Clinical Safety & Effectiveness

Cohort #10

Implementation of an Electronic Medical Record in an Obstetrics Emergency Room / Triage Setting

CENTER FOR PATIENT SAFETY & HEALTH POLICY

UT Health Science Center
SAN ANTONIO

Educating for Quality Improvement & Patient Safety
Disclosure

Mark S. Funk, MD has not relevant financial relationships with commercial interests to disclose.
The Team

• **Physicians**
  – CS&E Participant
    • **Mark Funk MD** - Medical Director Women’s Ambulatory Service
  – Team Members
    • **Elly Xenakis MD** - Chief of Maternal Fetal Medicine
    • **Tiffany Remsing MD** - Chief Resident Ob/Gyn
    • **Brian Szender MD** - PGY3 Ob/Gyn
    • **Bernard Lynch MD** - PGY1 Ob/Gyn
The Team (cont.)

• **Nursing**
  • Chris Hallgren RNC PCC - Labor and Delivery

• **Data Collection**
  • Camerino Salazar MS Director - Quality and Outcomes, UHS

• **Information Technology**
  • Irene Puente MSN RN - Clinical Informatics Specialist UHS

• **Sponsor Department**
  • Robert Schenken MD - Chair Department of Ob/Gyn
A Special Thank You

• **Camerino I. Salazar, MS** - Director, Quality and Outcomes, Texas Diabetic Institute, University Health System

• **Hope Nora, PhD** - Clinical Data Coordinator, Center for Patient Safety and Health Policy

• **Leticia Zuniga Bresnahan, MBA** - Project Coordinator, Center for Patient Safety and Health Policy
What We Are Trying to Accomplish?

**Aim Statement:** Develop an electronic documentation tool to be used in the University Health System obstetrics emergency room (OB Triage) and achieve provider acceptance of using the electronic documentation tool from 0% to 75% over a period of 4 months.
Project Milestones

• Team Created January 2012
• AIM statement created January 2012
• Team Meetings Monthly
• Background Data, Brainstorm Sessions, Workflow and Fishbone Analyses March-April 2012
• Interventions Implemented April 1, 2012
• Data Analysis May 25, 2012
• CS&E Presentation June 15, 2012
Background

• Providing appropriate communication in an “emergency room” setting in consideration of patient safety, provider satisfaction, and continuity of care

• Physical locations of concern:
  – UHS OB Triage
  – Labor and Delivery
  – Antepartum/postpartum wards
  – Ambulatory Clinics
Background (Cont.)

**OB Triage** – Emergency room setting which was dependent on paper documentation as the main communication tool.

- Paper documentation flows with the patient to use on the labor deck, antepartum/postpartum and a “copy” sent to referring provider/clinic
Background

- Multiple UHS Clinic Locations
- All Clinic Locations are Sunrise Compatible
**OB Triage/Admissions Note Paper Document**
QI Tools Utilized

• Brainstorming
• Flowchart
• Fishbone
• Pre and Post Surveys
Pre-Project Flow Diagram

Patient in OB Triage

Paper OB Admission History and Physical

Disposition

Outpatient Clinic

Labor and Delivery

Antepartum/Postpartum

Copy/Fax/On-Base

Paper OB Admission History and Physical

Paper OB Admission History and Physical
Fishbone Diagram
Cause and Effect

System
- Time required to get logged into system
- System maintenance
- Lack of computer stations
- Limited IT Programming
- Provider resistant to change
- No multiple oversight of notes
- Loss of team approach of triage
- At elbow support

Technology
- Cumbersome entry fields
- Improvised technology for report
- Standard note requirements vs free text
- Lag in data entry and retrieval times
- Missing notes/filing errors
- Illegible handwriting
- Data entry/field issues
- Unable to identify missing information readily

Human Resources

Human Error

Potential for Compromised Patient Safety and Continuity of Care
Baseline Readiness for Process Change Assessment

• Determined satisfaction level with current paper based process
• Based on responses, determined what aspects of paper tool needed to be addressed in the electronic tool
• Assessed readiness for a conversion to an electronic tool
• Results drove the design of the electronic tool
• Assessment conducted via web – representative sample of the targeted end users was surveyed as reflected on following two slides
Figure 1: Clinical Characteristics of Survey Respondents

Source: OB HPI Electronic Documentation Survey
Figure 2: Clinic Locations of Survey Respondents

Source: OB HPI Electronic Documentation Survey
• As a provider in Labor and Delivery I feel that the paper-based OB Admission History and Physical can **easily be referred to when the patient is on the Labor Deck.**
As a provider in Antepartum/Postpartum Services I feel that the paper-based OB Admission History and Physical can easily be referred to when the patient is in the OB Ward.

Series 1

- Not Applicable: 23.70%
- Strongly Agree: 11%
- Agree: 34.20%
- Disagree: 18.40%
- Strongly Disagree: 13.20%
• The information necessary for **appropriate follow-up and care** found within the paper-based OB Admission History and Physical is complete...

**Series 1**

- **Hardly ever**: 5.60%
- **Some of the time**: 16.70%
- **Most of the time**: 77.80%
• The information provided within the paper-based OB Admission History and Physical to referring clinic/provider either through fax or provided to the patient directly is clearly written or legible...

**Series 1**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardly ever</td>
<td>19.40%</td>
</tr>
<tr>
<td>Some of the time</td>
<td>41.70%</td>
</tr>
<tr>
<td>Most of the time</td>
<td>38.90%</td>
</tr>
</tbody>
</table>

*Series 1*
• I believe implementing or putting this form in the Electronic Medical Record can help clinical providers/staff to...
  – Avoid injury to patients from the care that is intended to help them...

```
Strongly Agree: 35.1%
Agree: 67.60%
Disagree: 16.20%
Strongly Disagree: 0.00%
```

Series 1
• I believe implementing or putting this form in the Electronic Medical Record can help clinical providers/staff to...
  – **Reduce patient wait time**...
• I believe implementing or putting this form in the Electronic Medical Record can help clinical providers / staff to...
  – Improve efficiency of care...

![SurveyMonkey chart showing responses to a survey question. The chart shows the percentage of responses for Strongly Agree (18.9%), Agree (40.5%), Disagree (32.4%), and Strongly Disagree (8.1%).]
• I believe that having an electronic version of the paper-based OB Admission History and Physical in the Electronic Medical Record will provide the opportunity to improve care coordination between providers and the patient.

SurveyMonkey

Series 1

- Not Applicable: 0.00%
- Strongly Agree: 35.1%
- Agree: 56.80%
- Disagree: 5.40%
- Strongly Disagree: 0.00%
• I believe implementing or putting this form in the Electronic Medical Record can help clinical providers/staff to...
  – **Provide a standardized level of care...**

```plaintext
Series 1

- Strongly Agree: 25.0%
- Agree: 69.40%
- Disagree: 5.60%
- Strongly Disagree: 0.00%
```

• **I would support** replacing the current paper-based version of the OB Admission History and Physical with one developed for use with the Electronic Medical Record.

![SurveyMonkey](https://example.com/surveymonkey.png)

**Series 1**

- Not Applicable: 0.00%
- Strongly Agree: 35.1%
- Agree: 37.8%
- Disagree: 16.2%
- Strongly Disagree: 10.8%
Intervention

• Keeping in mind the features of the paper-based tool that were important to the target audience, we worked with IT to design a tool that incorporated these features

• Anticipating that as long as the paper-based tool was available that it would continue to be used, we removed this option and only the electronic tool was made available

• After 8 weeks of use, a survey was distributed to assess level of acceptance
OB Triage/Admissions Note EMR Full Text
**OB Triage/Admissions Note EMR Report**

**OB Triage Report**

**Patient Information**
- **Name:** [Redacted]
- **Date:** April 23, 2011
- **DOB:** [Redacted]
- **Address:** [Redacted]
- **Race:** [Redacted]
- **Insurance:** [Redacted]
- **Allergies:** [Redacted]
- **Disability:** [Redacted]
- **Medical History:** [Redacted]
- **Social History:** [Redacted]
- **Presenting Complaint:** [Redacted]
- **Past Medical History:** [Redacted]
- **Family History:** [Redacted]
- **Physical Exam:**
  - **Weight:** [Redacted] lbs
  - **Height:** [Redacted] ft
  - **BP:** [Redacted] / [Redacted] mmHg
  - **Heart Rate:** [Redacted] bpm
  - **Respiratory Rate:** [Redacted] bpm
  - **Pulse Oximeter:** [Redacted]

**Laboratory Tests**
- **Hematology:** [Redacted]
- **Chemistry:** [Redacted]
- **Urinalysis:** [Redacted]
- **Immunology:** [Redacted]
- **Bacterial Culture:** [Redacted]

**Imaging Studies**
- **Ultrasound:** [Redacted]
- **CT Scan:** [Redacted]
- **MRI:** [Redacted]

**Diagnosis and Plan**
- **Diagnosis:** [Redacted]
- **Plan:** [Redacted]

**Medications**
- **Prescribed:** [Redacted]
- **Allergies:** [Redacted]

**Consults/Referrals**
- **Consult:** [Redacted]
- **Referral:** [Redacted]
Post-Project Flow Diagram
Post-Intervention Survey Impact/Results

- Overall, I believe with continued improvements the EMR OB Triage/Admission Note will strengthen delivery of quality care and safety for patients that present in OB Triage.
Figure 3: Impact/Results Percent Acceptance

Source: OB HPI Electronic Documentation Survey
Return on Investment

**Costs:**
- Upfront development of electronic tool by IT
- Time and effort of the team
- Survey Monkey

**Savings:**
- Mitigation of errors due to delay in access to electronic chart
- Impact on decision making due to immediate access to OB report
- Medical error reduction – thus savings in unnecessary care, potential litigation, hospital and provider reputation
Lessons Learned/ Next Steps

• Importance of IT support
• Validation of hypothesis through needs assessment survey
• Learning curve with implementation of electronic tool
• Counter balance measure-Track effect of change in process on patient wait time/work-flow of providers
THANK YOU!