise for initiating and sustaining change (AACN, 2013). Improvement work
begins by establishing a major focus and setting achievement goals. The systems thinking approach of the Clinical Nurse Leader (CNL) and expertise as agents of change relate to sustained improvement and evolution of practice now and in the future. Bandura’s (1977), Theory of Self-Efficacy for behavioral change and performance improvement provides a theoretical framework for the CNL educator and advocate. CNLs provide an effective approach to influencing delivery of care and successfully implement strategies to improve quality outcomes (Bender, 2016; Bender, Williams, Su, & Hites, 2016).

The competent clinical nurse leader (CNL) uses emerging organizational and systems leadership to assess, redesign and implement improvements quality and cost-effective across the healthcare continuum (AACN, 2013). Ongoing implementation of EMR technology is noted specifically as part of the CNLs core expertise. Establishing performance expectations and a positive attitude towards EMRs positively influence behavioral intention and strong relationships between new technology and work performance (Seok et al., 2016). Achieving a culture of learning and self-efficacy through CNL leadership will sustain a Continuously Learning Healthcare System (IOM, 2013). Influence of CNL expertise ensures that health information technology and EMRs are leveraged to enhance clinical workflow and help streamline care (Smith, 2015). Successful planning, implementation and adoption of technology demands the role and intelligent decision making of nursing leadership (Hix, McKeon, & Walters, 2009; Scott, & Van Norman, 2009). The CNL provides the optimal framework for sustained improvement and transformational change.

Statement of the Problem

Current gaps in performance correlated with non-use status of the electronic health record are evident in the microsystem. Errors in communication, billing, and documentation create
frequent delays in the process of care. Opportunities for improvement are apparent in consistency, efficiency, and quality characteristics of performance. The patient care experience and workflow are disrupted by efforts to locate, record, investigate, and provide information. Support staff frequently claim lack of time, inability to access, and limited learning resources prevent utilization of the EHR. Surprisingly most ancillary staff are super-users of all other technologies, and are considered Millennials. Despite high technology literacy and a user-friendly platform, initiative and compliance related to role specific EHR tasks remains low.

**Project Overview**

The project utilizes the Clinical Nurse Leader role to improve current non-use status of the software. Current barriers are tied primarily to resistance from ancillary staff. Management and healthcare providers are eager to embrace the EHR. The clinical microsystem will benefit from nursing leadership and support tools to reform performance associated with the health information technology platform. Analysis of the outpatient specialty care practice reveals the need provide resources and verify staff use of the EHR. Each staff member will receive (a) instructions for access to self-guided troubleshooting, (b) role specific quick-use checklists, and (c) patient handouts for portal access. Pre- and post-implementation surveys will measure use-related knowledge and staff confidence tied to completing each outcome. The CNL will sign-off on successful demonstration of use by each staff member. This initial phase of the project will be completed by August, 2017.

The Specific Aim is to improve electronic medical record (EMR) utilization by verifying staff capability to access troubleshooting tutorials, follow quick-guide checklists for crucial tasks, and provide handouts for patient portal access.
The Global Aim and Specific Aim are consistent in their intent to cultivate a culture of safety, quality care, and excellence in the patient experience. Implementation and conduct of the improvement initiative will adhere to CNL expectations and competencies. This project meets all criteria required to support evidence-based change of practice.

**Rationale**

According to the New England Journal of Medicine (2013), the framework for performance improvement should focus on a high value healthcare system, management of innovation, and leaders on the frontline. The EHR enables shared accountability, efficient communication and documentation, improved access, patient-centeredness, quality outcomes and cost savings. Demand for this project was initially identified by the organization’s stakeholders including providers, management, and the business proprietor. The need for change was further realized through assessment of the microsystem. Analysis tools and methods illustrate supportive data and emphasize specific areas for improvement (Appendix A). The processes and patterns within the clinic setting represent prominent concerns. Internal weaknesses related to ancillary staff resistance, reliance on data in paper charts, perceived time constraints, and old habits must be overcome. Information exchange between healthcare providers, staff, and patients demands improvement. Enhanced utilization of the electronic health record (EHR) supports documentation, continuity of care, patient safety. Core and supporting processes (ie. registration, scheduling, test results, billing, follow-up) are streamlined with microsystem and patient use of the EHR and portal. Reoccurring errors in communication, unbilled services, and imperfect access to information signify the need to store information in a centralize EHR.

Lost revenue from outstanding dues and unbilled services will be improved by invoice functions within the EHR software. In 2016, lost revenue from unbilled services and unpaid bills
toted $15,144. Assessment of microsystem processes and patterns estimates $297,520 in non-productive time/wages are wasted annually looking for paper charts, missing information, patient documents, organizing charts and information that would otherwise be streamlined through use of an EHR.

Benefits of electronic health records are evident in improved patient care, coordination of care, diagnosis and patient outcomes, practice efficiencies and cost savings, and patient participation in care (HealthIT, 2015). Investment of time and money in EHRs pays off through the resulting improved financial performance, greater efficiencies, reduction of errors, heightened patient safety, and improved morale (Himss, 2013). In small group practices, financial benefits from EHRs averaged approximately $33,000 per FTE provider per year by increasing coding levels for 15% of visits (Miller, West, Brown, Sim, & Gancheff, 2005). A financial analysis provides evidence of costs and savings associated with the project (Appendix A, Figure 5).

Methodology

Project implementation involved assessment of the clinical setting utilizing the Dartmouth Greenbook for Outpatient Specialty Care Microsystems (Nelson, Batalden, & Godfrey, 2007), the Institute of Medicine reports, STEEP principles (IOM, 2001; IOM, 2010), the Institute for Healthcare Improvement’s Quadruple Aim (IHI, 2016), and Meaningful Use criteria (HealthIT, 2013). The need to change the non-use status of the electronic health record (EHR) was identified as the focus of the improvement project. A literature review was performed using CINAHL, PubMed, and Cochrane. The 12 research articles selected for literature review were chosen for their relevance to the topic and purpose of the project. This information was synthesized to support and evidence-based approach to developing staff utilization of the EHR.
Learning objectives specific to each staff role were identified based on key role-specific tasks with in the software platform.

A Clinic EHR Readiness Assessment (Health IT, 2008) was used to assess the microsystem. Pre- and post- implementation surveys have been developed (Appendix B). This tool will be used to collect baseline and comparison data. Assessing whether the staff can perform EHR specific tasks before and after project implementation will verify effectiveness. Quick-start guides, instructions for self-guided troubleshooting, and handouts for patient portal access are instruments for learning and staff support tools related to EHR utilization (Appendix D). As CNL I will sign-off on successful demonstration of EHR use by each staff member. This will occur by August, 2017 and validate whether desired project goals tied to EHR competency have been attained.

**Data Source/Literature Review**

Extensive assessment results direct focus to the role professionals, education, and self-efficacy related to EHR adoption. Research establishes how to support staff, influence perceptions of proposed change, and advantages of new technology. Literature also highlights EHR benefits related to the patient experience. Synthesis of evidence-based research and integration into practice supports sustained change and engages users.

**Education.** Staff and patients is a primary focus of the project. Developing educational approaches for users optimizes success (Sines & Griffin, 2017). Level of training and educational resources were the greatest indicators tied to difficulty using EHR systems (Lahm & Ribeiro Carvalho, 2015). Plans for adoption must be tailored to behavioral, knowledge, economic and technological barriers specific to each setting (Paré, et al., 2014). Research suggests training and coaching sessions support attitudes towards EHR use and promptness of
technology utilization (Lanier, Dao, Hudelson, Cerutti, & Perron, 2017). Adoption of EHR systems must incorporate resources for learning. Efficient use of EHR systems requires users to seek basic knowledge and receive appropriate training related to information technology (Lahm & Ribeiro Carvalho, 2015). Ongoing mandatory professional development is recommended for patient privacy and computerized health information systems (McMullen et al., 2014). Promoting learning and empowering users encourages continued use. EHR training improves communication skills and influence ongoing development of EHR-related behaviors (Lanier et al., 2017).

**Attitudes.** Nurse leaders are crucial in the process of influencing change. According to Edwards (2012), the process of developing and sustaining high-quality EHR use is aided by the unique systems perspective of nursing leadership. Competencies of the CNL optimize perceptions and gain followers necessary for successful improvement. Electronic tools, checklists, and care guidelines foster a culture of patient improvement and self-efficacy (Hyman, Neiman, Rannie, Allen, Swietlik, & Balzer, 2017). A collaborative approach to strategic implementation includes administrative support, identifying areas of inconsistent documentation, engaging team members for successful development, and staff education (D'Huyvetter, Lang, Heimer, & Cogbill, 2014). Engaging in meaningful discussions about fears associated with EHR drives development of improved systems (Sines & Griffin, 2017). The unique viewpoint and deep understanding of microsystem performance enables the CNL to influence acceptance and positively impact performance. Evidence emphasizes that supporting decision making and actions related to adoption of EHR by is essential to the global context of patient care (Lahm & Ribeiro Carvalho, 2015).
Technology Benefits. Utilization of health information technology is integral in achieving superior performance. Systematic review shows EHR use reduces documentation time, prompts higher guideline adherence, and results in fewer medication errors (Campanella et al., 2016). Medical billing, rates of reimbursement, job productivity, decline in medical errors, reduced health care costs result from EHR integration (McMullen et al., 2014). Patient Portals and innovative software systems contribute to improvements across the care continuum. Implications of EHR platform are evident in clinical, organizational, and patient-responsibility outcomes (McMullen et al., 2014). Innovative use of EHRs support harm reduction by ensuring consistency, team communication strategies, and evidence based processes to improve individual patient care (Hyman, Neiman, Rannie, Allen, Swietlik, & Balzer, 2017). Meaningful use of EHRs positively contributes to ethical obligations of benevolence, non-maleficence, and equality. Meta-analysis concludes EHR systems improve quality of care, increase efficiency, and reduce adverse drug events and medication errors (Campanella et al., 2016).

Patient Experience. The care experience and patient satisfaction is derived from all aspects of organizational culture. Systematic review assessing facilitators and barriers indicate (a) attitudes and intentions towards the EHR, (b) context of the EHR in the clinical setting, and (c) the EHR systems perceived usefulness all influenced patient satisfaction (Liu, Luo, Zhang, & Huang, 2013). Evidence shows a multidisciplinary approach is proven to support patient portal practices, improve use of patient portals linked to EHR systems, support patient self-care (Morrow et al., 2017). Advance practice nurses maintain a crucial role in achieving meaningful, understanding factors affecting satisfied users and experiences, and advancing the EHR as a tool for care-coordination at all stages of adoption (Liu et al., 2013; Narcisse, Kippenbrock, Odell, & Buron, 2013).
**PICO Search.** The literature review supports the problem and project.

P(Patient/Population): Staff and Patients at Advanced Center for Integrative Medicine

I (Intervention): Self-guided troubleshooting and quick-start tutorial instructions for use of electronic health record (EHR) and patient portal

C (Comparison): continue with current practice (non-use status)

O (Outcome): verify staff ability to use EHR and provide details for patient portal access

An initial search of CINAHL, PubMed, and Cochrane yielded over 3,000 articles. Filtering literature for peer-reviewed articles, published within the last 5 years, and related to EHR and patient portal utilization narrowed results. Results were further limited to articles in the English language and with the subject heading “electronic health record.” Articles focus on improved quality of care or a resistance to implementation. Many sources are available exploring EHR and lab results or use by pharmacists, this was unexpected. Few sources are available specifically discussing patient portal access. I hoped to find evidence based articles with specific strategies for implementation. This was surprising due to assumptions that electronic health records and integration of technology are essential component of safe and effective care. The PICO statement was helpful to solidify the scope and consider alternative keywords.

**Timeline**

The project was initiated May, 2017 and the initial phase will continue until August, 2017. The 12-week summer semester creates a time constraint surrounding the project date of conclusion. Steps and dates of completion are represented in the timeline of completion (Appendix C). Parameters of the timeframe and outlined objectives promote adherence to the schedule.

**Expected Results**
It is expected that 100% of staff will participate in pre- and post-implementation surveys while attending staff meetings. No additional time will be used for staff training. A portion of the weekly all-staff meeting was allocated to provision of educational tools, one-on-one training, and verification of competency. Using a check-list for competency sign-off is intended to reinforce importance of utilization among staff and establish each member as a basic EHR user. The microsystem should be positioned for additional phases of the project following completion. Theories surrounding organizational culture and implications for EHR adoption may emerge. Conclusions can be drawn about whether self-motivated learning is effective and support tools promote self-efficacy in the outpatient specialty care microsystem.

**Nursing Relevance**

This project will make significant contribution to our understanding the Clinical Nurse Leader role related to EHR support tools. Most research focuses on large health care organizations or hospitals adopting documentation software. Similar outpatient specialty care microsystems can utilize the CNL role and this project as a guide for change. Unique expertise and comprehensive approach demonstrated in this project promote the CNLs value. A CNL as Team Leader and Educator plays a key role in the evolution of a culture of self-efficacy and a *Continuously Learning Healthcare System*. It is crucial for nursing leadership to have a seat at the table and actively contribute to the evolution of healthcare.

**Summary Report**

The Specific Aim is to improve *electronic health record (EHR) utilization* by verifying staff competency to access troubleshooting tutorials, follow quick-guide checklists for crucial tasks, and provide handouts for patient portal access by August, 2017.
The setting is an outpatient specialty care microsystem focuses on women’s health and integrative medicine. The population includes the head Physician Obstetrician-Gynecologist, Nutritionist/Physical Therapist, Office Manager, LPN, 2 patient coordinators and 2 administrative staff.

Methods used to implement the project include the Dartmouth Greenbook for Outpatient Specialty Care (Godfrey, Nelson, & Batalden, 2005). This served as a guide for quality improvement to assess, diagnose, and treat the setting. The plan to implement education/support tools was analyzed with Failure Mode Error Analysis process to reduce potential problems prior to initiation. EHR readiness assessment, pre-post-implementation surveys were utilized to assess and benchmark project initiatives. A literature review was performed to identify evidence/best practices for EHR utilization, training, and culture of learning. Stakeholder analysis determined attitudes, influences, contributions, and strategies for engagement. Cost analysis measured current expenses tied to the EHR project and cost benefit of transitioning to electronic software platform. SWOT Analysis was performed to outline barriers and facilitators to success. A fishbone diagram was used to outline cause and effect of non-use status of EHR. The training quick-guides and patient portal handout documents were emailed directly to each staff member and saved on the clinic server.

Data collection compared the results of pre-/post-implementation surveys. Analysis reveals staff self-confidence in EHR use increased from 40% to 90%. Staff feelings of support related using the software platform increased from 60% to 95%. 100% of staff were verified to demonstrate competency in performing role specific EHR functions and access resources. Each staff member has established their competency as a basic user of the EHR. Qualitative data
indicate a positive shift in themes regarding feelings towards the EHR and experience using a technology based platform.

Providing education/support tools and encouraging self-guided learning enhances feelings of support and confidence among staff. Developing a culture of learning and self-efficacy supports a safe and effective clinical environment. Cost-savings and reallocating previously wasted time creates endless potential to utilize staff for other emerging QI initiatives.

According to the Institute for Healthcare Improvement (2015) paper, *Sustaining Improvement*, nurse leaders create a strong foundation through developing quality improvement and standardizing high-performance systems. The improvement project will be modified in subsequent phases to expand adoption and patient experience related to the EHR. Transitioning to electronic based registration, lab requests/results, and e-prescribing through the software platform will be part of future integration. The head OBGYN, office manager, and nutritionist declare desire to be champions or “super-users” going forward. Staff awareness of the EHR benefits have been expanded based on feedback during the training. The knowing-doing gap will continue be addressed in later phases. Stakeholders are supportive and recognize the cost benefits to the EHR system which provides greater accountability, improved safety, and consistent communication. Time currently wasted on process delays and inefficient patterns can be reallocated to other quality improvement efforts as the emerge with in the microsystem. Continuing to enhance the perceived benefit and support will continue to influence successful sustained adoption and the self-efficacy theoretical framework.

Flexible evidence based requirements and empowering clinicians to lead change promotes sustained quality improvement (AHRQ Health Care Innovations Exchange, 2014). Training, staff morale, patient experience, and standardized operating procedures are crucial to
stabilizing systems achieving positive change (HRSA, 2017). Evidence shows that true sustainability of EHR use is achieved through education about EHR systems, which direct policy and patient participation to further cultivate use (Sheridan, 2012). The CNL role as an educator, team leader, and advocate supports a culture of improvement, self-efficacy, and continuous learning milieu.
References


with family medicine residents. *BMC Family Practice, 18*1-10. doi:10.1186/s12875-017-0640-2


Appendix A

Figure 1
*Root cause analysis (fishbone diagram)*

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients</strong></td>
<td></td>
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<tr>
<td>Not completing registration through Patient Portal</td>
<td></td>
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<tr>
<td>Access capability</td>
<td></td>
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<tr>
<td>Expectation of concierge care</td>
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<tr>
<td>Demand for urgency</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>People/Staff</strong></td>
<td></td>
</tr>
<tr>
<td>Too busy to learn new system</td>
<td></td>
</tr>
<tr>
<td>Inability to access</td>
<td></td>
</tr>
<tr>
<td>Report EHR system requires too much time</td>
<td></td>
</tr>
<tr>
<td>Attitudes towards change</td>
<td></td>
</tr>
<tr>
<td>Lack of knowledge</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td></td>
</tr>
<tr>
<td>Mindset towards technology innovation</td>
<td></td>
</tr>
<tr>
<td>Lack of leadership / Super-User</td>
<td></td>
</tr>
<tr>
<td>Hectic work pace</td>
<td></td>
</tr>
<tr>
<td>Change in Management</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td></td>
</tr>
<tr>
<td>Reliance on information in paper chart</td>
<td></td>
</tr>
<tr>
<td>Communication practices</td>
<td></td>
</tr>
<tr>
<td>Old habits</td>
<td></td>
</tr>
<tr>
<td>Current billing procedures</td>
<td></td>
</tr>
<tr>
<td>Work flow between ancillary staff and provider</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A

Figure 2
Process Map

1. Patient arrives
2. Registration / Update Patient information
3. Potential Delay
4. Patient escorted to room
5. Potential Delay
6. Nurse Review Medical History / Assess Vitals
7. Nurse Documents Care
8. Plan
9. Assessment/Exam
10. Potential Delay
11. Provider reviews Chart
12. Potential Delay
13. Nurse Documents Care
14. Provider Documents Care
15. Potential Delay
16. Paperwork
17. Potential Delay
18. Treatment / Procedure/ Referral
19. Potential Delay
20. Prescription
21. Labs
22. Patient Leaves
23. Billing
24. Follow-Up Appointments
25. Potential Delay
26. Labs
Appendix A

Figure 3
*SWOT Analysis*

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consistent and centralized documentation</td>
<td>• Computer literacy / software knowledge</td>
</tr>
<tr>
<td>• Streamlined communication</td>
<td>• Dependent on patient/user having access to internet and device (smartphone, tablet, PC)</td>
</tr>
<tr>
<td>• Web-based accessibility</td>
<td>• Success relies on self-motivated learning / user engagement</td>
</tr>
<tr>
<td>• Self-Guided Troubleshooting / Support included</td>
<td>• Current workflow, old habits, negative attitudes towards change</td>
</tr>
<tr>
<td>• Low cost</td>
<td>• Reliance on paper charts</td>
</tr>
<tr>
<td>• Patient reminder / follow-up notifications</td>
<td></td>
</tr>
<tr>
<td>• Incorporated billing system</td>
<td></td>
</tr>
<tr>
<td>• Improved quality/safety/patient-centered care</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patient follow-up / on-line appointment scheduling</td>
<td>• Reliance on software / EHR company for updates and data storage</td>
</tr>
<tr>
<td>• Enhanced patient responsibility and access to records</td>
<td>• Later phases of implementation require patient accountability and adherence to use</td>
</tr>
<tr>
<td>• Report functions / analysis of microsystem data to foster continued improvement</td>
<td>• Security and privacy of electronic web based EHR</td>
</tr>
<tr>
<td>• Possible cost savings – support future business growth</td>
<td>• Unforeseen Costs</td>
</tr>
<tr>
<td>• Potential to reduce errors and waste</td>
<td>• Expense of new hardware when computers in microsystem become obsolete</td>
</tr>
<tr>
<td></td>
<td>• Convenience of uploading lab results dependent on electronic reporting from independent companies</td>
</tr>
</tbody>
</table>
## Appendix A

### Figure 4

**Stakeholder Analysis**

<table>
<thead>
<tr>
<th></th>
<th>Attitude towards project</th>
<th>Influence over success</th>
<th>What is important to them:</th>
<th>Key contribution to project:</th>
<th>Strategy for engagement:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients</strong></td>
<td>Support for convenience (access to health records, lab results, and appointment scheduling). Struggle with establishing initial Patient Portal account access and completing pre-registration documentation via portal.</td>
<td>Moderate impact, increasing pre-registration and Patient Portal use reinforce positive EHR behaviors by other stakeholders.</td>
<td>Ease of use, speed of information, access to care, accuracy of information</td>
<td>Patient engagement will cultivate use by other stakeholders and decrease reliance on paper / old patterns of behavior.</td>
<td>Provide instructions handouts for Patient Portal access. Offer iPad in waiting room for Patient Portal enrollment and completion of pre-registration documents.</td>
</tr>
</tbody>
</table>
| **Professionals**  
(Ancillary Staff and Nurses) | Resistant towards change, reliant on paper and information stored in old paper charts. Report lack of knowledge and time to use and learn new EHR system. | High, participation and supportive behaviors required for success.                       | Ease of use, minimal time commitment, positive impact on workflow                           | Daily use for documentation, billing, and scheduling. Nurses and ancillary staff involvement is crucial to initial and future phases of implementation. | Implement tools to encourage staff and EHR use, communication and shared responsibility, “we” statements, provide supportive leadership, raise awareness of EHR benefits, progress updates during weekly meetings |
| **Healthcare Institution**  
(Providers, Proprietor, Management) | Strong support of EHR and Patient Portal utilization in all facets of the patient experience and healthcare institution | High participation and supportive behaviors required for success. Management and Providers should demonstrate transformational leadership. | Patient safety, consistency of information, revenue                                        | Influence, model behavior, verbal endorsement and encouragement of EHR use.                  | Report cost/benefit analysis, progress updates during weekly and one-on-one meetings, share microsystem assessment data and evidence-based research supporting quality improvement |
| **Relative Organizations**  
(external) | Low awareness of project aims exists external to microsystem. Global attitudes toward EHR emphasize value and future of healthcare related to EHR use. | Low impact in initial phases of project. Potential exists for more referrals and enhanced collaborative care if electronic EHR system and Patient Portal facilitate experience | Collaborative care is effective, safe, and efficient.                                     | Minimal immediate contribution. Future participation will support integration of EHR use and continuity of care. | Promote awareness of EHR for scheduling, pre-registration, and patient portal access with referring and collaborative providers/organizations. |
Cost Analysis for Electronic Health Record Utilization and Education: Improving Role-Specific Confidence and Competence in the Outpatient Setting

<table>
<thead>
<tr>
<th>Item*</th>
<th>Cost</th>
<th>Benefit**</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>EHR Annual Use Fee</td>
<td>$2,760.00</td>
</tr>
<tr>
<td>B</td>
<td>Annual Wasted Supplies</td>
<td>$8,534.00</td>
</tr>
<tr>
<td></td>
<td>Ink</td>
<td>$4,342.00</td>
</tr>
<tr>
<td></td>
<td>Paper</td>
<td>$1,754.00</td>
</tr>
<tr>
<td></td>
<td>Folders/Files</td>
<td>$889.00</td>
</tr>
<tr>
<td></td>
<td>Tabs/Labels</td>
<td>$790.00</td>
</tr>
<tr>
<td></td>
<td>Pens</td>
<td>$512.00</td>
</tr>
<tr>
<td></td>
<td>Staples/Clips</td>
<td>$247.00</td>
</tr>
<tr>
<td>C</td>
<td>Annual Lost Revenue from Unpaid/unbilled services</td>
<td>$15,144.00</td>
</tr>
<tr>
<td></td>
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<td>$26,438.00</td>
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<tr>
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<td>Net Benefit</td>
<td>$11,839.00</td>
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<tr>
<td></td>
<td>Cost/Benefit Ratio</td>
<td>2.23 : 1</td>
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</tbody>
</table>

Assumptions

* Based on 2016 data.
  No additional time was used for training. A portion of the weekly all-staff meeting was allocated to assessment, training, and verification of competency.

** A 50% improvement in wasted expenses is reasonable expected based on current performance. Benefits of the project relate to an improved billing system, expenses of wasted supplies, and expense of lost wages/time are speculative. Staff have only recently (through this project) verified their competency to perform role specific tasks.

A Software is paid for monthly to month. This expense includes storage of data. Electronic Health Record (EHR) is a web-based platform, it is not licensensed for ownership.

B Wasted supplies related to paper medical records and billing process. Includes paper patient files, ink for printing lab reports and documentation forms, pens for physically writing in the charts, tabs and labels for organizing the charts.

Unpaid and Unbilled services are represented as lost revenue. Current billing processes do not effectively track outstanding dues, unbilled encounters/services/procedures, or generate reports.
Appendix B

Figure 1
Pre-/Post-Implementation Survey

Implementation Survey

Describe your abilities to use technology in general, in everyday life
1) Very poor
2) Poor
3) Acceptable
4) Good
5) Very good

Describe your ability to log in to Power2Practice (P2P)
1) not able
2) somewhat
3) undecided
4) moderately
5) very able

Describe your ability to access self-guided trouble shooting tutorials provided by P2P
1) not able
2) somewhat
3) undecided
4) moderately
5) very able

Describe your ability to provide patients with directions for registration and access the patient portal?
1) not able
2) somewhat
3) undecided
4) moderately
5) very able

Describe your understanding of how to use/navigate P2P
1) Very poor
2) Poor
3) Acceptable
4) Good
5) Very good

How confident do you feel in your abilities to complete role-specific tasks using Power2Practice (for example: accessing information, documentation, uploading labs, medication administration, communication, or billing)
1) not confident
2) somewhat confident
3) neutral
4) moderately confident
5) very confident

How do you feel related to support/educational tools and your individual use of P2P?
1) not supported
2) somewhat supported
3) neutral
4) moderately supported
5) very supported

What would improve your experience using P2P at work?

Describe your opinion/feelings/attitude about P2P?

Any additional comments or questions?

Thank you for participation and time!
Figure 1
_Gantt Chart_

<table>
<thead>
<tr>
<th>GANTT Chart</th>
<th>May</th>
<th>June</th>
<th>July</th>
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<tr>
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<td>Microsystem Assessment</td>
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<td>Data Collection – Performance Gap</td>
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<td>Global Aim</td>
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<tr>
<td>Specific Aim</td>
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<td>Needs Assessment</td>
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<td>FMEA, Root Cause, SWOT, Stakeholder Analysis</td>
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<td>Plan for Integration</td>
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<td>Sustainability Plan</td>
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</tr>
</tbody>
</table>
Appendix D

Figure 1
Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

Sign-In

Open your web browser

Go to: https://www.power2practice.net/app/login/1

Enter your username and password

Click the sign in button

(Click “Forgot Username” or “Forgot Password” if you need to reset your Sign-In information)

Self-Guided Troubleshooting and Tutorial Access

Open your web browser

Go to: http://www.power2practice.com/training-videos/

Enter the password: p2p@training!

Scroll down to view any of the P2P training videos
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

Upload Lab Results/Patient Documents

1. Download or scan the test/lab results from the laboratory company onto the computer.
2. Sign-in to Power2Practice.
3. Search the patient/client name.
4. Then click the name to select their electronic health record.
5. Click the three-dot menu to the right of the patient's name.
6. Select the “Documents” tab.
7. A pop-up window will open titled “Patient Documents.”
8. Select the upload button in the upper right-hand corner.
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization


Title the document in the correct format (Lab Name Day Month Name Abbreviation Year)

For example:
Quest Labs 15 Jan 2017
or
Vibrant Labs 27 Apr 2017
or
Credit Card Auth 20 Jul 2017

Select the correct document type.

“Upload Other Patient Documents” = document type: HIPPAA, Financial Responsibility, Credit Card Auth forms
“Upload Patient History” = document type: past medical history, clinic notes, digestive screenings
“Upload Test Results” = document type: Lab/Test Results
“Upload insurance Information” = document type: copy of patient’s insurance card (front and back)
Appendix D

Figure 1 (continued)

Educational Support/Tool

Select the date of service/date of documentation/date of lab report corresponding with the attached document

Click the “Browse” Button

This will open a pop-up window on your computer, locate and select the document from its saved location on your computer.

Click the Upload button

Close the window by clicking the “close button” or “x” in the upper right hand corner.

A tutorial is also available at: http://www.power2practice.com/video/enter-test-results/
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

**Patient Portal Access / Invitation**

- Sign-In to Power2Practice
- Search the patient/client name
- Then click their name to select their electronic health record
- Click the three-dot menu to the right of the patients name
- Click the “Contact Info” tab

A pop-up window will display the “Patient” information

Verify with the patient the correct email address is listed under “email address” and “username”

Click the “Resend Email” tab at the bottom of the screen

Click the “Save” tab in the bottom right hand corner
The window will automatically close

Create an Invoice

Sign-In to Power2Practice

Search the patient/client name

Then click their name to select their electronic health record

Click the three-dot menu to the right of the patients name

Select the “Billing” tab

A new window will appear titled “Patient Billing”

The “Patient Account” tab contains past bills and outstanding balances
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

The “Encounter Forms” tab contains encounters and invoices.

An “Encounter Form” MUST be created and “Complete and Print” must be selected by the provider prior to creating an “Invoice”.

If the encounter form has been correctly completed an “add button” will appear in the “Invoiced” column.

If you need to create an invoice click the “Add”

A new pop-up window will open titled “Invoice Entry”.

Enter and/or VERIFY the correct:
Bill Recipient and Charges

Enter the Payment Type and Payment Amount
Enter A Note
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

The “Encounter Forms” tab contains encounters and invoices.

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Enter the Payment Type and Payment Amount
Enter A Note
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

**Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization**

*Also write in the notes:*
  - Date (Day *number*-Month-Year), amount paid, payment type/card type, last 4 digits of the card, the transaction ID from the credit card receipt (if applicable), and your initials.

*For example:*
  - 17Jul2017 $150 Visa #4657 transaction ID:10045 LMJ
  - 22Apr2017 $400 Cash BDA

Click Save

You will automatically be re-directed to the “Encounter Forms” Tab

**If partial payment is made, writing a note is especially important**

You MUST ALSO note with each additional payment applied to the invoice in the notes section:
  - Date (Day *number*-Month-Year), amount paid, payment type/card type, last 4 digits of the card, and the transaction ID from the credit card receipt of the partial payment (See above for correct format).

**Adjust the “Add Payment” dollar amount to equal the total value of all payments received for THIS invoice**

Click Save

You will automatically be re-directed to the “Encounter Forms” Tab

---

Credit Card Receipts should be uploaded as Patient Documents
Scan credit card receipts and upload as a patient documents
Title as: Payment Amount, Corresponding Invoice Number(s), Date
Document Type: “Upload Other Patient Documents”
See Directions for Uploading Documents/Labs or P2P training portal for additional help
Educational Support/Tool

Figure 1 (continued)

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

View/Apply Payment to Billing

Click the “Patient Account” tab (under “Patient Billing”)

Click on the “Transaction I.D” number that corresponds to the invoice you wish to view

OR

Click the “Encounter Forms” tab

Hover over the invoice date that corresponds to the correct clinic visit/invoice in the “Invoiced” column

Click the underlined date

A pop-up window will display “Invoice Entry”

Enter and/or VERIFY the correct:
Bill Recipient and Charges

Enter the Payment Type and Payment Amount
Enter A Note
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

Scroll down

Enter the payment type

Enter the payment amount

ALSO write in the notes:

Date (Day number-Month-Year), amount paid, payment type/card type, last 4 digits of the card, the transaction ID from the credit card receipt (if applicable), and your initials.

For example:

17Jul2017 $150 Visa #4657 trnx ID:10045 LMJ
22Apr2017 $400 Cash BDA

Click Save

You will automatically be re-directed to the “Encounter Forms“ Tab

**If partial payment is made, writing a note is especially important**
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Scan credit card receipts and upload as a patient documents
Title as: Payment Amount, Corresponding Invoice Number(s), Date
Document Type: “Upload Other Patient Documents”
See Directions for Uploading Documents/Labs or P2P training portal for additional help
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

Print an Invoice

- Click on the “Encounter Forms” tab (under “Patient Billing”)
- Click on the PDF symbol next to the invoice to generate a printable invoice/bill.
  A new tab will open in your web browser with the document.

Click File, then Print (to print the document)
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

**Create a Patient Note**

1. Sign-In to Power2Practice
2. Search the patient/client name
3. Then click to select their electronic health record

Click the “Notes” tab to the right of the patient name

Enter Title of the note

In the note section document your activity (e.g., if medications were shipped, invoice was mailed, lab results published, or email/phone call was placed).

These will save automatically.
Appendix D

Figure 1 (continued)

**Educational Support/Tool**

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

**Create/Assign, View, or Complete a Task**

*This can be useful if a provider needs to review a document, authorize a request, prescribe medications etc. Or between collaborative members of the staff*

Sign-in to Power2Practice

Search the patient/client name

Then click to select their electronic health record

Select one of the following:

“Task History” from the three-dot drop down menu

**OR**

“Tasks” or “Pending Tasks” from the Notifications Box

All the above options will direct you to the same pages
Appendix D

Figure 1 (continued)

Educational Support/Tool

Click the “New Task” button
A pop-up window will appear

Enter:
Patient name
Task Type
Assigned to (i.e., the staff member responsible for completing this task)
Due Date
Status
Notes

The window will automatically close and the task will appear the patient and staff member it was assigned to.
Appendix D

Figure 1 (continued)

**Educational Support/Tool**

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

For “How to Reply to Tasks”
http://www.power2practice.com/video/how-to-reply-to-tasks/

Additional tutorial is also available at http://www.power2practice.com/training-videos/
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

**Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization**

**IV Documentation**

1. Sign-In to Power2Practice
2. Search the patient/client name
3. Then click to select their electronic health record

The Patient chart will appear

Scroll down to the bottom of the page

Select “IVs, Inj. And Vgsc” tab (in the lower left corner)
Figure 1 (continued)

Educational Support/Tool

Quick Start Guide - CNL Educator/Team Leader Project – EHR Utilization

You will be directed to a new window titled “IV Therapy”

Enter ALL information (including: details, pre-infusion, inspection, and removal)

IF multiple ingredients are administered click the “add” button to document additional ingredients

Click Save

Click Complete Chart

** Click the drop-down arrow to view Previous IV Therapy, Vaccinations, and Injection History
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

Add/Update Medications

Sign-in to Power2Practice

Search the patient/client name

Then click to select their electronic health record

The Patient chart will appear

Click the three-dot menu to the right of the patient’s name

Select the “Medication History”
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

OR

Scroll to the bottom and select “Medication” from the “Ordering” menu

You will be redirected to the “Medications” page

Add the Medication/Prescription information

Click “Fill in office” for ACIM administered medications (you must select this box for medications to automatically appear on an invoice)

Click “Save” at the bottom right corner of the page
Figure 1 (continued)

Educational Support/Tool

**Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization**

**OR**

Scroll to the bottom and select “+Medication” from the “Ordering” menu.

You will be redirected to the “Medications” page.

Add the Medication/Prescription information.

Click “Fill in office” for ACIM administered medications (you must select this box for medications to automatically appear on an invoice).

Click “Save” at the bottom right corner of the page.
Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

** “Medication History” displays current and past medications

To Modify a medication:

Hover over the med name

Then Click the med name

Scroll up

Click “Discontinue“ to stop a med

OR

adjust the number of refills as needed

Click the “save” button when finished

You will be directed back to the
“Patient Chart”

Create a “New Task” for to notify ACIM to fill medication in office.

Click the “Complete Chart” button at bottom of page when all documents are created for this
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

**Order Lab Tests**

Sign-In to Power2Practice

Search the patient/client name

Then click to select their electronic health record

The Patient chart will appear

Scroll to the bottom and select “+Lab Test” from the “Ordering” menu
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

You will be redirected to the “Order Labs” page

Enter the Lab Order Information

Select the Lab Company from the drop-down menu
Appendix D

Figure 1 (continued)

Educational Support/Tool

Quick Start-Guide - CNL Educator/Team Leader Project – EHR Utilization

Select the “Bill to” category

Search for the test in the “Find Lab Test” field

OR

select test from the “Commonly Ordered Tests” Box

Then Click Save

Select “Complete Chart” at bottom of screen
Appendix D

Figure 1 (continued)

Educational Support/Tool

Create Encounter

Sign-In to Power2Practice

Search the patient/client name

Then click to select their electronic health record

Click the three-dot menu to the right of the patient's name

Select the “Billing” tab

A new window will appear titled “Patient Billing”

Click on “New Encounter”
Appendix D

Figure 1 (continued)

Educational Support/Tool

A pop-up window titled “Encounter Form” will open

Complete ALL relevant fields.

Check boxes next to the appropriate:
- Diagnoses
- Office Service Codes
- Office Procedures
- Office Lab Tests
- Office Medications
- Other (billable items)

If the item you need is not listed click the Add button to input manually

Click the “Complete and Print” button

A pop-up window titled “Complete and Print” will appear

Select “Proceed”
Appendix D

Figure 1 (continued)

*Educational Support/Tool*

You will be re-directed to the “Patient Billing” page and the “New Encounter” will appear

Click on “Patient Chart” to return to the patient’s chart

Scroll to the bottom of the page

Click the “Complete Chart” button in the bottom left corner

http://www.power2practice.com/video/generating-an-encounter-form/