

Use of the Electronic Health Record in Private Medical Practices

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- Brief background.
- United States of America (USA) spends over \$2 trillion on health care. This amounts to 16% of our Gross Domestic Product (GDP), resulting in \$6,697 per person.
- Other countries' health care spending accounts for much less of their GDP. For example Switzerland 10.9%, Germany 10.7% and France 9.5%.

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- Only about 15% of our physicians use Electronic Health Records to manage the patient's health information.
- The European Union's average of 29% is just about double that of the United States. Some of the countries in the European Union have made significant advancement in the use of the EHR: Sweden 90%, Netherlands 88%, and Denmark 62%.

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- The health care industry within the United States has lagged behind in the
 1. Adoption
 2. Integration
 3. Universal utilization of the EHR.

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- Several factors contribute to this dilemma.

As Warner V. Slack, M.D. (1997, p.ix) states, “a humanizing influence on the practice of medicine helps patients and their families maintain better health, manage medical problems when they occur, seek and use health care facilities in an enlightened manner, and participate as partners with clinicians in medical decisions that can both improve quality and reduce the cost of medical care.”

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1. Fear of losing personal interaction with the patient.
2. Decision making power.
3. Amount, mode, quantity and source of information can be cause for concern.
4. No guarantees of improvement in quality of care.
5. Investment in and financing of the EHR.

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- Status of Electronic Health Record in Pennsylvania:
- The eHealth Initiative and the Foundation for eHealth Initiative were formed in the State of Pennsylvania to encourage adoption of information technology, and especially the EHR to bring about improvements in quality, safety and efficiency of health care for Pennsylvania residents.
- This effort was identified as Pennsylvania eHealth Initiative, 2007.

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The initiative report points out the following important issues which need to be addressed:

1. Patient privacy and confidentiality.
2. Care transformation/process excellence.
3. Interoperability of health information technology (HIT) applications.
4. Common statewide health information exchange (HIE) infrastructures.
5. Clinical decision support.

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- The Prescription for Pennsylvania by Pennsylvania Governor Mr. Edward G. Rendell (2007, p28) stated, “Electronic health records are known to reduce errors by making patient information more clear, complete and available to health care providers in a more timely manner, so quicker and more accurate decisions can be made.”
- Governor also issued an executive order to form Health Technology Commission by December 31, 2007.

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- Need for Study:
 1. A mandate by the State of Pennsylvania legislation for the EHR adoption.
 2. Research has indicated that no such studies have been done in the State of Pennsylvania
 3. Knowledge about the role of technology as a tool for improving productivity and profitability needs to be spread among physicians.
 4. Lack of knowledge about the EHR creates a need to educate physicians of the usefulness of technology and to recommend educational strategies to support the learning process of adopting technology.

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- Purpose of the study:
- The purpose of this study is to investigate the use and understanding of the EHR among a group of physicians in Allegheny and Westmoreland Counties.

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- Research questions:
 1. Are there different practice characteristics among physicians which contribute to the EHR deployment at a medical practice?
 2. Are educational interventions related to the adoption of EHR by physicians?
 3. Do physicians believe the EHR can contribute to improvements in the quality of care?
 4. Do physicians believe the EHR can improve the practice productivity?
 5. Do physicians believe the EHR can improve the practice profitability?

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- Research methodology:
- A survey instrument was adopted from the original survey by Simon, S. R. Massachusetts survey of physicians and computer technology.
- Modified survey instrument consisted of six sections:
 1. Practice characteristics: 8 questions.
 2. Health information technology: 8 questions.
 3. Computers and health care: 1 question.
 4. Financial considerations: 4 questions.
 5. The office practice environment: 1 questions.
 6. Personal characteristics: 5 questions.

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- Target population comprised of the physicians practicing within two Western Pennsylvania counties.
- The data was collected by sending out the survey instruments to participating physicians via electronic or paper mail.
- Allegheny County 1831 physicians members of the Allegheny County Medical Society.
- Westmoreland County 250 physicians. Names were tabulated through the regional hospital medical staff directory.

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- Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) version 16.
- Limitations:
 1. The research was conducted only within the two western Pennsylvania counties.
 2. It is possible that more than one physician within the same physician practice or group completed the study and yet projected different results.
 3. Limited practice specialties.
 4. Survey was limited to physicians only.

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- Data collection results: Allegheny County 12%
Westmoreland County 20.8%
- Results:
- Physicians spent over 75% of their time in outpatient practice.
- 36.4% practiced in single specialty group or partnership.
- 28.7% were full owners of the practice.

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- 66.5% of the physicians were located in Allegheny county.
- Patient demographics showed 75.58 % are white patients and 15.74% are African American patients and 2.17 % are Hispanic patients.

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Obtaining lists of patients through medical record system (paper and/or electronic)

List of Patients by	Very Easy	Somewhat Easy	Somewhat Difficult	Very Difficult	Cannot Generate
(A) Diagnosis or health risk	27.8%	27.8%	14.4%	14.9%	14.9%
(B) Laboratory results	11.8%	11.2%	16.0%	16.0%	44.9%
(C) Medication they currently take	19.0%	12.8%	10.8%	20.0%	37.4%

(Due to rounding, each row may not add up to exactly 100%)

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- Question 2: This question was intended to measure whether increasing the physicians' knowledge and understanding of the technology would lead to its adoption.
- The analysis showed some significant opportunities for education and training.
- For example: The Pearson Correlation Coefficient of .227 (Significant at the $p < 0.01$ level) for the start-up financial cost is significant. To address this, financial analysis, investment cost, break-even analysis, profit margin, and return-on-investment scenarios and formulas can be developed to educate physicians.

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- Other factors which also showed educational opportunities were for training, and ongoing cost of maintaining EHR.
- Question 3 addresses if EHR can contribute to improvements in the quality of care?
- Based on the survey responses quality of care and patient privacy had same coefficient of .233 (significant at the $p < 0.01$ level) and efficiency of providing care with a coefficient of .195 sets close relationship between use of computers, EHR and improvements brought about in the quality of patient care.

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- Question 4 relates to contribution of EHR in improving practice productivity. The strongest correlation of .192 (significant at the $p < 0.01$ level) indicated that a relationship may be established between the physician utilizing EHR and physicians actively pursuing ways to improve quality and in turn improving productivity. Self-confidence also showed similar results.
- Overall all of the factors for this question showed significant correlation, thus showing that physicians do believe that EHR does contribute in improving productivity.

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- Research question 5 tested to see if EHR can improve the practice profitability.
- Physicians believed that corporate income has the highest impact from the use of technology. It showed a coefficient of .210 (significant at the $p < 0.01$ level).
- Impact of technology on personal income showed a coefficient of -.049 (1-tailed) showing that physicians do not believe that they will realize higher income due to the use of EHR.
- On the question of availability of financial resources physicians believed that they had no resources available to invest in EHR.

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- Physicians also believed that they were not willing to invest more than \$10,000.00 per physicians to acquire EHR and install a new computer system.

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- Conclusion: The study survey results show the physicians have a good understanding of the importance and advantages of having EHR and information technology. They also believe that EHR and information technology can improve quality of care, productivity and corporate income but do not contribute to their personal income.

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Thank you for your attention.