

Safe Deliveries Roadmap

Learning Collaborative Webcast

May 21, 2015

Safe Deliveries Roadmap

Advancing Safety for Mothers and Babies
A Roadmap from Pre-pregnancy to Postpartum



Washington State
Hospital Association

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Today

- Hear from Dr. Kara Hoppe, what they've learned at the University of Washington after using the Partogram (labor curve) over the past year to guide labor progression decisions
- Discover how this tool can help to implement the labor management recommendations and keep patients safe
- Learn about Safe Deliveries Roadmap project updates





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ORIGINAL ARTICLE

A Cluster-Randomized Trial to Reduce Cesarean Delivery Rates in Quebec

Nils Chaillet, Ph.D., Alexandre Dumont, M.D., Ph.D., Michal Abrahamowicz, Ph.D., Jean-Charles Pasquier, M.D., Ph.D., Francois Audibert, M.D., Patricia Monnier, M.D., Ph.D., Haim A. Abenheim, M.D., M.P.H., Eric Dubé, M.Sc., Marylène Dugas, Ph.D., Rebecca Burne, M.Sc., and William D. Fraser, M.D. for the QUARISMA Trial Research Group
N Engl J Med 2015; 372:1710-1721 | April 30, 2015 | DOI: 10.1056/NEJMoa1407120

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BACKGROUND

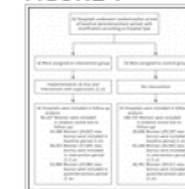
In Canada, cesarean delivery rates have increased substantially over the past decade. Effective, safe strategies are needed to reduce these rates.

METHODS

We conducted a cluster-randomized, controlled trial of a multifaceted 1.5-year intervention at 32 hospitals in Quebec. The intervention involved audits of indications for cesarean delivery, provision of feedback to health professionals, and implementation of best

MEDIA IN THIS ARTICLE

FIGURE 1



Randomization, Intervention, and Follow-up.

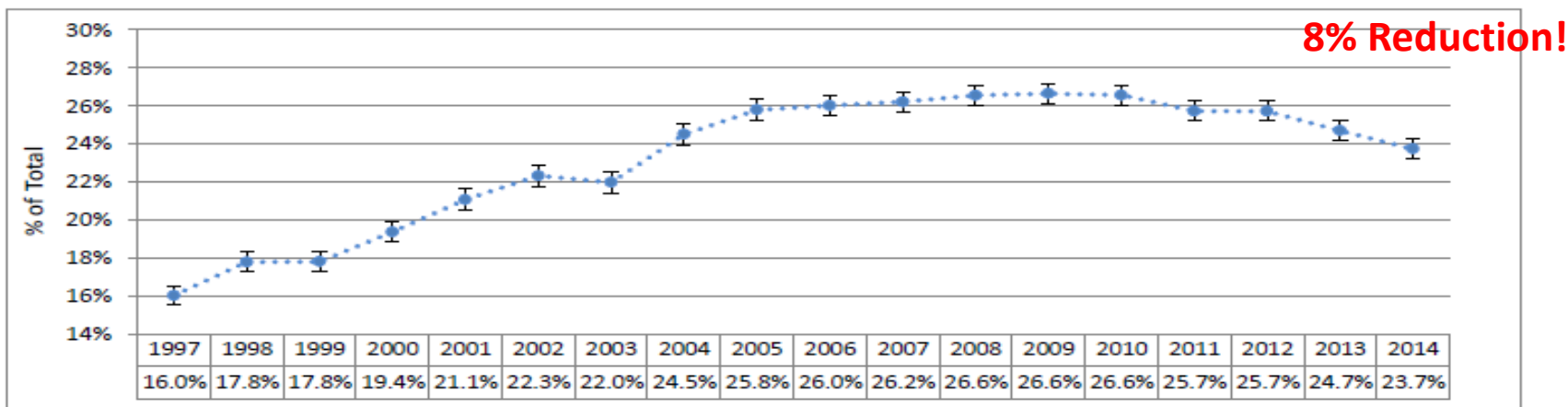
TABLE 1



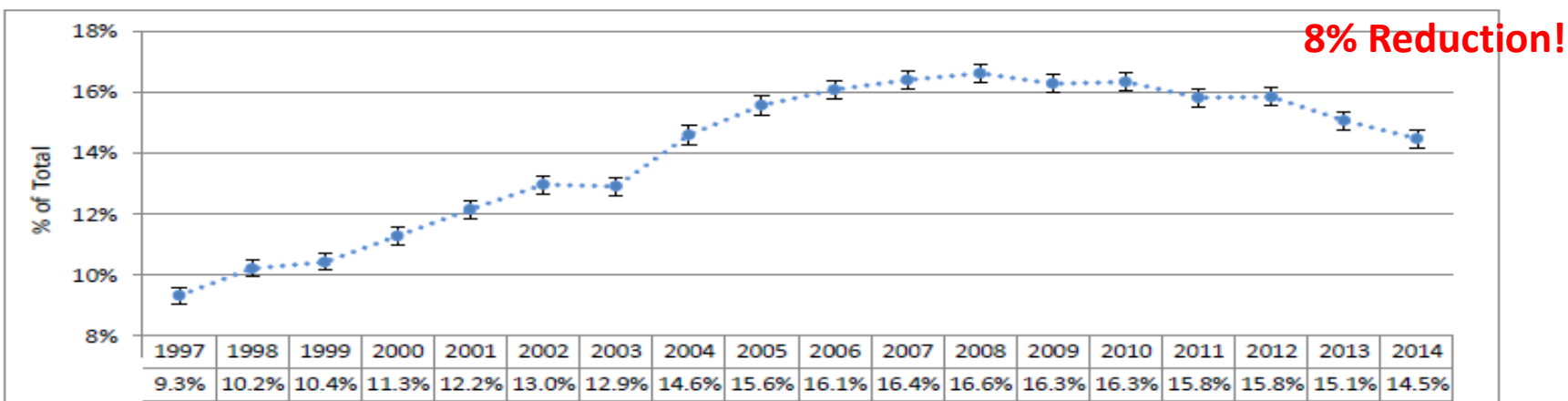
Congratulations!

Washington State Non-Military Hospitals

C-Sections Among Nulliparous Term Singleton Vertex (NTSV) Deliveries 1997-2014
Hospital Rate with 95% Confidence Limits



Primary C-Sections Among Term Singleton Vertex (TSV) Deliveries 1997-2014
Hospital Rate with 95% Confidence Limits



UPDATES



Labor- First Stage: Consider Cesarean Delivery (All Three Present)

Recommendations:

- Cervix 6 cm or greater
- Membranes ruptured (if feasible)
- Arrest of Cervical Dilation and Uterine Activity (see special considerations for parameters)

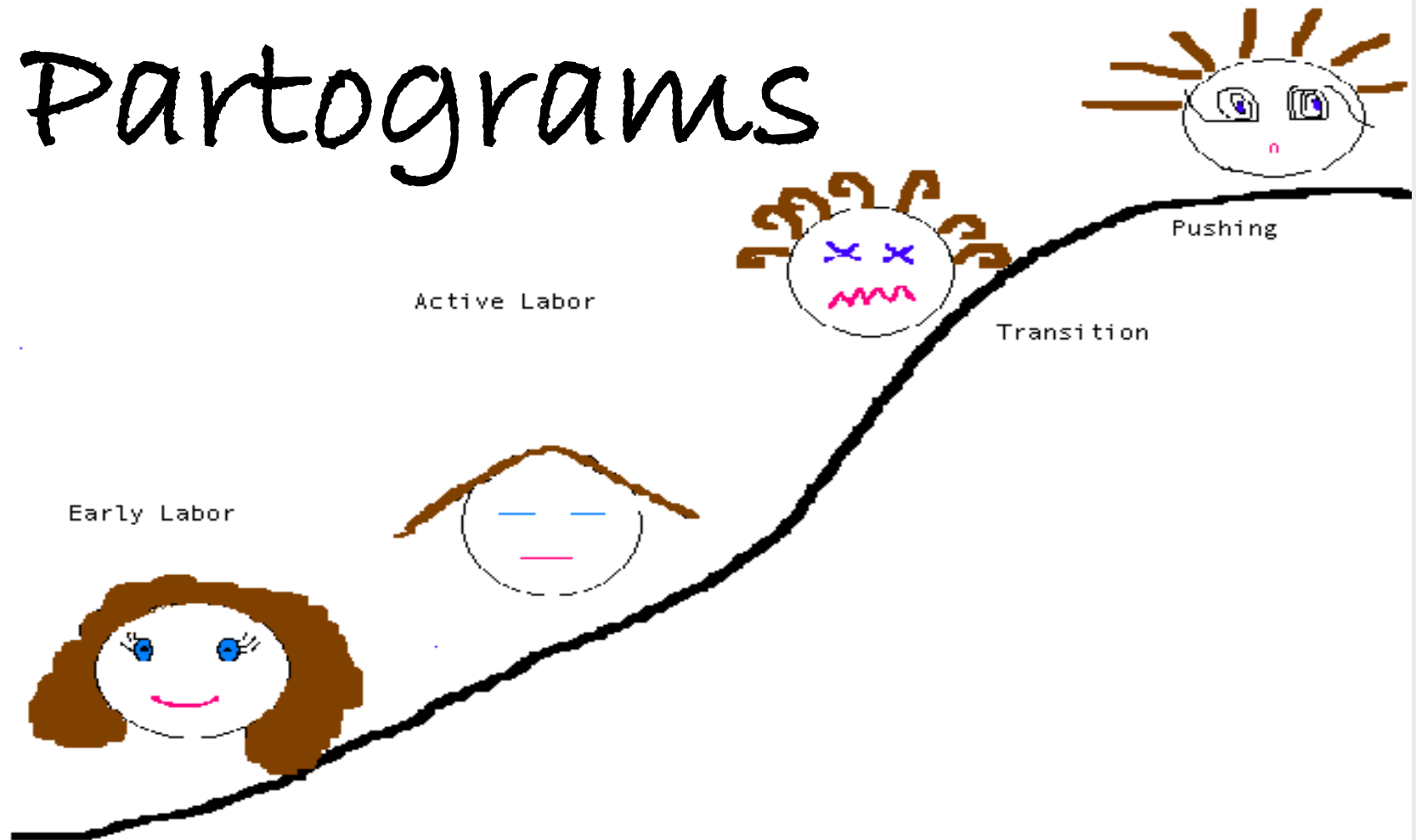
Special Considerations

- Arrest of Cervical Dilation and Uterine Activity documented as:
 - Adequate (>200 Montevideo units or palpably strong > q 3 minutes when not feasible to rupture membranes) with no **or minimal** cervical change x 4hr ***
 - OR
 - Inadequate (<200 Montevideo Units or <3/10 minutes despite Oxytocin per protocol) with no **or minimal** cervical change X 6hr***

*** Clinical judgment is needed to determine safe upper limit of total time allowed in active phase $\geq 6\text{cm}$ to $< 10\text{cm}$.

“Minimal cervical change” would be substantially less than clinical norm, for example, less than or equal to 1cm change in 4 - 6 hours. Per the Zhang et al partogram at 6cm the 95th %ile for a normal active labor phase curve and normal outcomes is approximately 8 hrs total time

Partograms



Kara Hoppe, DO & Thomas Benedetti MD
May 21st, 2015

Objectives

- What we've learned over the past year at the University of Washington after using the Partogram (labor curve) we designed to meet contemporary standards to guide labor progression decisions.
- Discover how this tool can help with implementing labor management recommendations and keep patients safe.
 - Explain the components of the partogram, how to record patient data, and interpret the results.
 - Patient cases

Introduction

- Prolonged/obstructed labor
 - A leading cause of death among mothers and newborns in the developing world (WHO, 2005)
 - Obstructed labor: 1-20% (WHO, 2005)
 - The #1 indication for primary CS in US (ACOG, 2014)
 - The #1 indication for primary CS at UWMC (The National Perinatal Information Center (2009-2014))
- Partograms were developed to differentiate normal and abnormal labor

UWMC's process to reinitiate a partogram to L&D

- Concern for increase in prolonged & obstructive labor
- Possible increase in maternal and neonatal morbidity



Partogram: How the intervention works.....

- Objective data to promptly diagnose prolonged/obstructed labor & develop timely clinical decisions
 - Should have clear directives about what actions to take at what point
- Enhances communication among members of the team of providers
- Ultimate goal:
 - Prevent prolonged/obstructed 1st stage of labor and poor maternal/neonatal outcomes

Traditional diagnosis of active labor dystocia

- Protracted active phase.
 - Nullip < 1.2 cm/hr
 - Multip < 0.5 cm/hr
- Arrest of active phase: no cervical change for 2 hours or more with the presence of adequate contractions and cervical dilatation >4 cm (ACOG)

UW consensus guidelines to define first stage arrest (Spong, 2012)

- 1. Failed induction of labor
 - a. Failure to generate regular contractions and cervical change after 24 hours with oxytocin and with artificial rupture of membranes when feasible
- 2. First-stage arrest : Over 6 cm dilated with rupture of membranes with either:
 - a. No cervical change in 4 hours despite adequate contractions
 - b. No cervical change in 6 hours with inadequate contractions
- 3. Second-stage arrest: No progress (descent or rotation) for
 - a. 4 hours in nulliparous women with an epidural
 - b. 3 hours in nulliparous women without an epidural
 - c. 3 hours in multiparous women with an epidural
 - d. 2 hours in multiparous women without an epidural

NICHD guidelines...

- If taken literally....
- **6 hrs** has passed with inadequate contractions, however the patient is making **1 cm** of change every **6 hrs**
 - would allow for **24 hrs** of 1st stage of labor after 6 cm achieved
- **4 hrs** has passed with adequate contractions, making 1cm of change every **4 hrs**
 - would allow for **16 hrs** of 1st stage of labor after **6 cm** achieved

Contemporary “dystocia” definitions for active labor: median/95th percentiles

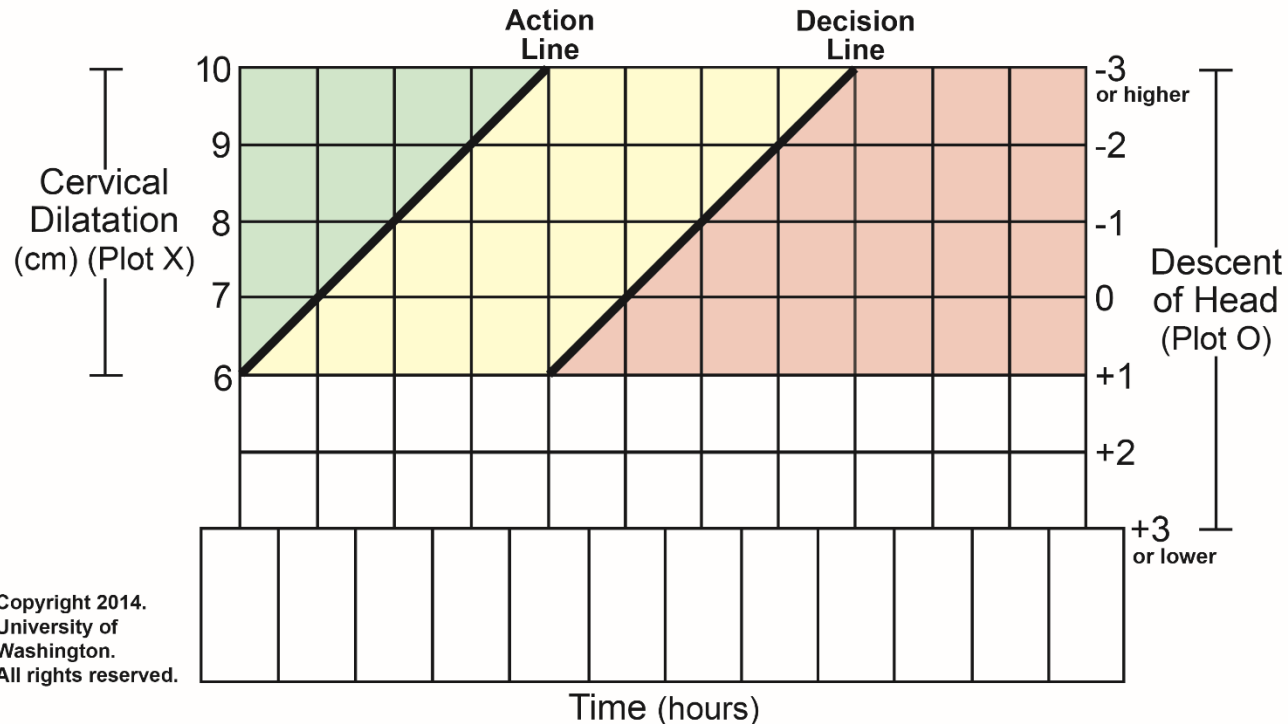
- After 6cm:
 - Multips (16,000 pts)
 - **Median 6cm→10cm 1.5 hrs**
 - **95%→5.1 hrs**
 - **0.5 to 1.3cm/hr**
 - Nullips (25,000 pts)
 - **Median 6 cm to 10cm→2.1 hrs**
 - **95%→ 7 hrs**
 - **0.5 to 0.7cm/hr**

Zhang, 2010

UWMC Partogram

Active Phase of Labor for ≥ 37 Weeks GA

Position: ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○



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- Normal labor:**
Expectant management
- Off median normal labor curve:**
Augment labor management
- >95th percentile for normal labor curve:**
Consider safety of continued labor vs delivery

Action Line: "Normal" median labor progress line for active labor (>6 cm), based on the Zhang et al partograms. When the patient falls off this line, consider interventions to augment labor (AROM, oxytocin), prior to reaching the decision line.

Decision Line: Four hours to the right of the action line. If the patient's labor progress crosses this line, she is outside the 95th percentile of normal labor progress per the Zhang et al partogram.

UWMC Partogram with 95th percentile Zhang curves (nullips)

WHO lines

Zhang lines

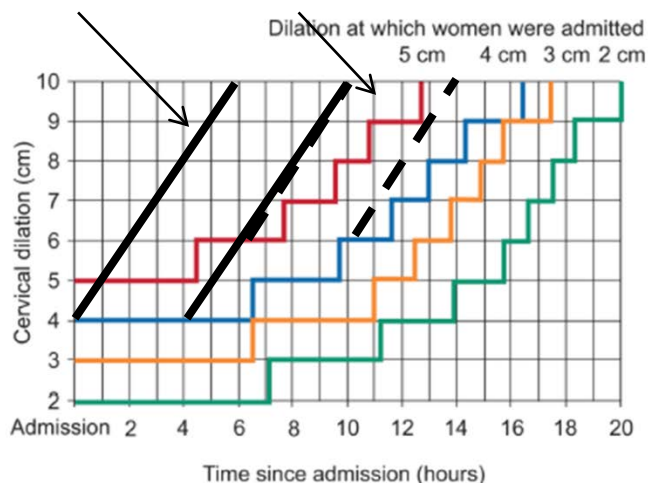
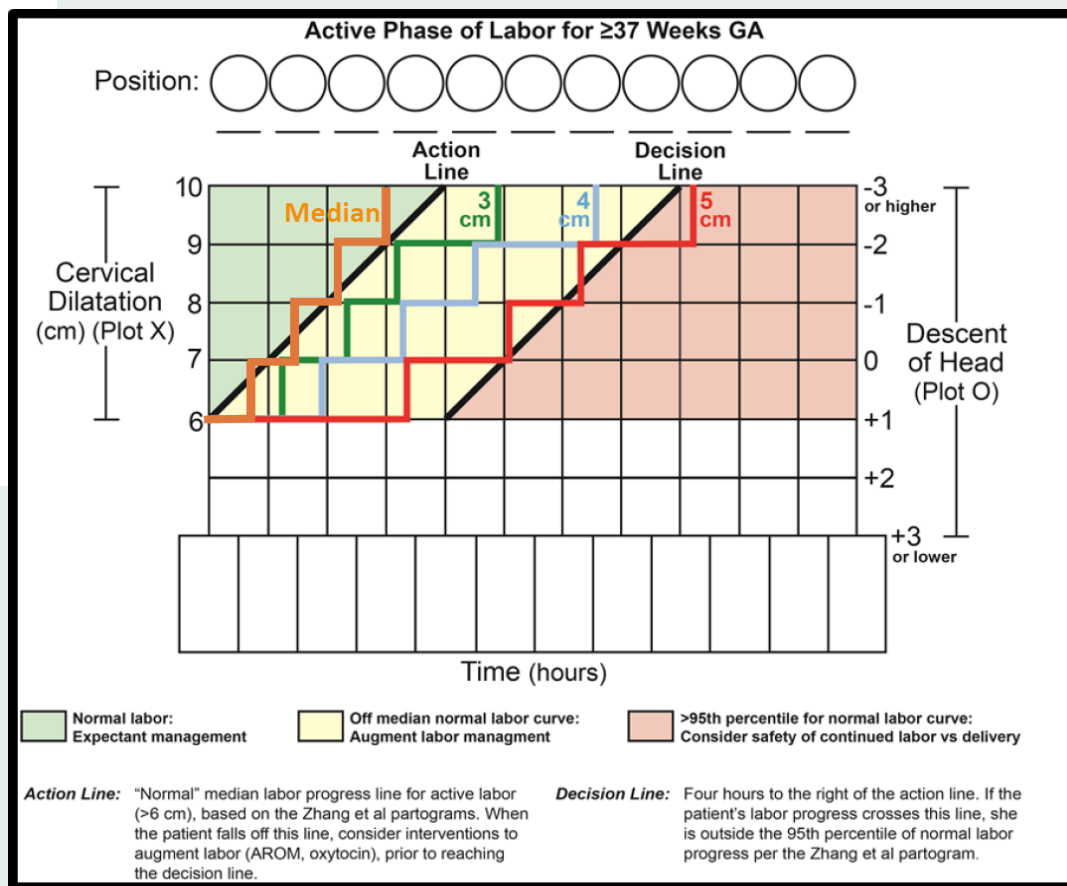


Figure 3. The 95th percentiles of cumulative duration of labor from admission among singleton, term nulliparas with spontaneous onset of labor, vaginal delivery, and normal neonatal outcomes.



Barriers to use

- Partograms are not accessible or available
- Lack of detailed knowledge on how to use
- Inadequate training
- Lack of evidence regarding efficacy
- Lack of clinical leadership and quality assurance
- Time consuming

Aisbong 2014, Yisma 2013, Fawole 2008, Ollerhead 2014

Partogram QI

- Periodically, we should review partograms to see how well these are completed and to check on the appropriateness and timeliness of interventions.
- Partograms should be also reviewed whenever there is a maternal and perinatal death or severe morbidity.
 - These reviews should be used as a learning exercise to improve quality of care provided in labor.

How to use the partogram

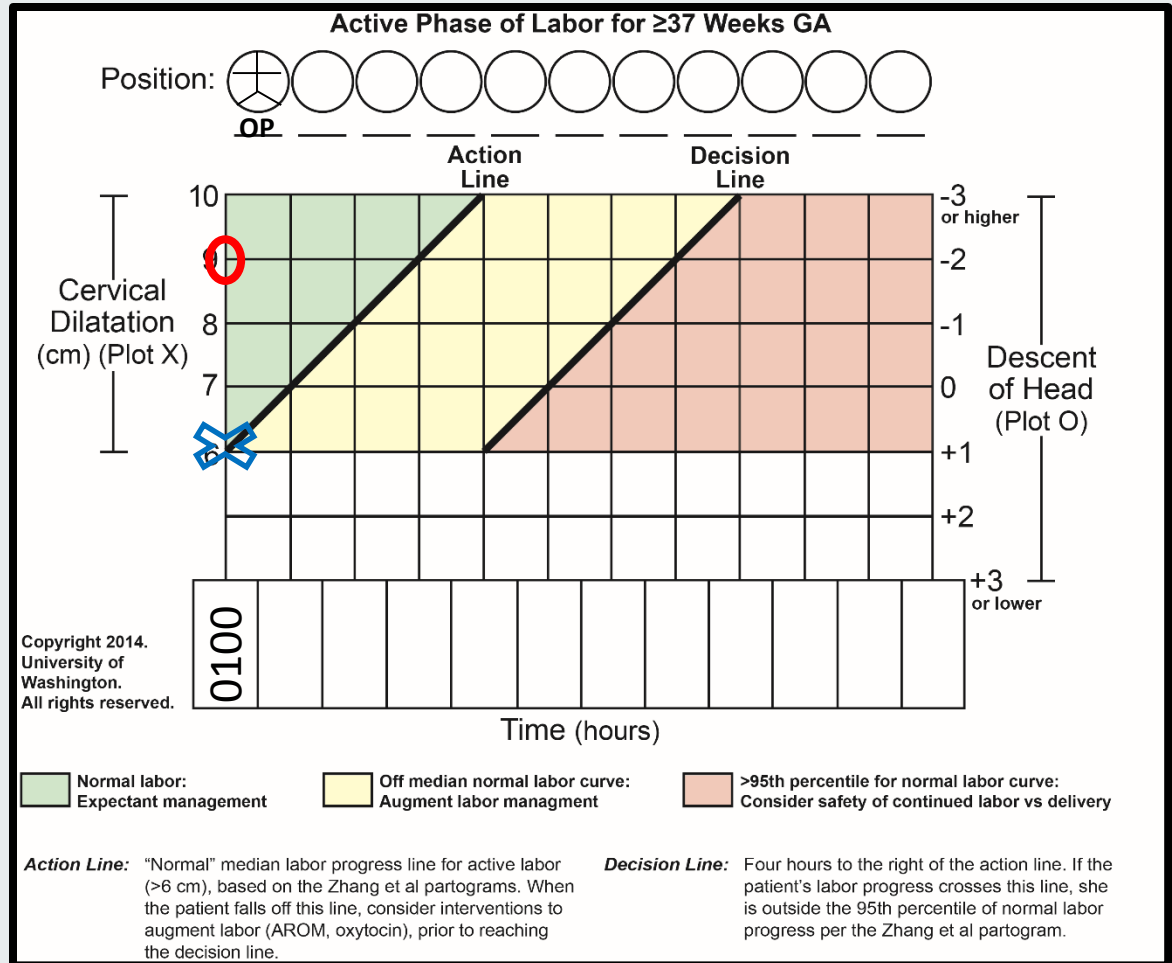
- All the recordings on the partogram should be done in relation to the time line
- Each box represents one hour
- Record the actual time
- First cervical exam should be documented in relation to the action line (using an X)
- First descent of head exam should be on the left side of y-axis (using an O)

Partogram recording exercise

Patient exam:

0100 6 cm dilated/-2 station

Position:OP



Partogram recording exercise

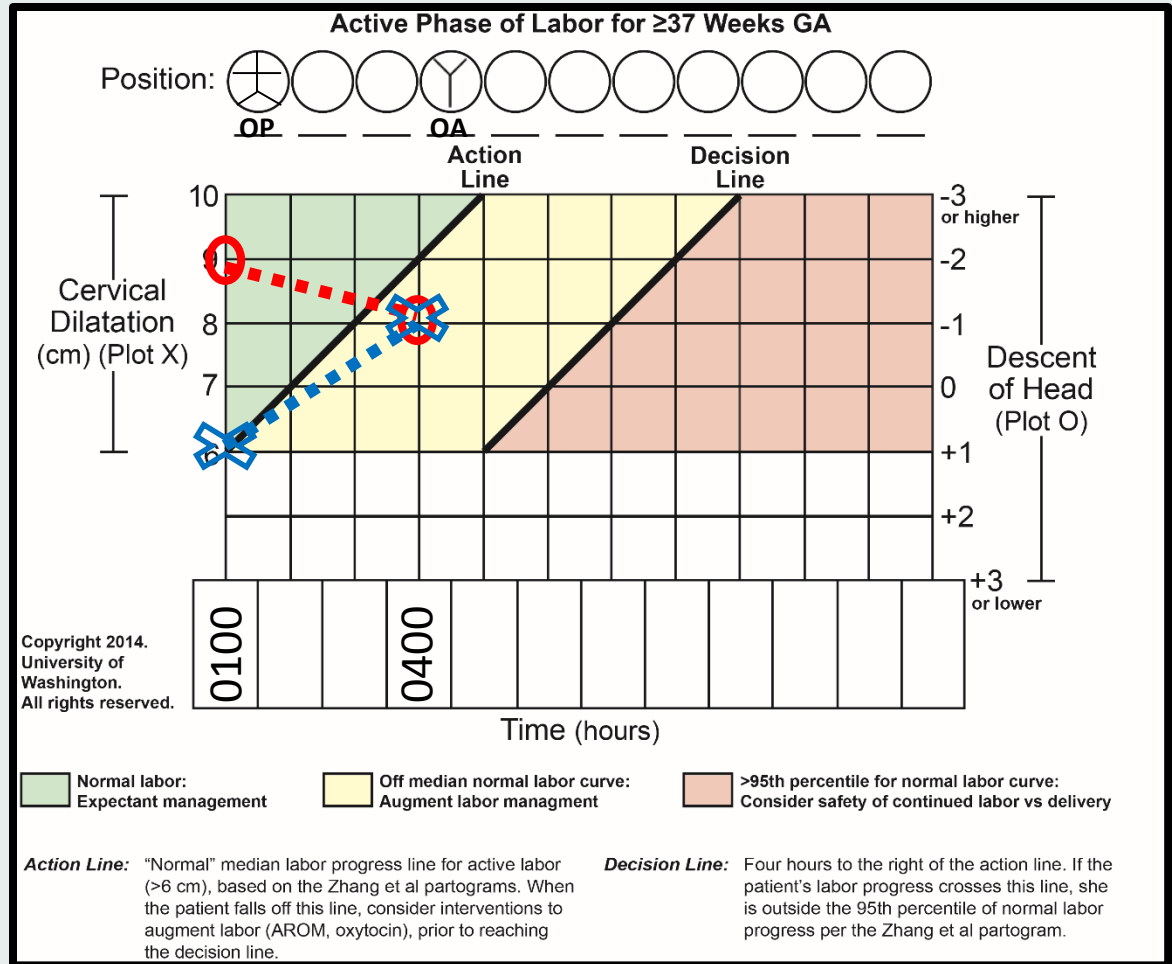
Patient exam:

0100 6 cm dilated/-2 station

Position: OP

0400 8 cm dilated/-1 station

Position: OA



Partogram recording exercise

Patient exam:

0100 6 cm dilated/-2 station

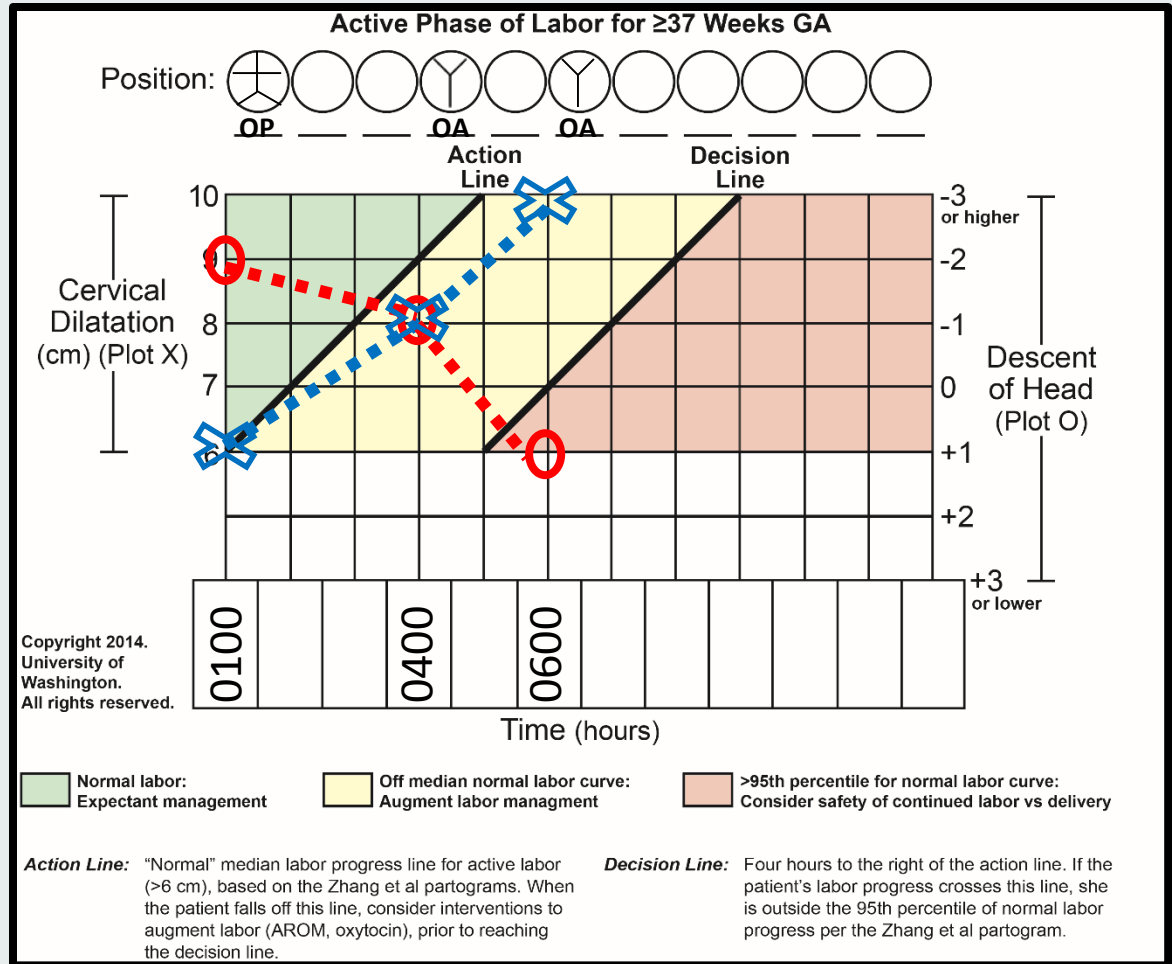
Position: OP

0400 8 cm dilated/-1 station

Position: OA

0600 fully dilated/+1 station

Position: OA



Partogram labor management recommendations

- **Action line** is crossed: assure AROM, consider IUPC & oxytocin have been initiated.
- **Decision line** is crossed: consider CS with understanding that they have exceeded the 95% of “active” labors with normal outcomes. However, it is reasonable to discuss continuation within NICHD guidelines if reassuring maternal and fetal status
- Cannot use to make absolute decisions about CS

Cases



Normal labor

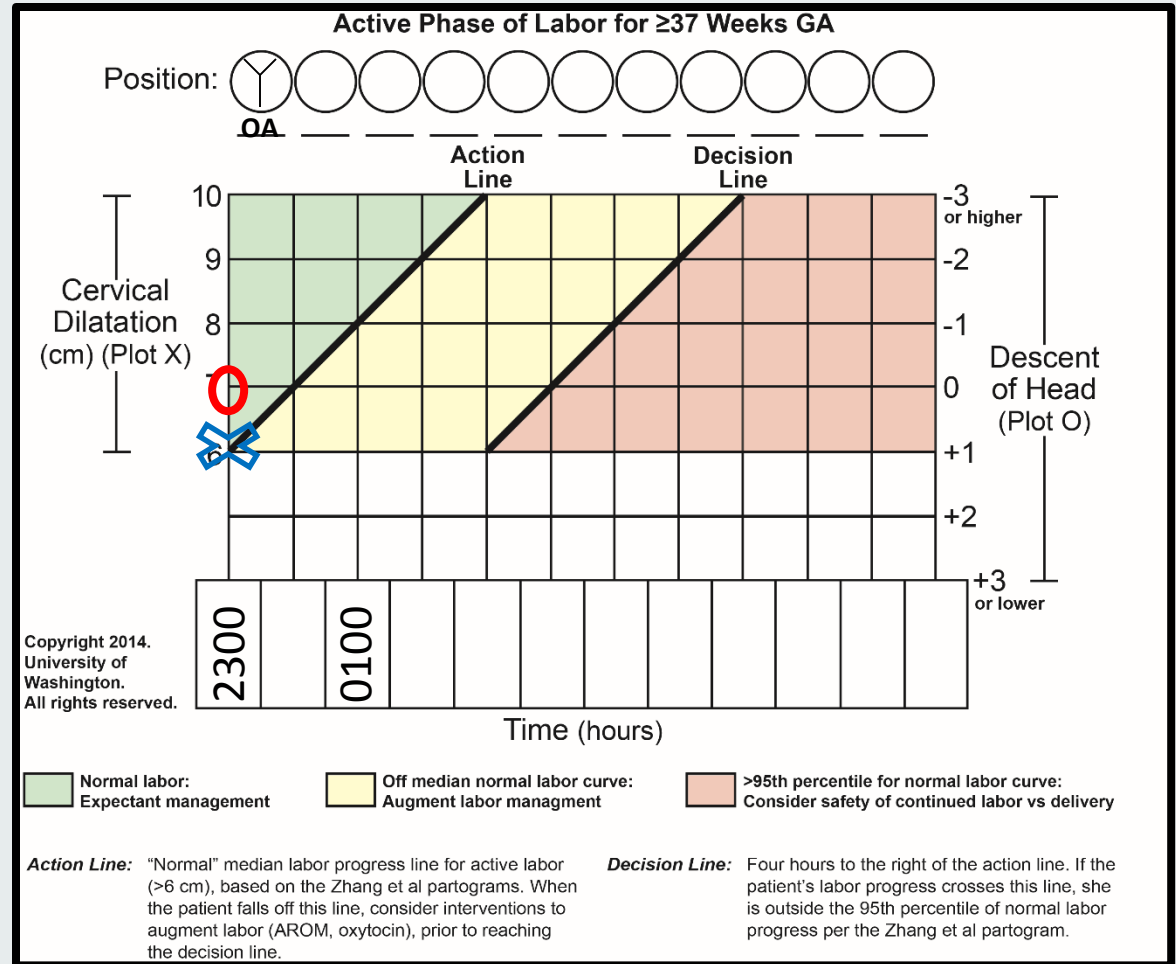
Patient: Normal	
Current time	21:28
Admission indication	Spontaneous labor
Cervical dilation	3
Head descent	-2
Amniotic fluid	intact
Oxytocin	n/a
Maternal temperature	37.0

- 30 G1P0 at 39 +6 weeks gestational age
- Uncomplicated pregnancy to date



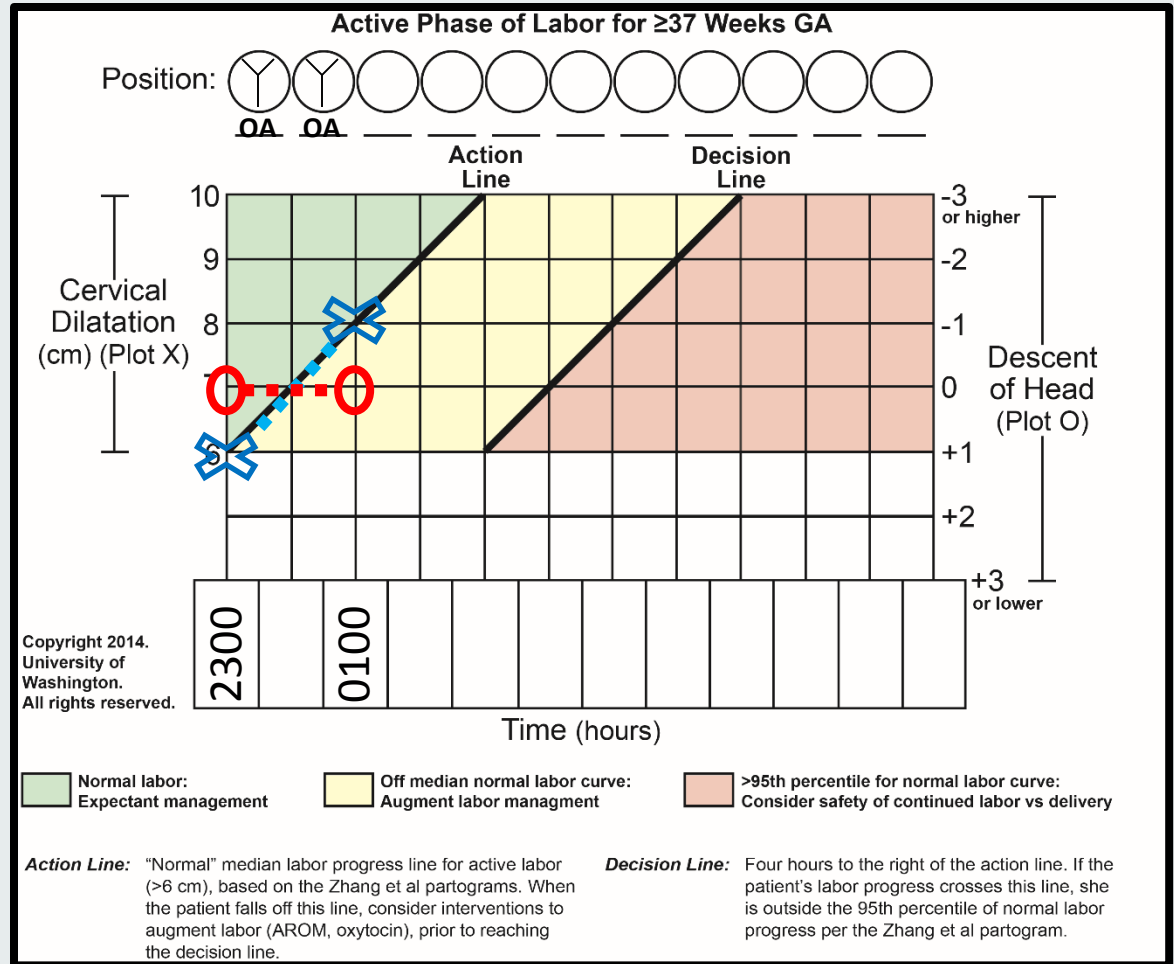
Normal labor

Patient: Normal	
Current time	2300
Cervical dilation	6
Head descent	0
Fetal position	Occiput anterior
Amniotic fluid	SROM @ 2300
Oxytocin	n/a
Maternal temperature	37.1



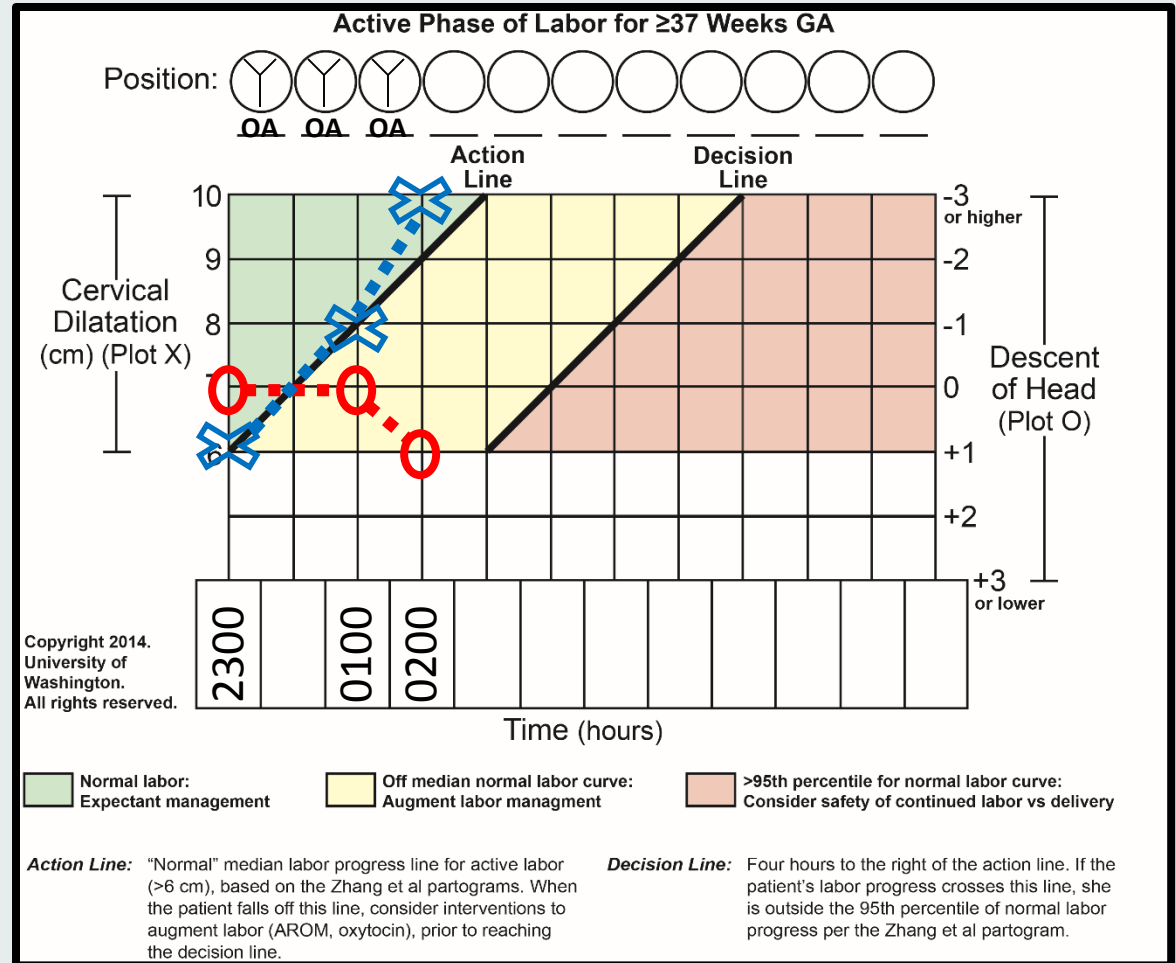
Normal labor

Patient: Normal	
Current time	0100
Cervical dilation	8
Head descent	0
Fetal position	OA
Amniotic fluid	Ruptured
Oxytocin	n/a
Maternal temperature	37.1



Normal labor

Patient: Normal	
Current time	0200
Cervical dilation	Complete
Head descent	+1
Fetal position	OA
Amniotic fluid	Ruptured
Oxytocin	n/a
Maternal temperature	37.1



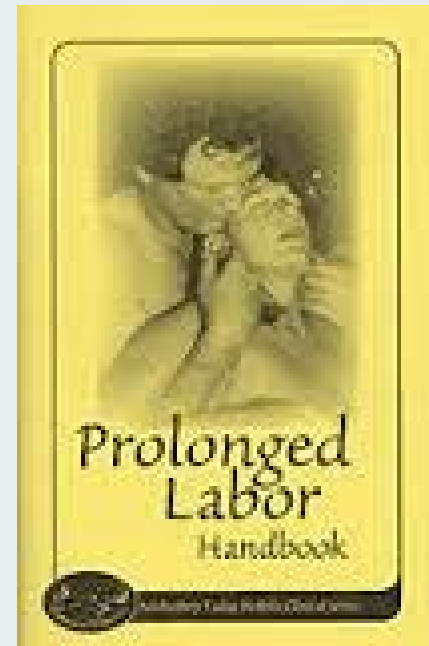
NSVD at 0256
Live infant
2896 grams
Apgars 8/9



Prolonged labor

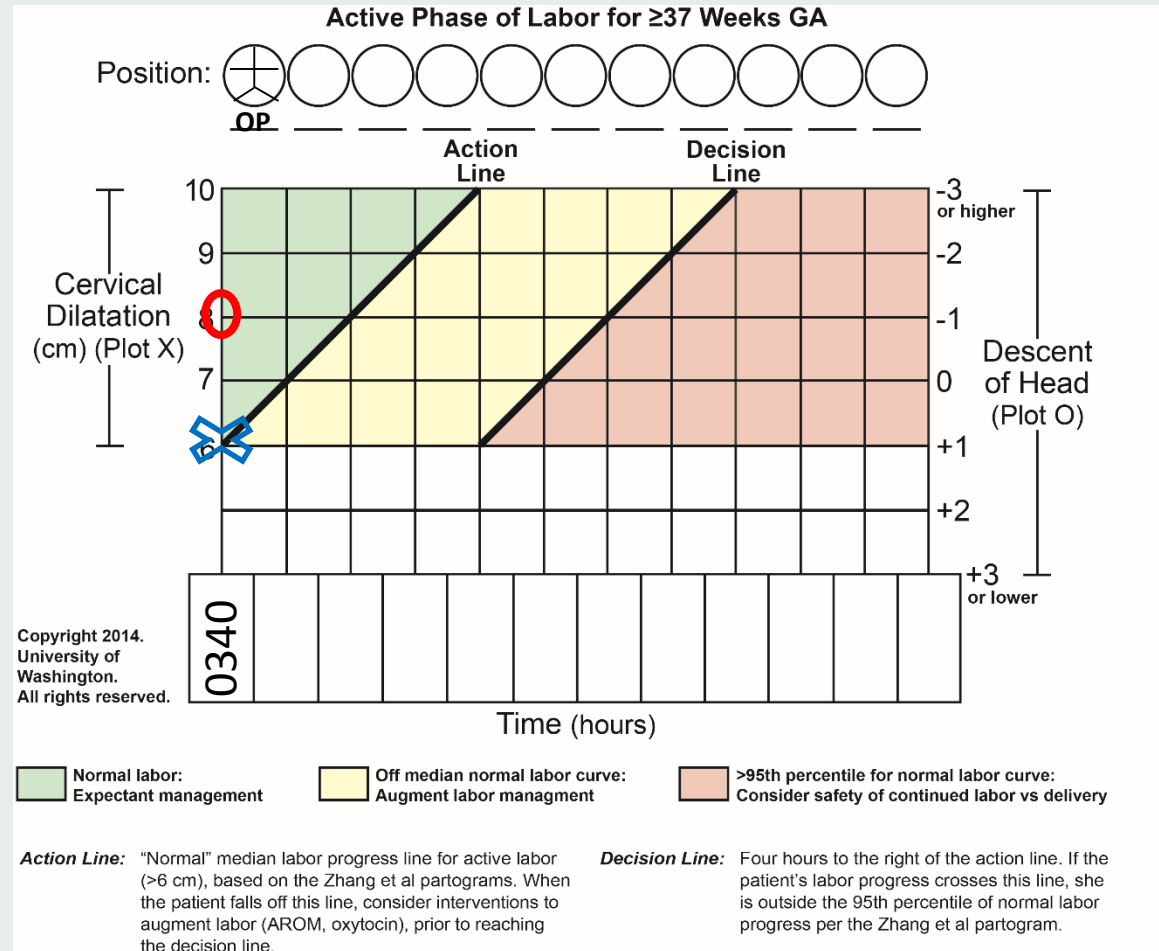
Patient: Prolonged	
Current time	2150 (d1)
Admission indication	Spontaneous labor
Cervical dilation	4
Head descent	-2
Amniotic fluid	intact
Oxytocin	n/a
Maternal temperature	36.8

- 37 year old G1P0 at 40+5 weeks gestation
- IVF pregnancy



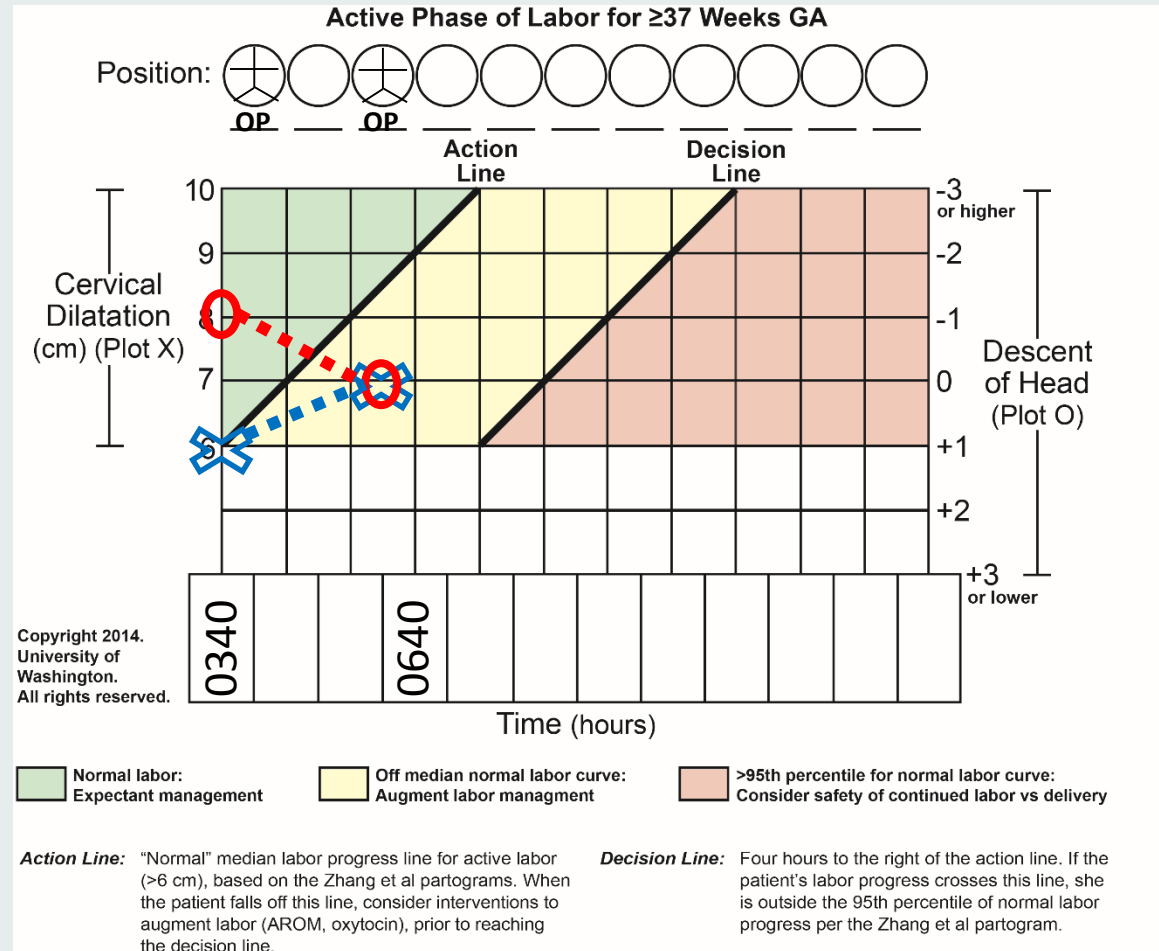
Prolonged labor

Patient: Normal	
Current time	0340 (d2)
Cervical dilation	6
Head descent	-1
Fetal position	OP
Amniotic fluid	Intact
Oxytocin	n/a
Maternal temperature	37.4



Prolonged labor

Patient: Normal	
Current time	0615
Cervical dilation	7
Head descent	0
Fetal position	OP
Amniotic fluid	Intact
Oxytocin	n/a
Maternal temperature	37.7



2nd stage 4 hours
NSVD at 1447
Live infant
3702grams
Apgars 6/9
EBL 500cc



Obstructed labor

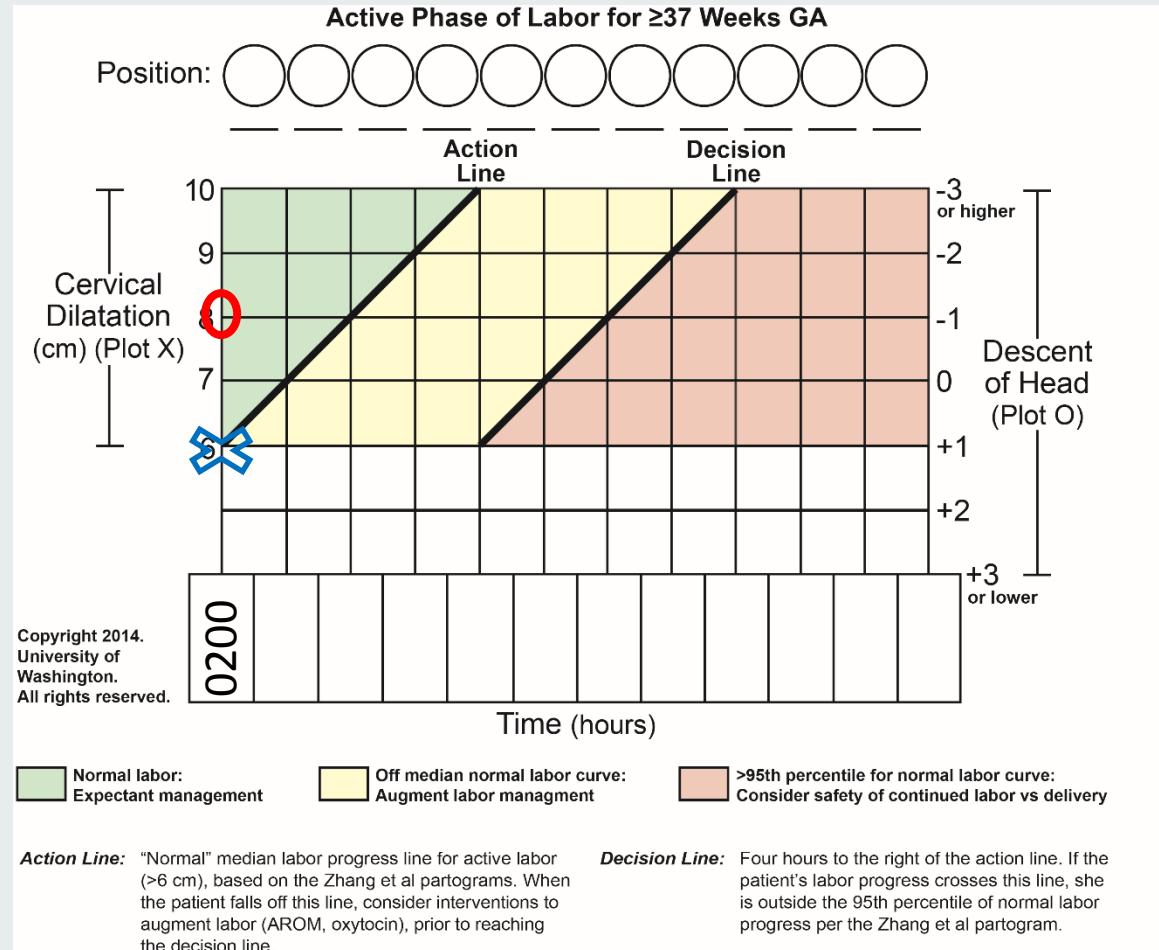
- 24 year old G1P0 at 39 weeks gestation

Patient: Obstructed	
Current time	2200 (d1)
Admission indication	Spontaneous labor
Cervical dilation	4
Head descent	-1
Amniotic fluid	intact
Oxytocin	n/a
FHT	Category 1
Maternal temperature	37.4



Obstructed labor

Patient: Obstructed	
Current time	0200
Cervical dilation	6
Head descent	-1
Fetal position	unk
Amniotic fluid	SROM @0100
Oxytocin	n/a
FHT	Category 2: variable decels
Maternal temperature	37.1



Patient: Obstructed

Current time 0422

Cervical dilation 7

Head descent 0

Fetal position ROT

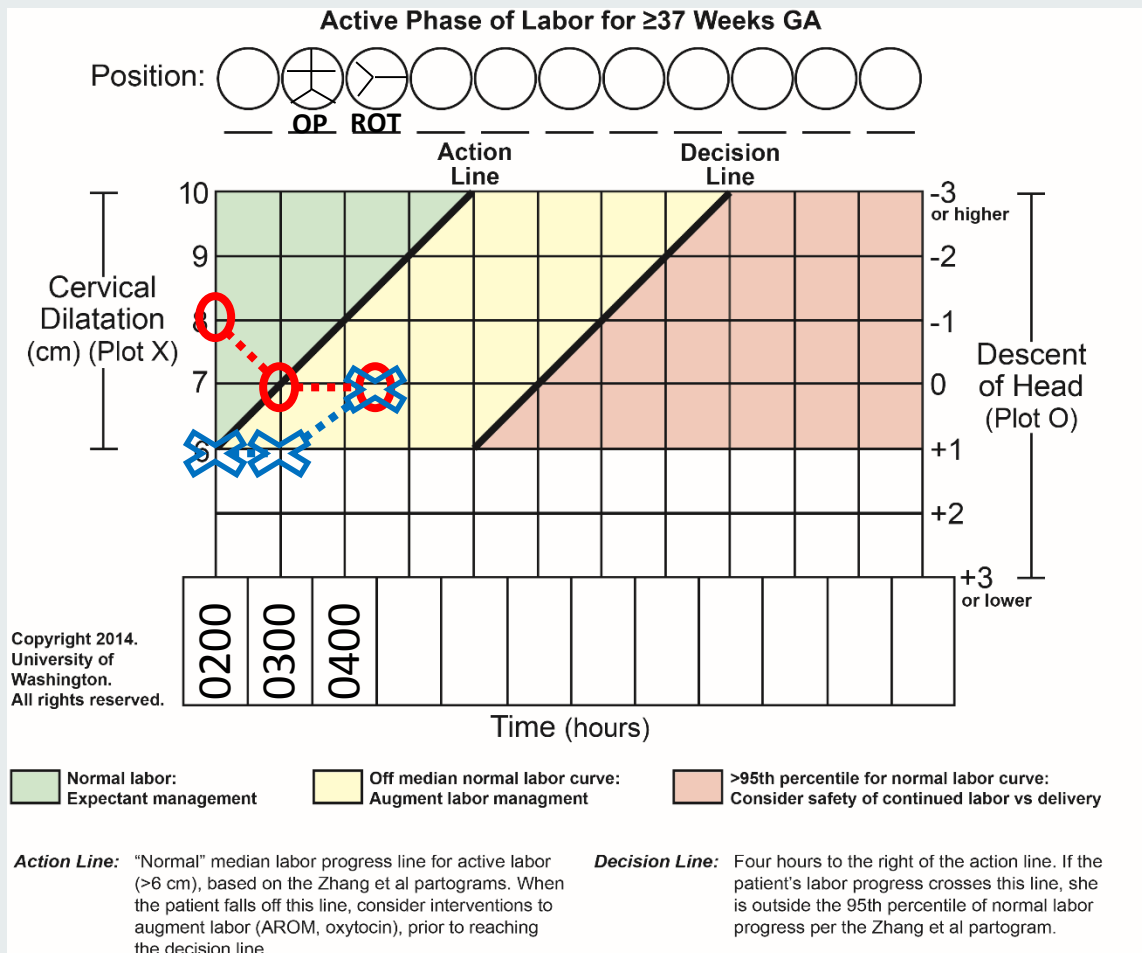
Amniotic fluid SROM @0100

Oxytocin n/a

FHT Category 2: Variable and early decels, no accels, minimal variability

Maternal temperature 37.2

Obstructed labor



Patient: Obstructed

Current time 0520

Cervical dilation 7

Head descent 0

Fetal position ROT

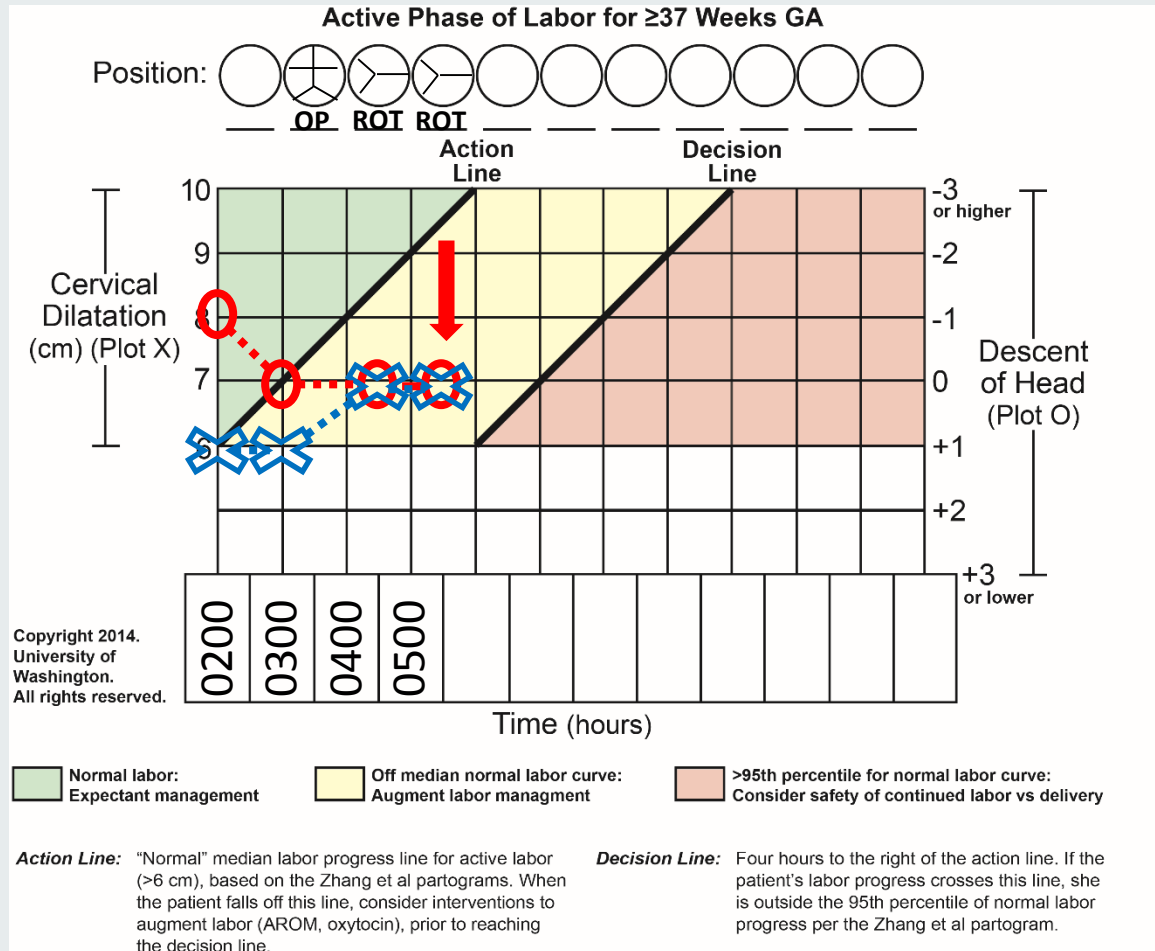
Amniotic fluid SROM @0100

Oxytocin n/a, IUPC placed MVU 165

FHT Category 1

Maternal temperature 37.4

Obstructed labor



Patient: Obstructed

Current time 0800

Cervical dilation 7

Head descent 0

Fetal position ROT

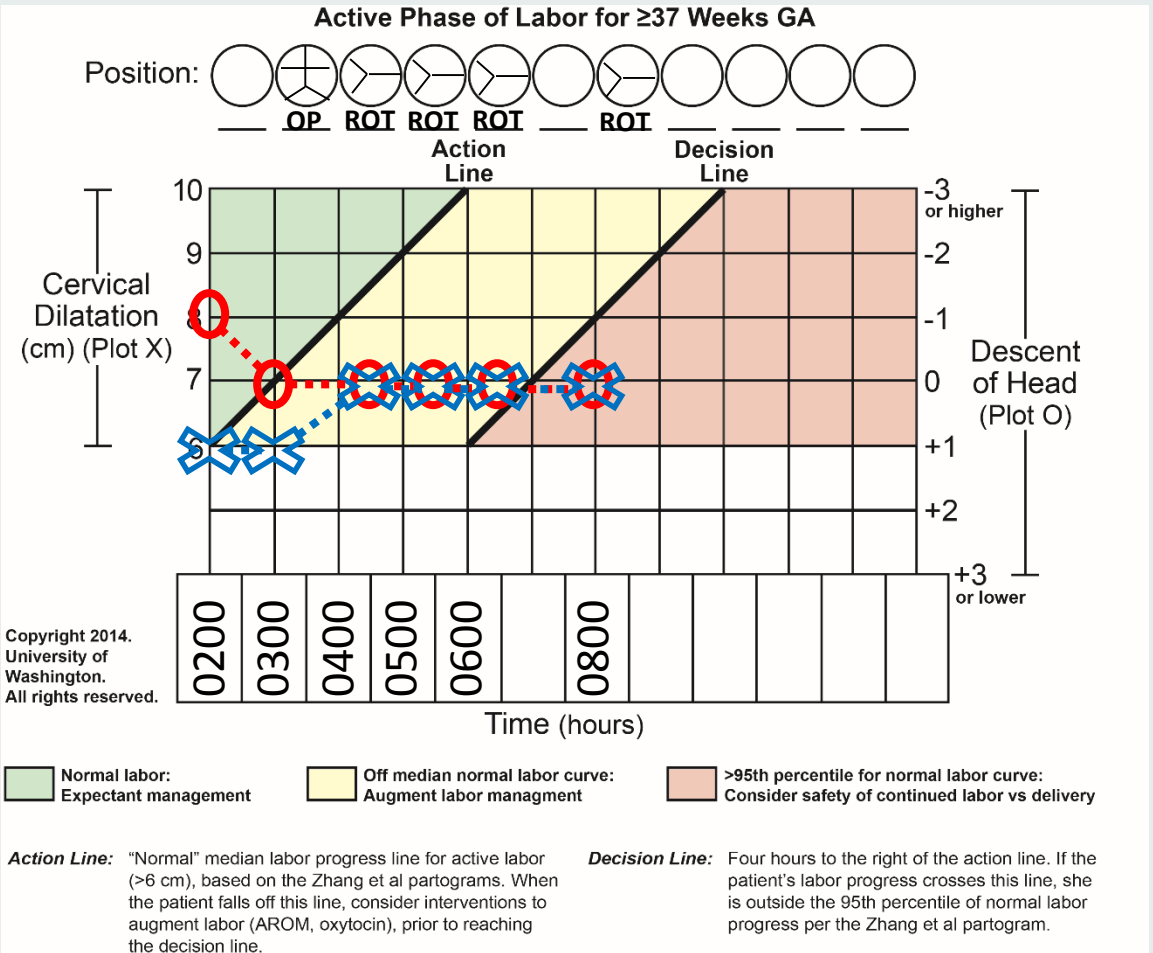
Amniotic fluid SROM @0100

Oxytocin Turned off MVU 180

FHT Category 2: recurrent early/variable decels

Maternal temperature 38.2

Obstructed labor



Cesarean section at time

Live infant 0902

ROT presentation

3385 grams

Apgars 3/6/8

UA 7.12 BD 5.4

Infant required PPV, CPAP and NICU admission, persistent retractions and increased work of breathing → MBU PP day 1



UWMC Mode of delivery by partogram zone (n=196) 5/1/14-12/31/14

	Green (n=98) 50%	Yellow (n=62) 30%	Red (n=36) 18%	Incomplete Partogram
NSVD	86 (88%)	42 (68%)	13 (36%)	9
Forcep assisted VD	7 (7%)	4 (6%)	1 (3%)	-
Vacuum assisted VD	0	2 (1%)	0	-
Cesarean section	5 (5%)	15 (24%)	22 (61%)	4

** If started 94% were completed

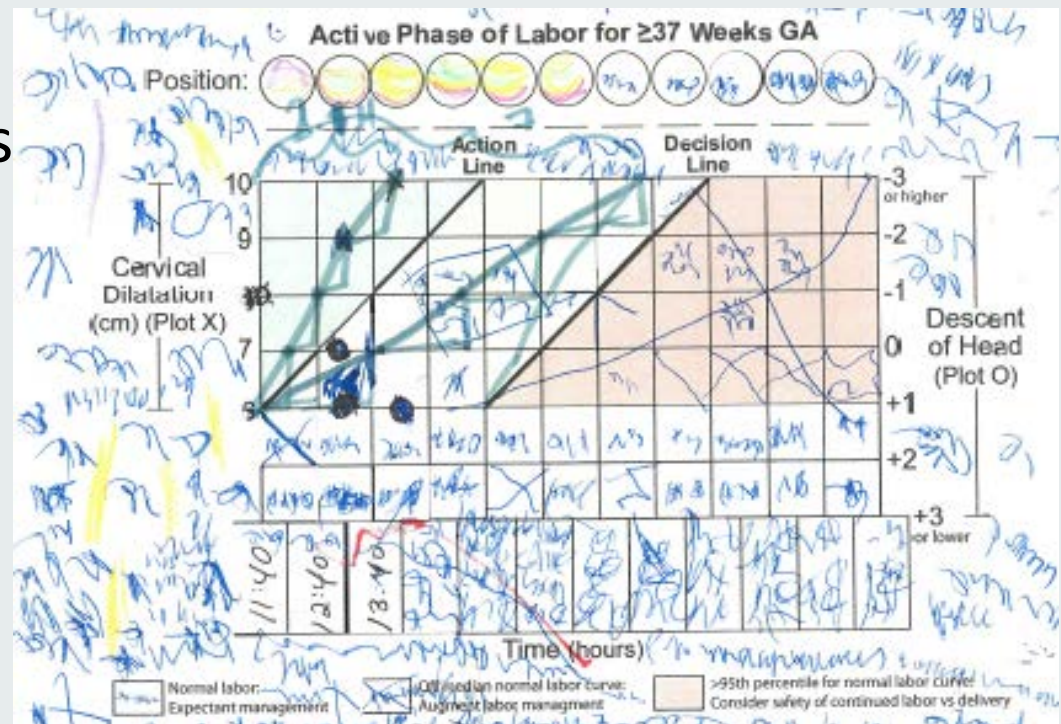
**Of those eligible for partogram approximately 25 % were started on a partogram

Summary

- Partograms are useful for tracking labor
- Help to promptly recognize prolonged/obstructed labor and when to provide an intervention
- Partograms may decrease maternal and neonatal morbidity
- More research is needed

Future directions...

- Plans to analyze the pre/post periods of partogram implementation on L&D
- Prospective QI
- Initiate use with:
 - Statewide hospitals
 - Community Midwives
 - Nurses
 - Patients



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Discussion/Questions



2015

- Roadmap Monthly (webcast) 7:00 am – 8:00 am

March 12	August 20
April 30	October 15
May 21	November 19
June 18	December 17
July 16	

- Safe Tables (in-person) 9:00 am – 2:30 pm
 - September 8



Thank You!

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Safe Deliveries Roadmap Website
<http://www.wsha.org/0513.cfm%20>

