



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 CENTERTM

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



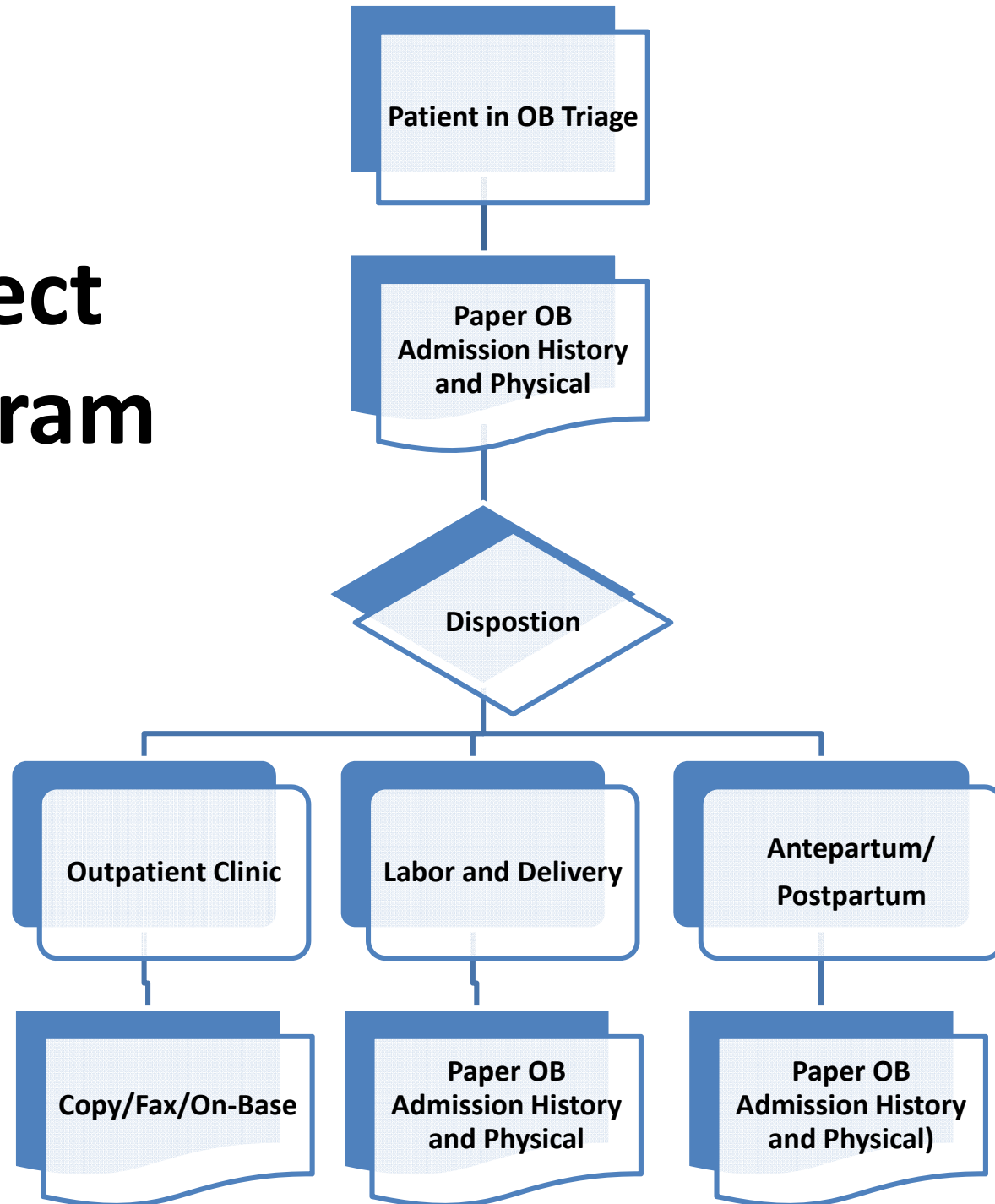
We're in your neighborhood to serve you better

- | | | |
|---|---|---|
| <p>1 University Hospital
4502 Medical • (210) 358-4000</p> | <p>7 University Dialysis – Southeast
1407 Fair • (210) 358-5780</p> | <p>13 University Health System – Kenwood Clinic
302 Dora • (210) 358-8255</p> |
| <p>2 University Family Health Center – Northwest
7726 Louis Pasteur • (210) 358-8820</p> | <p>8 University Dialysis – South
3750 Commercial, Site 900 • (210) 921-5620</p> | <p>14 University Health System – Naco Perrin Clinic
4020 Naco Perrin • (210) 358-8255</p> |
| <p>3 University Family Health Center – North
302 W. Hector • (210) 358-0800</p> | <p>9 University Family Health Center – Southeast
1055 Ada • (210) 358-5515</p> | <p>15 University Health System – Old Hwy. 90 Clinic
911 Old Hwy. 90 • (210) 358-8255</p> |
| <p>4 University Family Health Center – Southwest
7121 S.W. 36th Street • (210) 358-5100</p> | <p>10 University Health System –
Bob Ross Senior Center
2219 Babcock • (210) 207-5300</p> | <p>16 University Health System – Salinas Clinic
630 S. General McMullen • (210) 358-8255</p> |
| <p>5 University Center for Community Health/
Texas Diabetes Institute
701 S. Zarzamora • (210) 358-7000
University Dialysis – West
701 S. Zarzamora • (210) 358-7300</p> | <p>11 University Health System – Eastside Clinic
210 N. Rio Grande • (210) 358-8255</p> | <p>17 University Health System – South Flores Clinic
7902 S. Flores • (210) 358-8255</p> |
| <p>6 University Health Center – Downtown
527 N. Leona • (210) 358-3400</p> | <p>12 University Health System –
Good Health Clinic
3401 Fredericksburg Rd. • (210) 358-8255</p> | <p>18 University Health System – Westend Clinic
1226 N.W. 18th Street • (210) 358-8255</p> |
| | | <p>19 University Health System – Zarzamora Clinic
4503 S. Zarzamora • (210) 358-8255</p> |

QI Tools Utilized

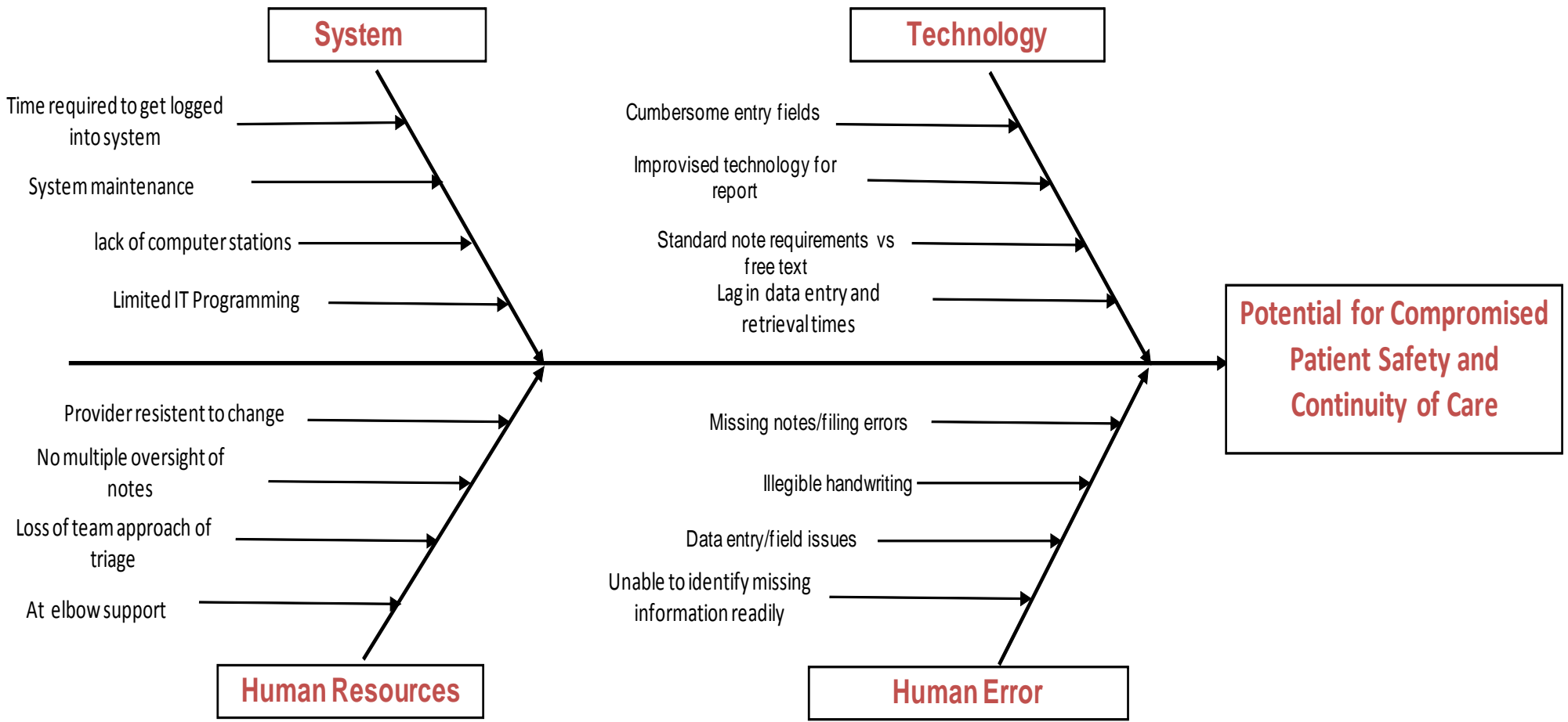
- Brainstorming
- Flowchart
- Fishbone
- Pre and Post Surveys

Pre-Project Flow Diagram



Fishbone Diagram

Cause and Effect



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

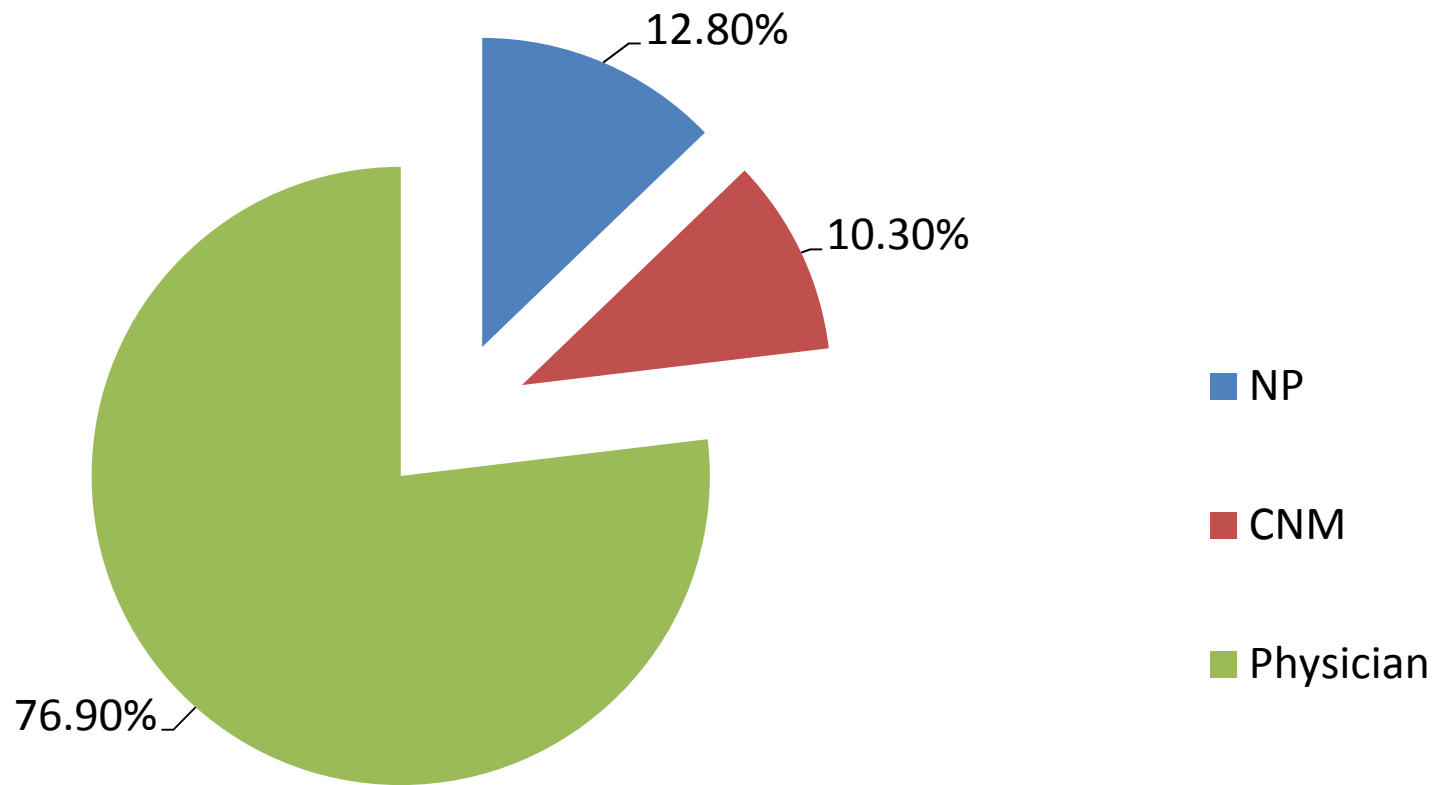
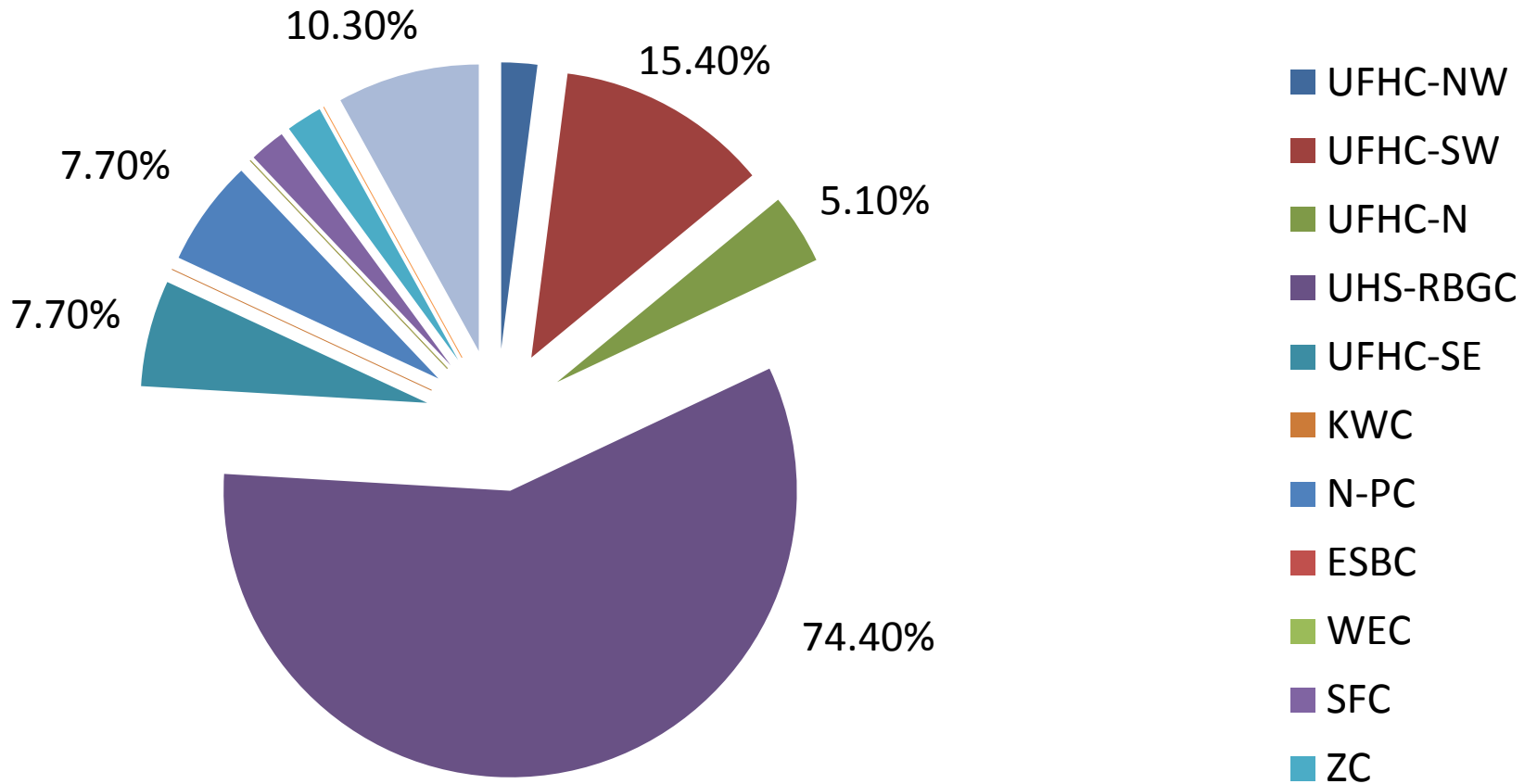
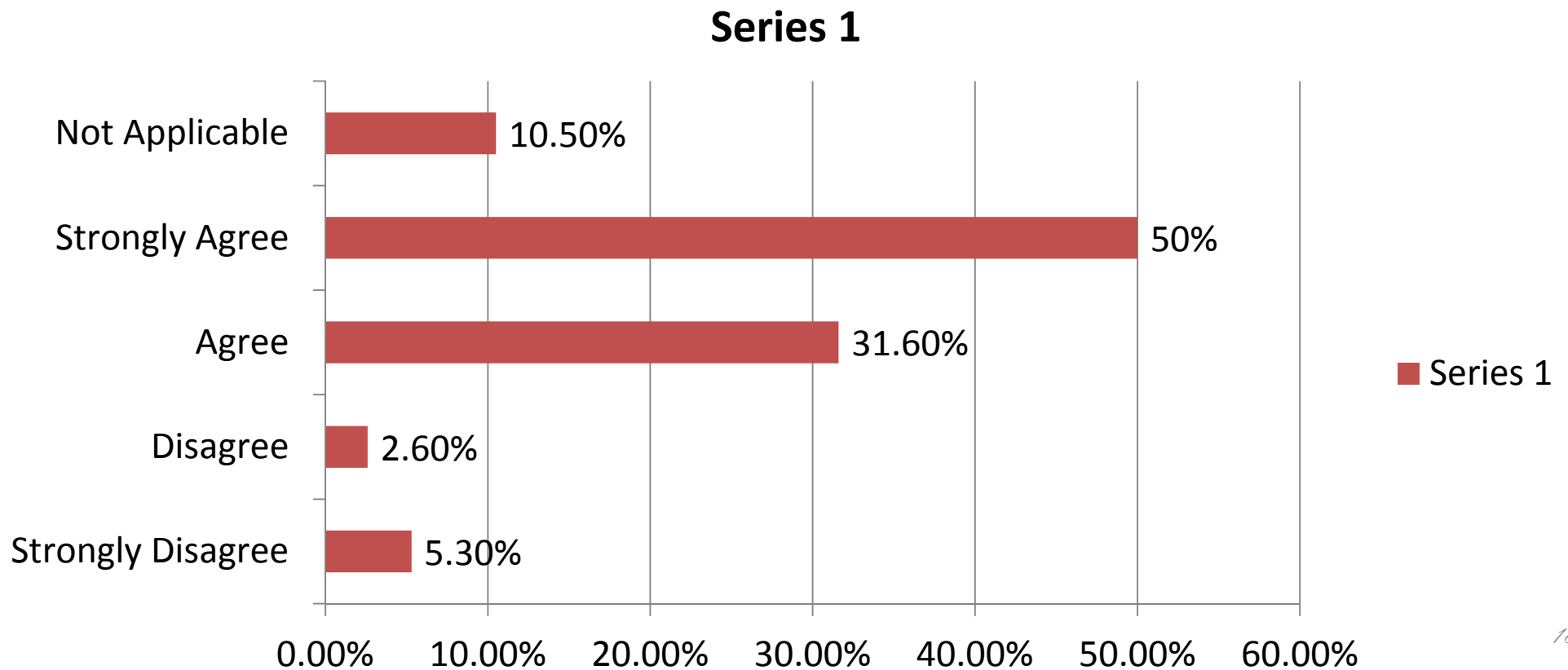


Figure 2: Clinic Locations of Survey Respondents





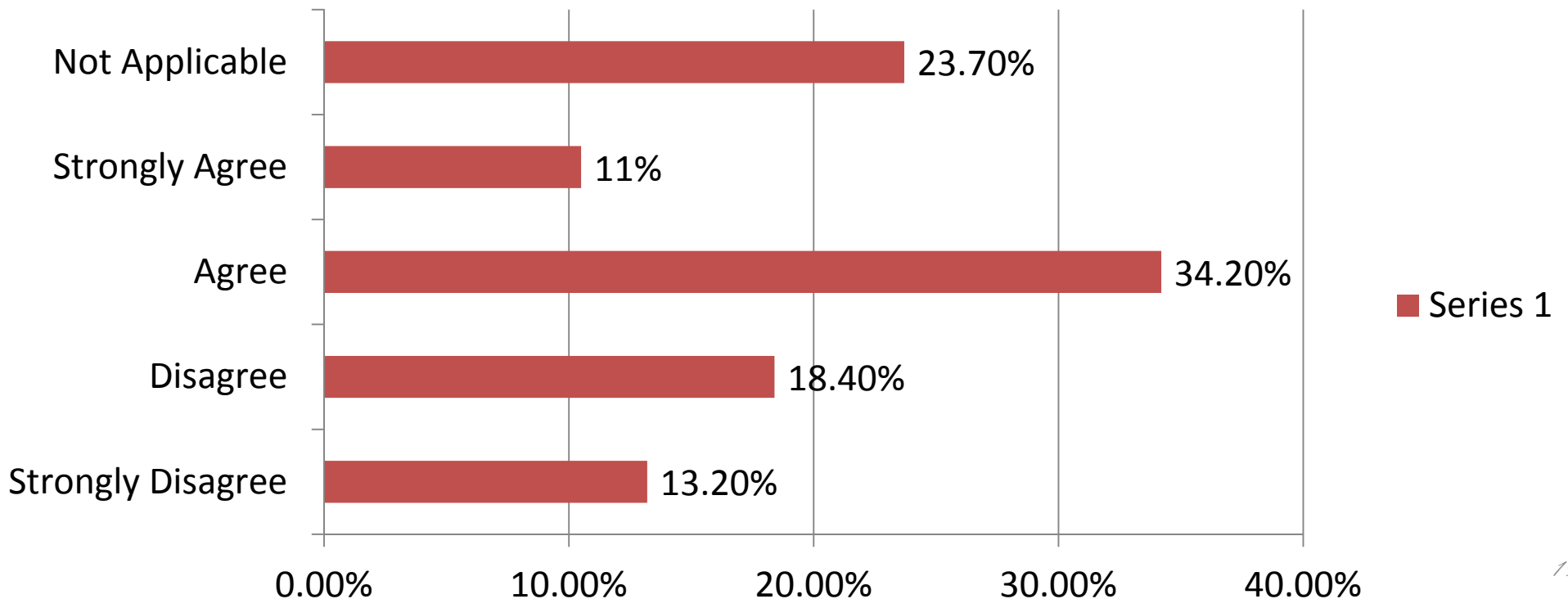
- As a provider in Labor and Delivery I feel that the paper-based OB Admission History and Physical can **easily be referred to when the patient is on the Labor Deck.**





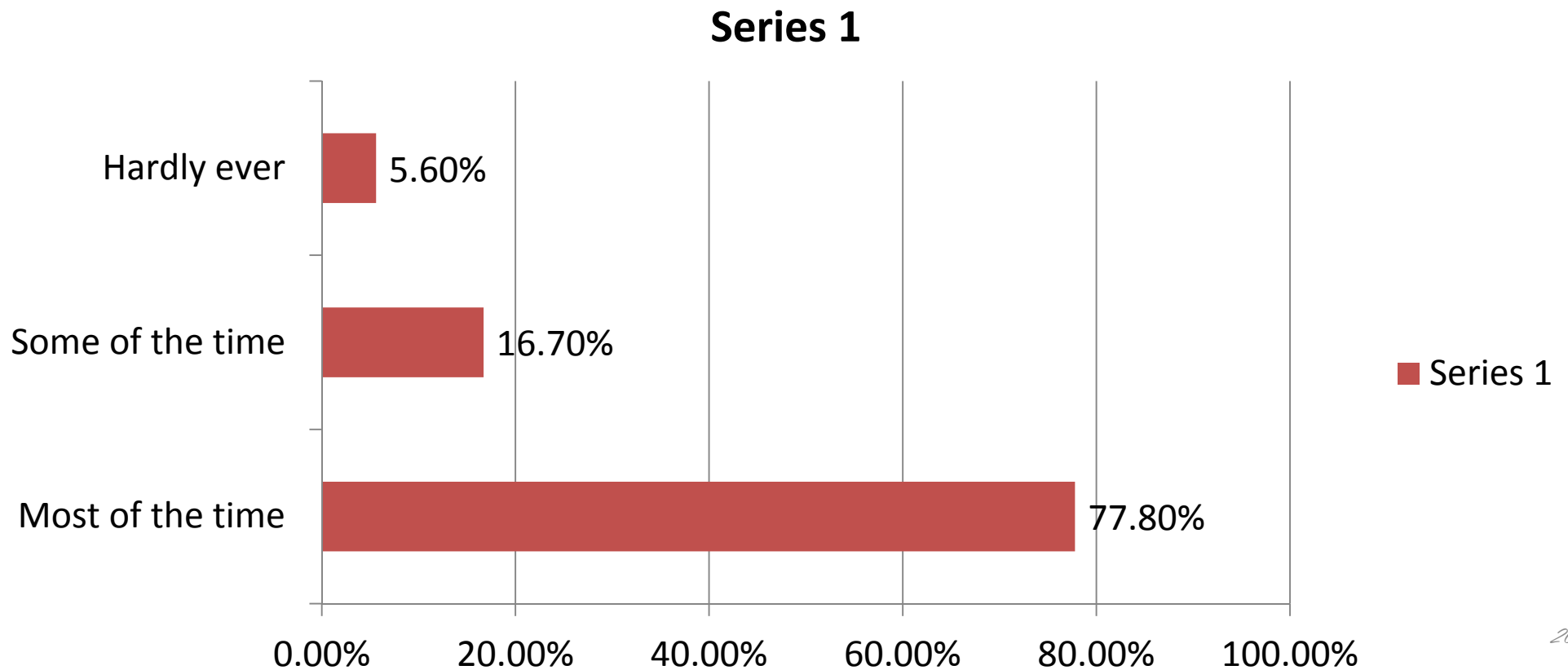
- As a provider in Antepartum/Postpartum Services I feel that the paper-based OB Admission History and Physical **can easily be referred to when the patient is in the OB Ward.**

Series 1



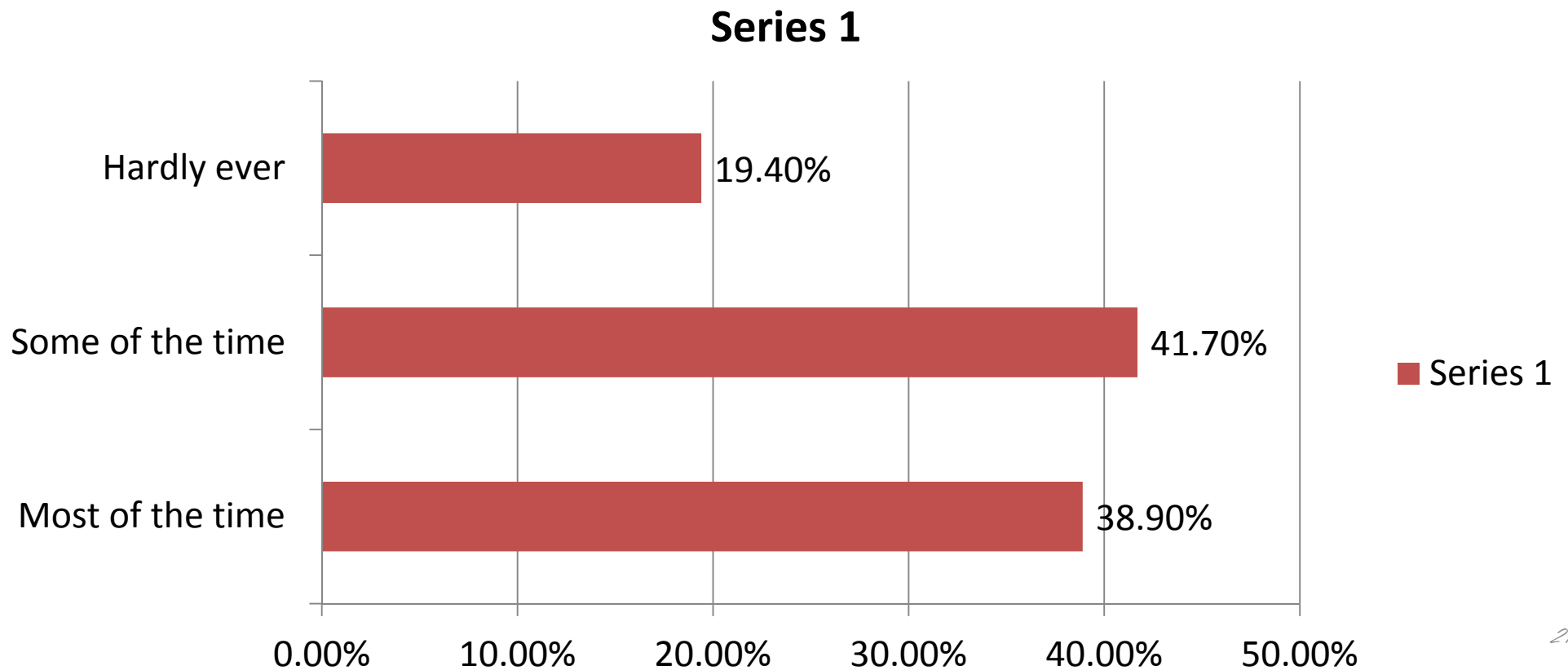


- The information necessary for **appropriate follow-up and care** found within the paper-based OB Admission History and Physical is complete...



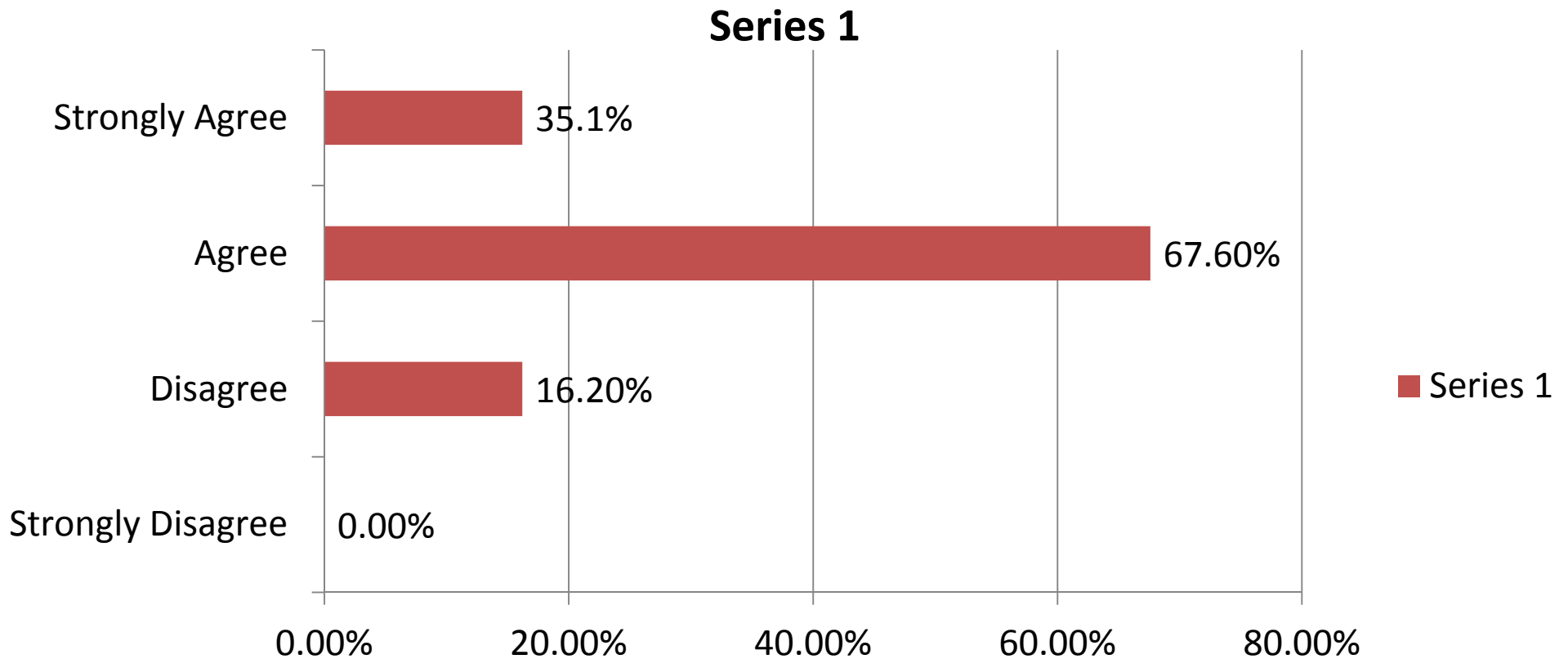


- The information provided within the paper-based OB Admission History and Physical **to referring clinic/provider** either through fax or provided to the patient directly is clearly written or legible...



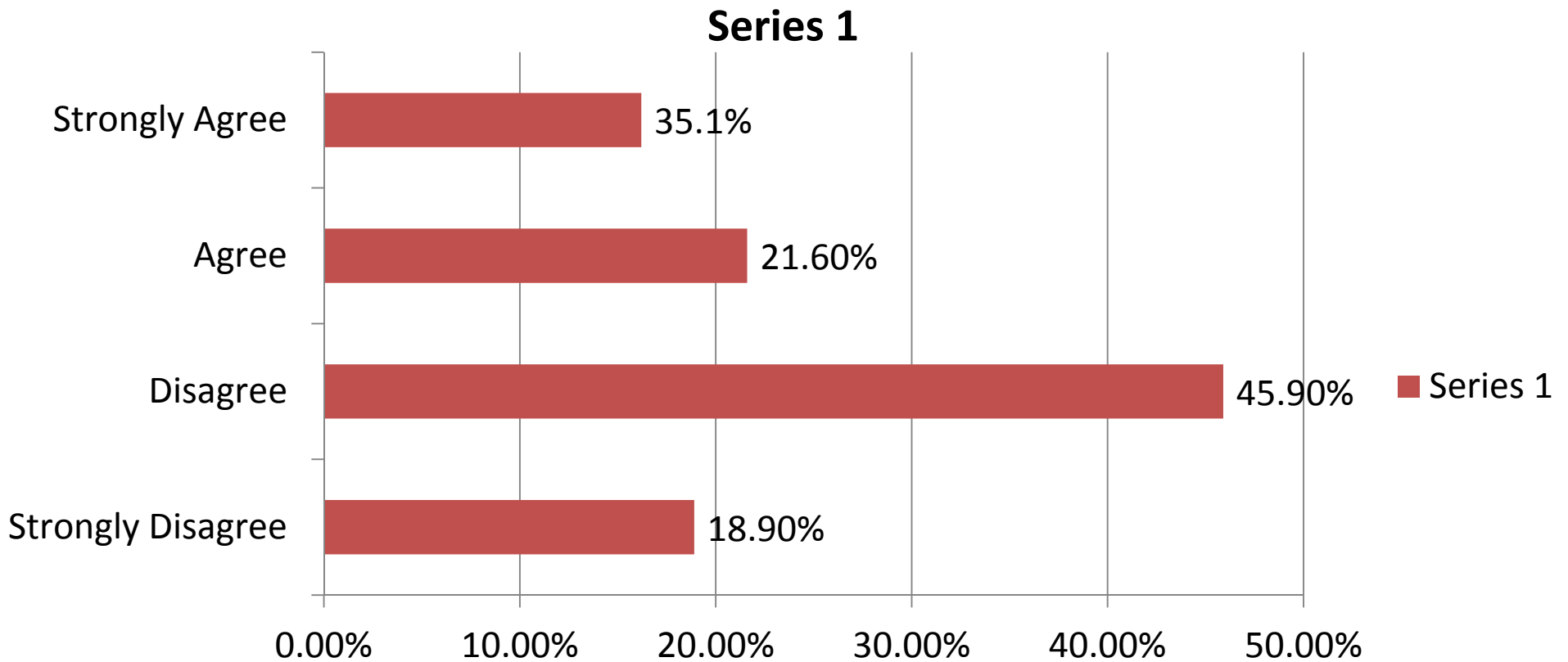


- I believe implementing or putting this form in the Electronic Medical Record can help clinical providers /staff to...
 - **Avoid injury to patients from the care that is intended to help them...**



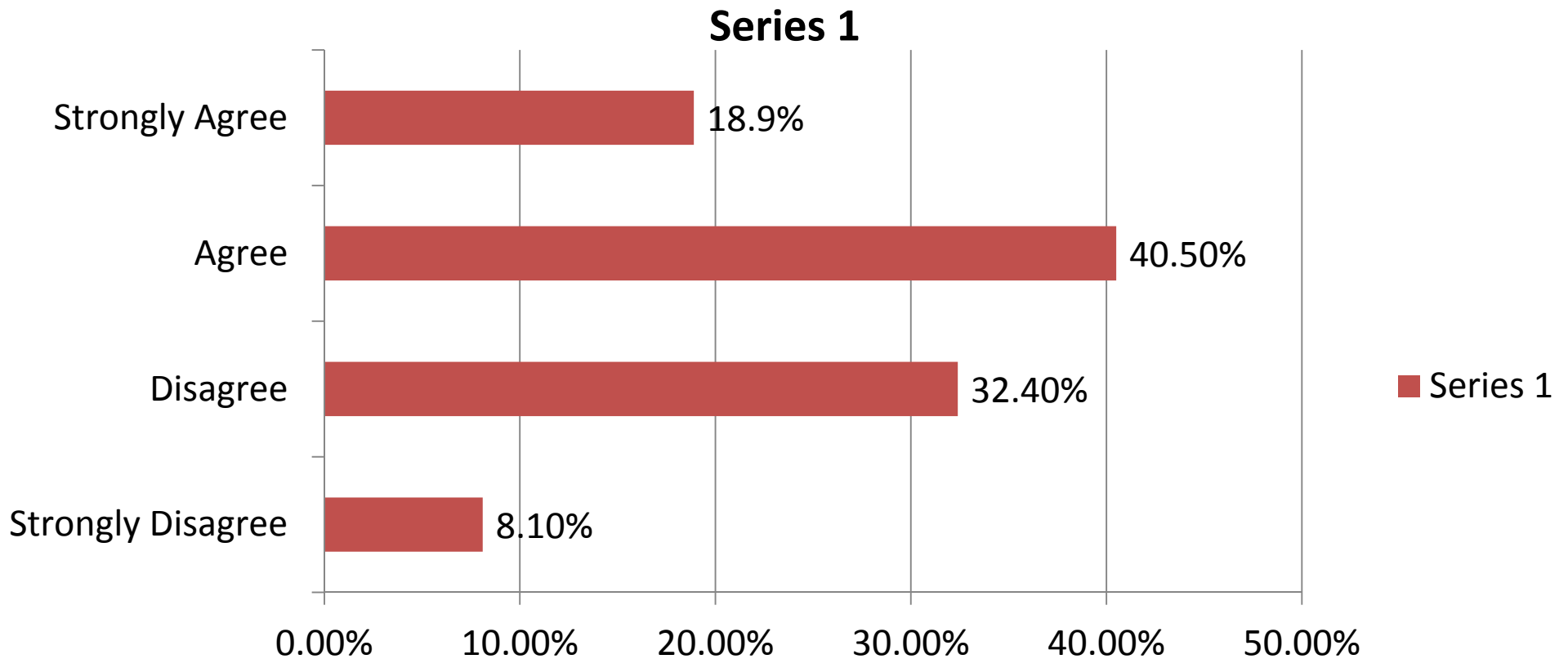


- I believe implementing or putting this form in the Electronic Medical Record can help clinical providers /staff to...
 - **Reduce patient wait time...**



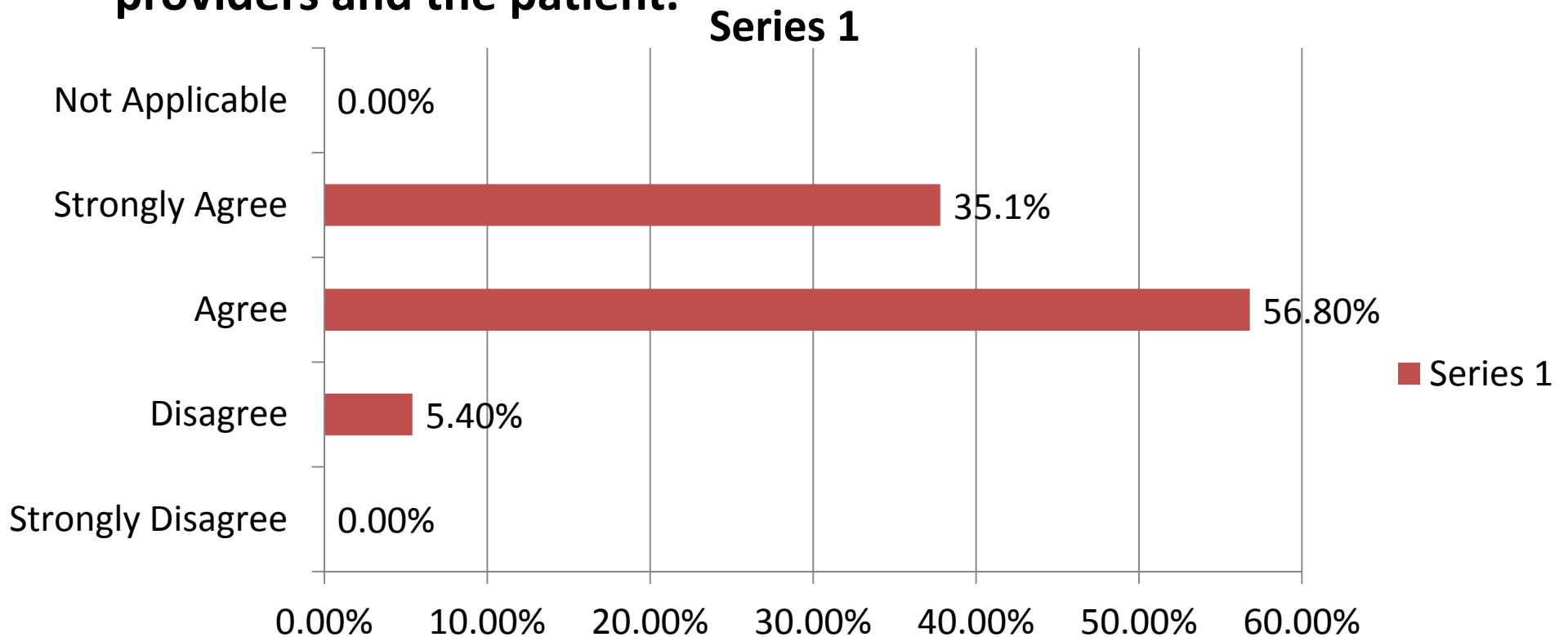


- I believe implementing or putting this form in the Electronic Medical Record can help clinical providers /staff to...
 - **Improve efficiency of care...**



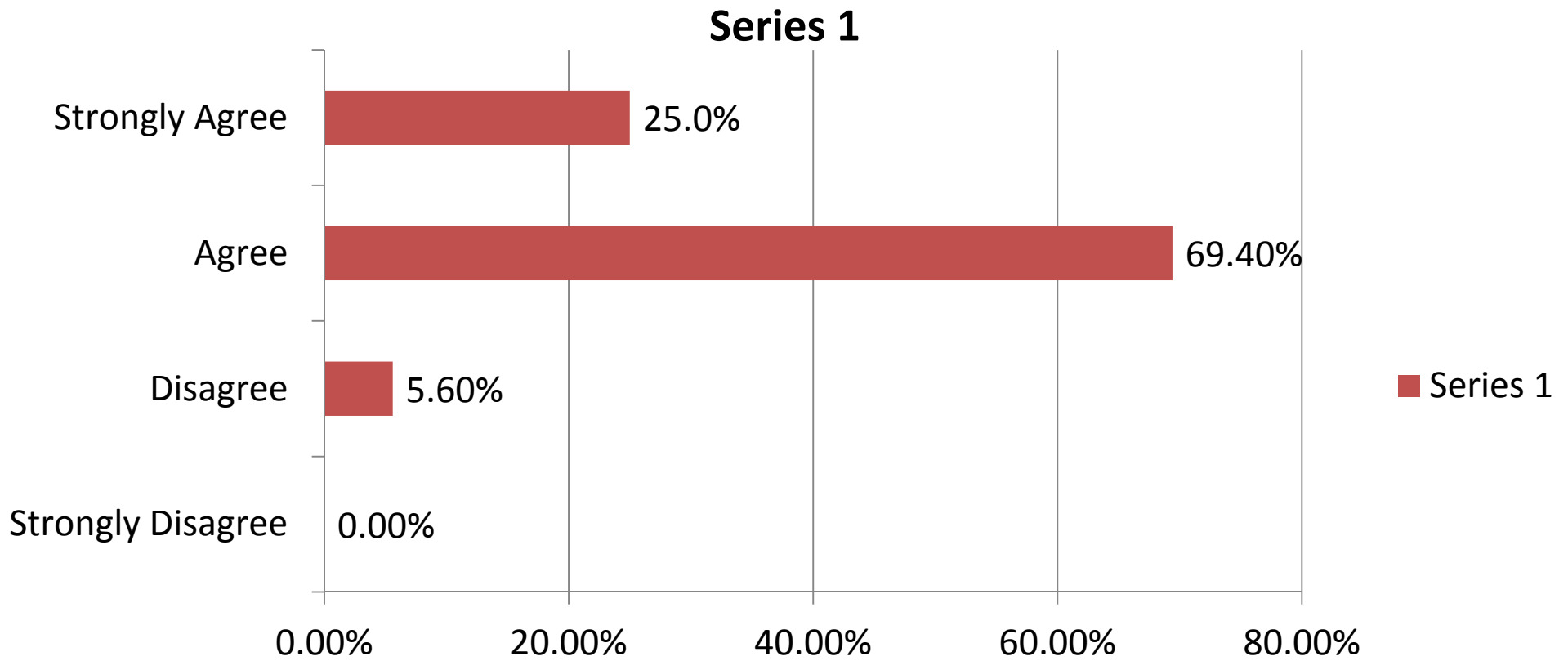


- I believe that having an electronic version of the paper-based OB Admission History and Physical in the Electronic Medical Record will provide the opportunity **to improve care coordination between providers and the patient.**





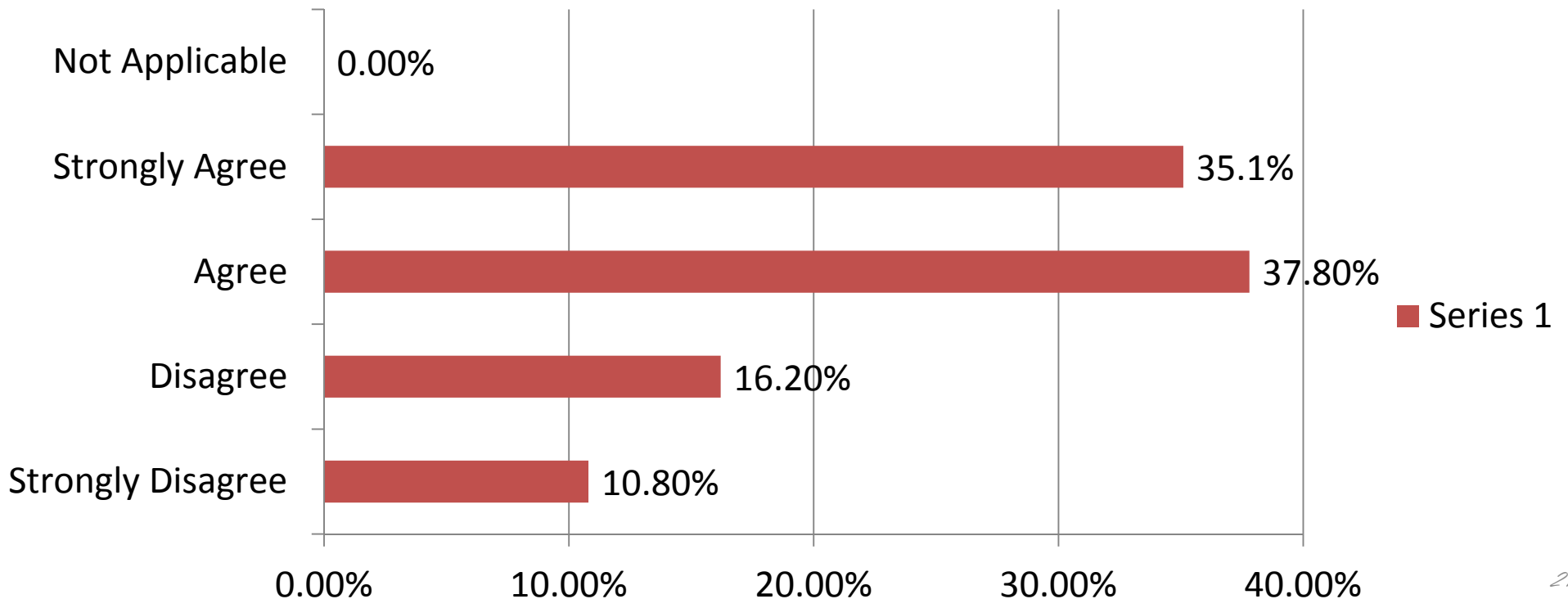
- I believe implementing or putting this form in the Electronic Medical Record can help clinical providers /staff to...
 - **Provide a standardized level of care...**





- **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. .

Series 1



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

MRN: 20407470
Visit: 127312053
Age: 32y (Feb-02-1980)

TESTRAD, FEMALE ONE
Gender: Female

UNIVERSITY HEALTH
SYSTEM
Location: UH-RAD-XRAY
(M775)

OB Triage Note (SD) [Apr-04-2012 09:21]- for Visit: 127312053. Complete, Entered, Signed in Full, General

History of Present Illness:

History of Present Illness:

- Patient is a 32 year old Female Gravida 3 Para (T, Pt, Ab, L) 1001 at 37 1/7 weeks gestation
- Reason for visit/Chief complaint: Contractions. Loss of fluid. Scant bleeding. Minimal pain. Began 8 hours ago.
- The chief complaint relates to pain at this time: yes. Pain is rated as 4/10.
- Prenatal Clinic: OB/GYN: UHC-D.
- HPI: See above. No other pertinent data which needs to be on the HPI.

Gestational Age:

Date of initial pregnancy test: Urine Sep-01-2011.

LMP: Jul-17-2011 = EDC: Apr-22-2012.

LMP: Definite.

Ultrasound (1): Dec-04-2011 @ 20 0/7 weeks.

Ultrasound (2): Feb-26-2012 @ 32 0/7 weeks.

History:

History:

- **Fetal movement:** present
- **Contractions:** Present
- **Loss of fluid:** Yes
- **Fluid characteristics:** clear onset 8 am 4/2/12
- **Vaginal bleeding:** Present
- **Spotting:** < menses
- **Signs and symptoms:** Abdominal pain
- **Duration:** 6 hours

Patient History:

Surgical History/Significant Events:

Type	Status	Event	Description	Onset Date	Last Modified By
• Surgical Procedures	Active	Appendectomy	at 6 yo	Aug 1984	Funk, Mark

Pregnancy History:

Pregnancy #1: Year: 2007, Length (weeks): T, Type of delivery: NSVD, Sex: Male, Birth weight: 7#. Complications: None.

Pregnancy #2: Year: 2010, Length (weeks): T, Type of delivery: NSVD, Sex: Female, Birth weight: 8#. Complications: None Comments.

Medical History:

- **Medical History** Anemia Migraine headaches Asthma-inhaler use only

Requested by: Funk, Mark (MD), Apr-04-2012 09:51

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OB Triage/Admissions Note EMR Full Text

TESTRAD, FEMALE CNF
20487470
UH RAD XRAY (M775)

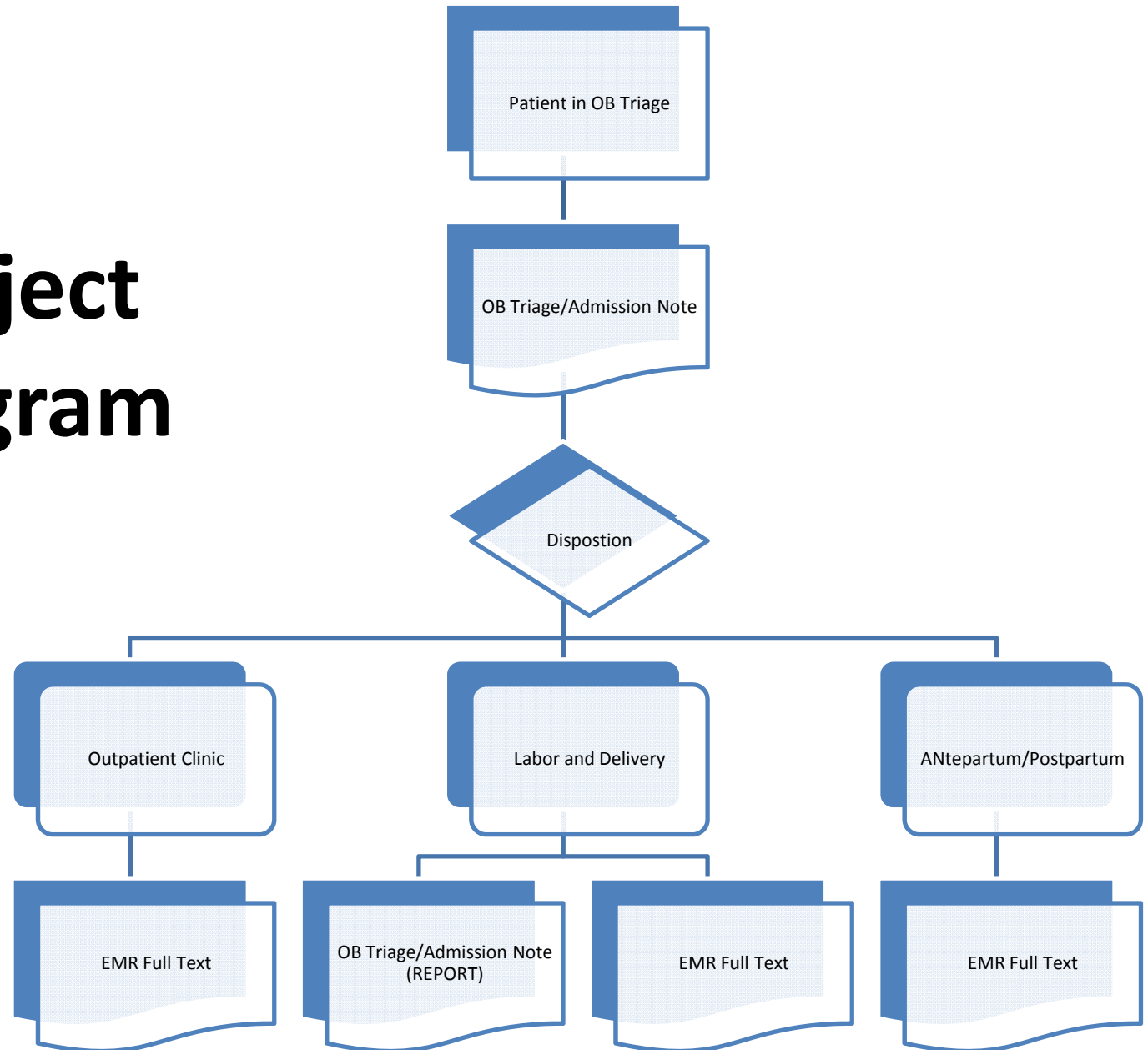
OB TRIAGE REPORT



Age:	Gestalt:	Parity:	LMP:	EDD:	Gestation:	Prenatal Clinic:	Date Note Opened:
32	S	001	Jul-17-2011	Apr 22 2012	37 17W6D	OB/GYN: UHCH	Apr 4 2012 8:51AM
Presenting Complaint: Contractions. Loss of fluid. Spont bleeding. Minimal pain. Began 6 hours ago				Review of Systems: General: Neg Hx, absent changes in R/O pain			
Past Medical: Asthma in childhood only. Migraine headaches. Anemia. Anemia - Since delivery. Migraine Headaches - Rare				Past OB History: Prog 1 - Yr 2007. Lgt. Twks Del. Type: NSVD. Sex: Male. Wgt: 7# Complications: None Comments: Prog 2 - Yr 2010. Lgt. Twks Del. Type: NSVD. Sex: Female. Wgt: 8# Complications: None Comments: Ultrasound History: Ultrasound (1): Dec-09-2011 @ 20 07 weeks G Ultrasound (2): Feb-25-2012 @ 32 07 weeks G Revised EDC.			
Surgical History: Appendectomy							
Allergies:							
PHYSICAL EXAM				LABS			
Height	Weight	BP	Temp	Pulse	Resp		
25 5in	10 lbs.	120/90	98.8	100	20		
HEENT		Abdomen		Nitrazine			
AD/AT		Rounded NT		Fuming		Pooling	
Heart		Extremities		Positive		Positive	
RRR		Mx-adema		Albumin Screen	Glucose Screen	HCT	WBC Serum
Lungs		Neurological		Protein	Leukocytes	WBC	Glucose
U/A		2-DTR No clonus		Ultrasound	EPO	FL	AC
OB EXAM (NFI):		OB EXAM BY:		Apr-04-2012	mm w/d	mm w/d	mm w/d
DS:DC		Funt		Presentation	EPW	Placental Location/Grade	AF Vol.
Fundal Ht.	Contractions	Est. Fetal Wt.	FHR	Pain Scale	Interpretation: CW case-01-gr/hyemence		
40	2-3/10	3800gms	150	4/10	Subsequent Exam		
Presentation	Station	Pelvis		OB/G By: Lynch	Cervix Dilation	Effacement	Station:
cephalic	3			BP	7	100%	2
Cervix Eff.	Dilation	Membrane Status		120/90	FHT		RCM
100	5	Apr-04-2012 OB/G Clear		Comments:			
Comments:							
Assessment: 32 yr 27W6D at 37 weeks G1L Sclerified Parity for 3T1				Plan: Admit to L/D			
Signatures _____ M.S./M.D. _____ Nurse _____							
* Last Correction made by: Funk, Mark on Apr 4 2012 9:51AM							

OB Triage/Admissions Note EMR Report

Post-Project Flow Diagram

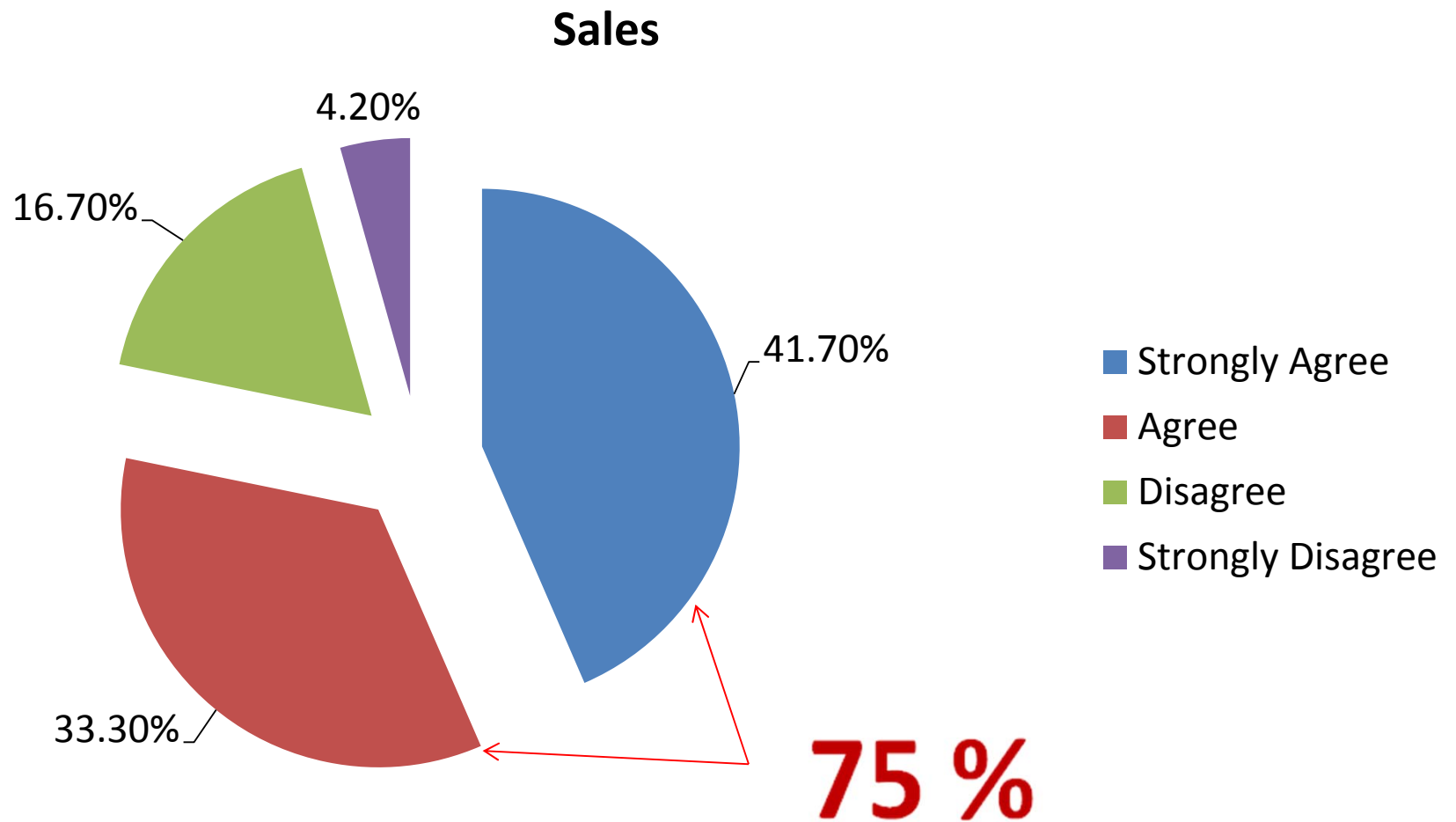


Post-Intervention Survey Impact/Results



- 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



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!

