An Informatics Solution to a Healthcare Problem

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Many issues of efficiency, productivity, and cost-effectiveness in healthcare can be resolved by informatics. In this paper a proposed informatics solution will be detailed to address such problems in a healthcare practice, from identification and scope of problem to implementation and evaluation.

**Formulation and Scope of Informatics Problem**

New Nurse Practitioner Practice (NNPP) is a family practice office in Phoenix, Arizona. It is staffed with one full time physician and three part-time Nurse Practitioners. The practice is currently utilizing a paper charting and scheduling system. The practice is growing and there is a concern of shortage of physical space for maintaining these systems. Utilizing paper charts is not efficient and does not provide the opportunity to use data electronically for improved evidence-based practice, tracking medical trends, or billing.

The informatics problem identified is a need for an electronic medical record (EMR) to address these concerns and bridge the disconnect of using electronic data versus paper data. This will also allow the practice to comply with federal healthcare initiatives of implementing EMRs in order to meet meaningful use criteria (see Appendix A & B for criteria). Meaningful use occurs when a healthcare practice is able to demonstrate that they are using a certified EMR in a measurable way (U.S. Department of Health and Human Services (HHS), 2011a). Cebul, Love, Jain, and Hebert (2011) have concluded after analyzing data from EMR-based versus paper-based practices that when an EMR meets the required criteria for meaningful use it should improve quality of patient care. Other benefits of implementing an EMR will be the cost-effectiveness, a streamlined patient flow which will be timesaving, and an improvement in medical data tracking (HHS, 2011b).

The American Recovery and Reinvestment Act (ARRA) is a government stimulus plan which provides for financial incentives if meaningful use of an EMR is demonstrated (Recovery.gov, n.d.). In order for NNPP to compete in a struggling economy, it must take advantage of this incentive and implement a certified EMR.

**Significance of Informatics Problem**

The U.S. Department of Health and Human Services (HHS) developed criteria for an EMR to be certified. CMS will pay incentives to eligible providers who demonstrate meaningful use of a certified EMR in an effort to offset implementation costs (HHS, 2011c). Meeting meaningful use with EMRs will: (a) improve quality, safety and efficiency by healthcare providers maintaining medication and allergy lists, (b) reduce errors with use of electronic order entry as compared to handwritten orders, (c) allow for patients and their families to engage with their healthcare situations by having access to their records, (d) improve coordination of care from one setting to another, and (e) will foster shared decision-making with their providers which will improve health outcomes (HHS, 2011d).

By implementing an EMR, NNFP will run more efficiently and effectively with improvement in scheduling, patient flow, and billing process. Optimal use of office space will allow for a cleaner, more conducive work space for staff. Risk of injury from moving paper charts will be eliminated.

**Environmental Risk Analysis**

After conducting an environmental risk analysis of NNPP, it was found that electronic data are protected better than paper records (Katic et al., 2007). Paper charts are self-contained and easily carried away (Meredith, 2009), and a greater likelihood of medical errors exists with a paper chart system compared to an EMR (McDowell, Wahl, & Michelson, 2003).

 The office has multiple areas where charts have the potential to be misplaced (see Appendix C for office map). An electronic charting and record system decreases the likelihood of lost patient files (O’Sullivan, Billing, & Stokes, 2011).

Accessibility is another issue when using a paper charting system (Katic et al., 2007). Because the area in the office where charts are kept is small, the area becomes easily crowded. Personnel take charts to different locations in the office which creates an inability to access a single chart from more than one location at any given time (O’Sullivan et al., 2011). Office space is maximized by using a paperless system (Meredith, 2009). The practice provides services to approximately 5,000 patients so a great number of charts must be stored, used, and accounted for. Off-site storage also creates an issue of limited accessibility because the records are not readily available (O’Sullivan et al., 2011). The current system places charts that require provider attention in a specific area. If the providers do not check the area constantly a chart may go unnoticed for some time (Meredith, 2009). As updates and orders populate on a computer screen once logged in, they can be acknowledged with greater ease (Meredith, 2009). Electronic records link new knowledge with clinical guidelines and evidence-based practice to create a higher level of patient care (Albert, 2007).

**System Analysis**

 A system analysis was conducted using the Gassert Model for Defining Information System Requirements for Nursing (MDISRN) (Gassert, 1996). The model consists of five elements, each containing input and output criteria (see Appendix D for model diagram). The elements of this model are: user, information processing, information systems, information, and system goals (Gassert, 1996).

**Nurse User Element**

 The main function of NNPP is to diagnose health problems or the potential for health problems. Based on the diagnosis, clinicians must either treat the problem or facilitate health behavior changes to avoid future problems. In order to perform this function properly and efficiently, clinicians need a way to handle information. Important units of information for the treatment of patients include vital sign history, assessments, chart notes, lab and imaging reports, informational handouts for patients, and discharge instructions with necessary follow-up. Additional responsibilities will be to monitor progress, provide needed medications, and coordinate in-office follow-up care or recommend clinician referrals. Because of functional and informational requirements, the information obtained is necessary in coordinating discharge information and continued communication with patients receiving treatment or preventative services.

**Information Processing Element**

 Information processing requirements can be determined based on the functional needs of information and the responsibilities of the practice. A computer system must provide us with useful information derived from the entered data. Two examples of this type of information would be vital sign trends over numerous visits and alerts for abnormal lab values.

**Nursing Information Systems Element**

 In order for the information to be processed, the computer system must be reliable, and have a way to easily view the information. The practice is interested in computer systems that are fast, accurate, and adaptable. As business expands and develops new needs, it is important to have a system that has expanding storage capabilities and is versatile, with the ability to change as the practice grows. The practice requires the ability to see system outputs of information on a computer screen, and must also have the capability to print those screens to send with our patients if needed. As discussed previously, some of the beneficial information for clinicians to see and print would be lab results, discharge summary, vital signs and assessments, medical documents, and prescriptions.

**Nursing Information Element**

 The practice looked at internal and external data needing to be integrated into our new system. Current available data includes past charts either needing to be scanned into the system or already automated, past history from other providers, and previous visit data. Results from labs, imaging, and other diagnostic testing done outside of our office will need to be retrieved by the system. Combine the available data with our system outputs, and the practice requires a large amount of data to be stored and processed. Records, results, history, medications, educational needs, assessments, and patient resources are just some of the data required.

**Nursing System Goal Element**

 The ultimate goal of using the information gained in the practice is to provide the best care and achieve optimal patient outcomes. This can be achieved by providing our patients with easy-to-follow discharge instructions and follow-up, as well as using integrated lab results, assessments, testing, and history to obtain a full picture of the patient so that we may accurately diagnose and implement a relevant plan of care. By comparing system outputs, data requirements, and system goals, it is concluded that a computerized charting and record system would be greatly beneficial to the practice. NNPP tracks a large amount of information on each patient, and by using computer records it will be easier to track and store this data. In addition, an electronic system provides the opportunity to produce printed information for patients to take home that is more comprehensive, can integrate safety features, and improve the efficiency of the office by having all information in one place.

**Operational Feasibility**

 The staff of NNPP is excited to convert to EMR and eliminate the copious amounts of paper charts currently occupying a significant section of the work environment. The transition to the electronic medical record is further supported by the need to maintain income related to new insurance billing requirements and to obtain reimbursement for health information technology updates from ARRA (HHS, 2011c). EMR software options were evaluated for compatibility with NNPP work flow parameters by ensuring the office and computers have the technical capacity to perform necessary functions, accessibility from remote computers, software ability to communicate with other systems, and cost. “The greatest obstacle to implementation of the computerized patient record is cost” (Zhang, Yamauchi, Mizuno, Zhang, & Huang, 2004, p. 229). The need for new computer hardware was recognized when reviewing technical needs for the software and upgrade related to age of hardware.

 There will be minimal interruption of daily workflow while the new hardware and software is installed. An information technology (IT) specialist from Desert River Solutions (DRS) will conduct the exchange of hardware, installation of software, network configuration, and evaluation of technological systems. DRS consultants will transition paper charts to electronic format, and will also provide on-site education and training using the electronic charting, scheduling, and messaging system. Direct involvement with the development and reevaluation of work flow process will decrease staff resistance to EMR implementation (Lorenzi, Kouroubali, Detmer, & Bloomrosen, 2009).

 Work flow will not be significantly affected by the presence of DRS consultants during the paper chart conversion, as the transition of paper charts will make additional work space available (Szmuc, 2011). Adaptation to new work processes will take approximately one month. Reevaluation of workflow processes will be reviewed at biweekly staff meetings and alterations will be considered as needed. New workflow and process changes will be successful, since financial issues have been discussed, collaboration of EMR selection has occurred, and staff members have been involved in evaluation and evolution of workflow and adoption of new work processes (Lorenzi et al., 2009).

**Software & Hardware**

A cloud-based EMR is proposed as the economically superior option for NNPP. A cloud-based EMR will allow for ease of accessibility to patient records via the internet from various locations, allowing for ease of practice growth as well as the added benefit of having the outside provider responsible for ensuring availability, securing the patient data, and conducting system backups (I.E. Murray, personal communication, November 15, 2011). Kitzmiller, Hunt, and Sproat (2006) recommend that one should not only consider the product but also thoroughly research the company to see how the product has been developed, providing an indication of forward thinking and financial soundness. The implementation period for a cloud-based EMR system should not exceed six-months, which will allow for analysis of the work flow as well as hardware and software selection (I. E. Murray, personal communication, November 15, 2011). This period will provide the necessary time for staff training and allow NNPP to meet the February 29, 2012, Center for Medicare and Medicaid Services (CMS) deadline to be eligible to receive an ARRA incentive payment for the calendar year 2011 (HHS, 2011c).

**Software**

The cloud-based EMR system Practice Fusion (PF) is recognized as a certified EMR which meets meaningful use (HHS, 2011d) and has been selected for this project. PF has an option of a free as well as low-cost EMR program. They provide continuous customer support via online video tutorials and phone (PF, 2011e). PF is user friendly, and provides access to records from any computer via internet with constant third party testing of internet security (PF, 2011d). PF meets meaningful use criteria. Patient information security is tested by a third party provider to ensure protected privacy (PF, 2011d).

**Hardware**

 New equipment includes: five computers, three laptops, one router, one scanner, and two multifunction laser printers. Sonicwall 5 is the network firewall chosen to complement the new hardware (PF, 2011a). Installation will be coordinated by DRS. Costs for upgrades in technology are expected to be covered by ARRA reimbursement (PF, 2011b).

**Implementation Plan**

Successful implementation of PF at NNPP must begin by preparing the practice for change. Rogers’ diffusion of innovation theory states that a clinician’s perception of the advantages of a new innovation can be more important to successful implementation than objective data (Sanson-Fisher, 2004). Staff buy-in is imperative to effective EMR implementation (McLane, 2005). Facilitating this process will be a practice champion, the lead Nurse Practitioner, who will also act as Project Manager (PM). A champion is an essential component of successful EMR implementation, providing the staff direction, inspiration, and encouragement while promoting trust in the process (Lorenzi et al., 2009; Pennell & Fishman, 2011). NNPP’s implementation plan will incorporate the best practices of the agility model, which emphasizes flexibility, frequent face to face team communication, continuous reevaluation, and willingness to adapt the project plan to changing needs (Kitzmiller et al., 2006).

NNPP plans to have PF fully implemented by February 22, 2012, in order to register with CMS by February 29, 2012. Given this short time frame, preparation and training must begin immediately. A Fact-Finding committee was formed on November 7, 2011, consisting of six nursing informatics students, including the practice champion. The EMR Implementation Committee will be developed by December 12, consisting of two providers (one being the practice champion and PM), the office manager, a medical assistant (MA) and a front office staff member. The Fact-Finding Committee members will present their findings to the NNPP EMR Implementation Committee on December 14, 2011. An informational meeting with all staff will be held on December 16, where an overview of PF will be presented, benefits and limitations discussed, and goals for implementation developed. All staff will be invited to give input on goals and workflow processes, as being part of the decision-making process increases buy-in and end-user satisfaction (Lorenzi et al., 2009). The PM and office manager will act as the EMR super users, receiving more extensive training on PF (Pennell & Fishman, 2011).

Staff will be divided into three work committees based on their job function (front office, medical assistants and providers), in order to map out current workflows and redesign new ones. Committees will have biweekly meetings until implementation. Current workflow processes will be documented by the appropriate committee and due to the PM by December 23. These workflows include the paper charting process for providers and medical assistants (MA’s), patient check-in, scheduling, billing, orders, refills, labs and messaging. Committees will work in conjunction with the PM to redesign their respective new workflows, due by January 13. An all staff meeting will be held January 18 to review all proposed electronic workflows and seek input on those processes that involve multiple disciplines. The MA and provider committees will then design customized templates for progress notes, physical assessments, vitals and orders/prescriptions. Templates will be finalized by January 27.

DRS will begin transitioning the paper charts to electronic format the first week in January, scanning the last six years of medical records in active charts per legal requirements (Michigan Bar, 2009). Following electronic transition, DRS will destroy paper charts at the rate of 6 cents per page (A. Szmuc, personal communication, November 23, 2011). Assuming 5000 charts at 100 pages per chart, estimated cost of transfer and destruction of paper medical records is $30,000. All hardware and software will be ordered by January 6. Hardware installation and network configurations will begin the first week in January by DRS and will be completed by January 23 (see Appendix E for project plan details).

NNPP will implement Practice Fusion in two phases, with Go Live Phase One on February 8 and Go Live Phase Two on February 22. Phased implementation reduces resistance and increases staff’s comfort level when introducing an EMR (Pennell & Fishman, 2011). Scheduling, billing, documentation and messaging will be implemented in Phase One because these are the most critical modules for day-to-day practice operations. During Phase Two, labs and e-Prescription will be implemented. Provider schedules will be reduced for the first two weeks after implementation, allowing staff the necessary time to adjust to the new system (Pennell & Fishman, 2011).

Post-implementation, the evaluation plan will address maintenance and support of the practice with its new EMR. The super users will play a crucial role in the post-implementation period, assessing how well employees are learning and adapting, as well as being in-house experts for questions and problems (Lowes, 2004). Ongoingcommunication and support during the maintenance phase is essential to end-user satisfaction and staff morale (Lorenzi et al., 2009). Realizing that change is continuous, NNPP will strive for “sustainable maintenance” with a system that is responsive and adapts to changing needs, so that the practice is continually improving (Kitzmiller et al., 2006).

**Education plan**

An effective education plan (see Appendix F) is critical to staff acceptance of and willingness to use an EMR (McLane, 2005). Early in the planning phases, staff needs to have realistic expectations of the process and the end result (Lorenzi et al, 2009). The Staggers Nursing Computer Experience Questionnaire (SNCEQ) will be administered during the December 16 meeting to assess staff attitudes and readiness, and aid in increasing communication and training around those areas of identified need (Kushniruk & Patel, 2004). Education will employ multiple modalities to fit different user needs, including computer tutorials as well as face to face, small group and hands-on training (Kitzmiller et al., 2006).

Training is most effective when it is gradual and incremental (Lowes, 2004). Biweekly committee meetings will occur until the Go Live date in order to create new workflow processes, build templates and address any identified staff needs. The clinic super users will undergo additional training at an offsite PF seminar in January so that they can assist in training the rest of the staff. Each staff member will complete PF tutorials on modules specific to their job function by Friday, February 3.

DRS will be employed for hands-on training of the PF modules. In order to limit distractions and loss of productivity, training for Phase One implementation will occur on Saturday, February 4, 2012 while the practice is closed to patients (Lowes, 2004). Scheduling training within a week of Go Live is critical for knowledge retention (Pennell & Fishman, 2011). Training will include workflow simulations with mock live role-plays, so that the entire clinic can test the software and pilot newly redesigned workflows, identifying any last minute glitches before Go Live (Pennell & Fishman, 2011). Phase Two training will take place after hours on Tuesday, February 21, again limiting productivity loss. A brief evening training is sufficient as it will only cover two modules and will only involve providers and MA’s, not front office staff. The DRS consultant will be employed for a total of ten hours at the rate of $70/hour for Phase One and Phase Two training.

Post implementation, super users will continue to assess staff’s proficiency with PF as well as the efficiency of new workflows, providing additional training and support as needed. The super users themselves will need ongoing training (Lowes, 2004), and will subscribe to PF’s *electronic whitepapers* as well as attending occasional user conferences (PF, 2011c). All staff may utilize PF’s 24-hour support line as needed (PF, 2011e).

**Evaluation Plan**

An evaluation plan must be in place throughout all stages of the implementation process to avoid a final system that is unable to achieve the expected functionality (Coiera, 2003). When evaluating the usability of the system, a set of objectives are considered in order to achieve better patient care, such as simplifying the current method, improving the efficiency of the practice, streamlining of medical records with better accessibility and usability of information technology, and complying with current legal regulations (Sanson-Fisher, 2004).

The stages of the implementation process are continuously evaluated using a combination of formative and summative approaches (Coiera, 2003) and the usability testing tool (Kushniruk & Patel, 2004). Using a formative assessment to define the clinical needs of NNPP, a user-centered design will be followed (McGonigle & Mastrian, 2009). As a small sized family practice, all end-users will be evaluating the system, although the super users will communicate any struggles to the system developer. The SNCEQ, as previously discussed, will be used prior to implementation to evaluate user’s current attitude towards the use of EMR related to computer experience, age, and prior EMR experience (Kushniruk & Patel, 2004).

When ready to implement the new EMR system, usability testing will be done at the actual office using a doctor-patient-computer interaction for two weeks (Kushniruk & Patel, 2004). In order to identify possible problems with the system, the heuristic evaluation tool will be used (McGonigle & Mastrian, 2009). By analyzing the data collected from each user, the implementation committee can develop suggestions for improvement or customization of the PF templates (Kushniruk & Patel, 2004). Post-implementation period will be evaluated continuously to further assess users’ satisfaction and current issues with the system, as well as usefulness and further IT support needed (Pennell & Fishman, 2011). After thirty days of interaction with the system, the Questionnaire for User Interaction Satisfaction (QUIS) will be utilized to assess overall end-user satisfaction (Kushniruk & Patel, 2004).

A cost-benefit analysis (CBA) was done to evaluate the system’s worth, and to support the idea of implementing the system (Sujansky, 1998). When comparing net financial cost of implementing an EMR system versus benefit during a 5-year period, NNPP will see an estimated net benefit of $55,750 and will break even after two years of implementation (see Appendix H). Some of the disadvantages of changing to EMR include a big initial cost and training cost (i.e., equipment purchases, technical support charges), making it a user-friendly system to accommodate the user’s need, and the possibility of a system’s error and loss of information (Sujansky, 1998). The advantages of transitioning into an EMR system, aside from ultimate cost savings, include maximum electronic storage, accessible data, fewer medical errors, legibility of records, patient confidentiality, easy access to billing codes, drug prescription assistance, and incorporation of reference information (Sujansky, 1998). After conducting a cost-benefit analysis, it is clear that the implementation of an EMR system will benefit NNPP by increasing efficiency and productivity, managing clinical information and improving patient care.

**Potential Issues**

Patient safety is the number one reason behind the existence of EMR systems, allowing health care professionals to have immediate access to patient’s updated information, thus reducing the risk for medical errors (Ash et al., 2004). Some of the following issues can be prevented if a user-centered design is in place during the interface and throughout the implementation of the system, followed by continuous evaluation before, during and after the Go Live phase (McGonigle & Mastrian, 2009). According to Ash et al. (2004), most errors are related to a discrepancy between the system and the real life demands of healthcare.

**Privacy**

Patient computer information systems (PCIS) are not suitable for highly interruptive environments (Ash et al., 2004). There is a high chance when working in multiple tasks in the healthcare setting to leave the computer signed on allowing accessibility of private information to the public. This is a difficult to prevent considering it is self-inflicted; however, continuous education regarding HIPAA’s privacy act and accountability can reduce the occurrence, as well as changing log in passwords every three months at a minimum (Ash et al., 2004).

**Security**

HIPAA’s security statement assures privacy when transmitting any electronic health information data among health payers and providers (HHS, 2011). According to Narayana Samy, Ahmad, and Ismail (2010), threats to security include sharing of passwords among employees and virus and spyware attacks to the system. PF (2011d) has a highly secure hosted environment, high levels of data infrastructure, virus protection, spam filtering and encryption measures. It also meets HIPPA requirements as access to data are reinforced by login passwords, strict user authentication and user inactivity locks (PF, 2011d).

**Ethical**

PF (2011d) ensures access by solid user authentication, and encrypted data using SSL/HTTPS in order to answer controversial issues such as who should have access to medical records, how long access is granted, and security questions such as loss of data and the misuse of data. PF has a security policy for their employees regarding access of internal data and backup data using encrypted raw EFS files, as well as software firewalls, malware and live audit trail tracks of user’s actions. The ethics of software developers will be implemented in NNPP, and electronic forms will be used for release of patient information as a responsibility to the public, patient, employers, and the profession itself (Alexander, 2006).

**Legal**

According to the American Health Information Management Association (AHIMA), it is important to follow federal and state laws regarding breach prevention and penalties. Potential issues concerning legality include privacy, security and compliance of patient’s medical record and possible risks of invalidating records due to unauthorized changes (AHIMA, 2011a). To avoid legal concerns, NNPP will follow a consistent privacy and security policy, building both the organization’s and patient’s trust. NNPP will utilize an electronic form (AHIMA, 2011b) for follow-up privacy and security discrepancies available at the AHIMA website (see Appendix G).

**Social**

Users’ resistance towards changing the current process is an issue that can be handled by continuous motivation and support (Lorenzi, Riley, Blyth, Southon, and Dixon, 1997). People can easily be overwhelmed by change but a successful implementation needs a positive approach, user involvement, and constant participation. User acceptance and satisfaction will measure usefulness of the system and the organization’s desired outcomes (Lorenzi et al., 1997).

**Ergonomics**

Having an entirely functional technological setting will result in spending the majority of the time in front of a computer and multitasking while acquiring patient’s information. Some of the physical potential issues are Carpal Tunnel Syndrome, eye strain, muscular strain and tension (UC Davis Health System, 2009). When applying ergonomics, NNPP is adapting the workplace to the worker, and training employees in the proper use of equipment such as workstation adjustments for EMR users and encouraging the use of frequent phrases to reduce typing (UC Davis Health System, 2009).

**Economics**

Economically, there is a startup cost to implement the software and hardware; however after running a CBA, it is obvious that there is a reduction in future costs and improved quality of care (Barlow, Johnson, & Steck, 2004). Possible economic issues are related to future maintenance and IT support; however, NNPP will have a net cost benefit when EMR is implemented. Practice Fusion (2011e) is free of charge, and provides free, live technical support.

**Conclusion**

This proposed EMR implementation for NNPP has been well thought out.  Achieved milestones currently demonstrate that the plan is on track with the developed timeline.  The Fact-Finding committee will be handing over the reins of control to the Implementation Committee and the super users at NNPP.  PF support staff will continue to assist NNPP as the practice moves through the meaningful use verification process.  This will assist NNPP with remaining eligible for receiving financial incentives.  It is anticipated that the implementation of Practice Fusion’s electronic medical record will be beneficial in many ways for the patients, staff and the New Nurse Practitioner Practice.

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| Appendix AEHR Meaningful Use Core-Set Criteria |
| Demographics (50%) | e-Prescribing (40%) |
| Vitals: BP and BMI (50%) | CPOE (30% including a med) |
| Problem list: ICD-9-CM or SNOMED (80%) | Drug-drug and drug-allergy interactions (functionality enabled) |
| Active medication list (80%) | Exchange critical information (perform test) |
| Medication allergies (80%) | Clinical decision support(one rule) |
| Smoking status (50%) | Security risk analysis |
| Patient clinical visit summary(50% in 3 days) | Report clinical quality(BP, BMI, Smoking, plus 3 others) |
| Hospital discharge instructions (50%)- or -Patients with electronic copy (50%) in 3days |

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| Appendix BEHR Meaningful Use Menu-Set Criteria |
| Drug-formulary checks (one report) | Summary care record at transitions (50%) |
| Structured lab results (40%) | Patients by conditions (one report) |
| Feed immunization registries(perform at least one test) | Feed syndromic surveillance(perform at least one test) |
| Send patient-specific education (10%) | Medication reconciliation (50%) |
| Send reminders to patients for preventative and follow-up care (20% > 65yrs. < 5yrs.) | Patient electronic access to labs, problems, meds and allergies (10% in 4 days) |

Appendix C

NNPP Office Layout Maps

Figure 1. Current NNPP Layout

Figure 2. Proposed NNPP Layout

Appendix D

Figure. Gassert Model for Defining Information System Requirements for Nursing



*Figure*. Reproduced from “Defining Information Requirements Using Holistic Models: Introduction to a Case Study,” by C. A. Gassert, 1996, *Holistic Nursing Practice, 11,* p. 68. Copyright 1987 by Carol A. Gassert.

Appendix E

Project Plan Timeline



Appendix F

Education Plan Timeline

|  |  |
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| Informational Staff Meeting: Staggers Nursing Computer Experience Questionnaire administered to all staff. Committees begin work on current workflow processes.  | December 16, 2011, 4:30pm |
| Current workflow processes due to PM | December 23, 5:00pm |
| Committee meetings- designing new EMR workflow processes | December 30, 12:00pm |
| Committee meetings-proposed EMR workflow processes due to PM. Begin work on customized templates | January 13, 2012, 12:00pm |
| All staff mandatory meeting- review and amend new workflow processes  | January 18, 12:00pm |
| Off-site Practice Fusion training seminar for the clinic super users | January 26 all day |
| Committee meetings- finalize customized templates | January 27, 12:00pm |
| Individual PF Education Modules due | February 3, 5:00pm |
| Phase One On-Site Training (documentation, scheduling, billing and messaging) with live workflow simulation  | February 4, 8-4pm |
| Phase Two On-Site Training (labs and e-Prescribing) | February 21, 5-7pm |

eeds Title as well. JM

Appendix G

 Privacy and Security discrepancy Form

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Individual Investigated: Entity Name (if tracked):** **Personnel Category (i.e., employed staff, contractual staff, volunteer, self-employed physician, business associate, etc.):** **Date(s) of Incident(s):** **Date Discovered:** **Method of Discovery (i.e., media, patient complaint, found on audit, internal staff report, etc.):** **Description of Incident (attach additional documentation if needed):****Sanctions Applied (if applicable):** **Date of Sanctioning:** **Risk Analysis and Need for Breach Notification of Patients:** **Comments:**

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| **Category Determination** (highlight or circle all applicable) *[Organizations can customize the category characteristics as desired with the extra cells provided]* |
| **Category 1 Factors** | Unintentional | Careless | Poor judgment | Lack of training/knowledge |
| **Category 2 Factors** | Deliberate | Unauthorized  | No known redisclosure | Trained; understood policy |
| **Category 3 Factors** | Deliberate | Unauthorized | Redisclosure occurred | Trained; understood policy |
| **Category 4 Factors** | Deliberate | Unauthorized | Redisclosed for malice or personal gain | Understood policy |

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| **Sanction Impacting Factors** (highlight or circle all applicable) *[Organizations can customize the category characteristics as desired with the extra cells provided]*  |
| **Factors Increasing Sanction Severity** | Multiple offenses | Harm incurred to victim(s) | Large number of victims | Large amount of data | High exposure to organization | Hampered investigation | Large expense incurred (i.e., breach notification) | Actions influenced others |
| **Factors Decreasing Sanction Severity**  | Occurred with good intentions (i.e., patient care, assist operations) | No harm to victim(s) | Volunteered /reported breach | Confessed/ cooperated with investigation | Showed remorse | Acted under direction of authority | Low cost to organization |   |

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| **Sanctions Applied** (highlight or circle all applicable) *[Organizations can customize the category characteristics as desired with the extra cells provided]*  |
| **Lesser Sanction** | Disciplinary process applied; Stage/Category #\_\_\_\_\_ | Made example of (i.e., health system newsletter dept/company meeting) | Probation for \_\_\_ weeks/months  | Suspended w/o pay \_\_\_\_ days/weeks |
| **Stronger Sanction** | Employment termination | Contract severance | Loss of medical staff privileges |   |

Instructions: Forward original document to: \_\_\_\_\_\_\_\_\_\_\_\_(List appropriate departments per policy)\_\_\_\_\_\_\_ Date submitted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Report completed by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*Discretion or adaptive use of this form may be necessary in circumstances of labor unions.*Copyright 2011 American Health Information Management Association* |

Appendix H

NNPP Cost Benefit Analysis

 **2011 (CY) 2012 2013 2014 2015 2016 Total**

**Costs**

Monitors (5) $ 866.00 $ 200.00 $ 200.00

Printer $ 455.02 $ 300.00

Licenses SonicWALL $ 154.00

Network Firewall $ 1,075.00

Scanner $ 1,020.00

Laptop (3) $ 4,803.39 $ 500.00

Optiplex Desktop (5) $ 5,323.40

Consultant/IT support (10 hrs) $ 700.00 $ 70.00 $ 70.00

Hardware installation $ 1,800.00

Transfer/Destruction paper charts $30,000.00

Total Costs (Future Value) $46,196.81 $ 270.00 $ 200.00 $ 870.00

Total Costs (Present Value) $46,196.81 $ 252.34 $ 174.69 $ 710.18 $ 47,334.01

**Year Index 0 1 2 3 4 5**

Discount Factor\* 1 1.07 1.1449 1.225043 1.31079601 1.402551731

**Benefits**

Medicare HITECH Incentive $18,000.00 $12,000.00 $ 8,000.00 $ 4,000.00 $ 2,000.00

Enhanced Revenues $ 5,000.00 $ 6,500.00 $ 8,000.00 $ 9,500.00 $11,000.00

Labor reduction $ 8,000.00 $ 8,000.00 $ 8,000.00 $ 8,000.00 $ 8,000.00

Total Benefits (Future Value) $31,000.00 $26,500.00 $24,000.00 $21,500.00 $21,000.00

Total Benefits (Present Value) $28,971.96 $23,146.13 $19,591.15 $16,402.25 $14,972.71 $103,084.19

**Present Value Discout Rate 7%**

PV Denominator 1.00 1.07 1.14 1.23 1.31 1.40

**Cost Benefit Analysis C/B ratio Payback (yrs) (months)**

Total PV Benefits $ 103,084.19  **0.5** **2.3** **27.6**

Total PV Costs $ 47,334.01

**NET BENEFIT $ 55,750.18**

\*Discount Factor equates to how much less the cash flow is worth because they are in the future.