



Improving the Reporting Accuracy: Antenatal Corticosteroid Use



March 28th, 2019

Partnering to Improve Health Care Quality
for Mothers and Babies



Agenda

- What is the Data Showing?
- Most Improved Hospitals
- Importance of Antenatal Steroids
- Improving Hospital Reporting
- Clinical Scenarios
- Upcoming Webinar
- Adjourn



What is the Data Showing?

Chinyere N. Reid, MBBS, MPH

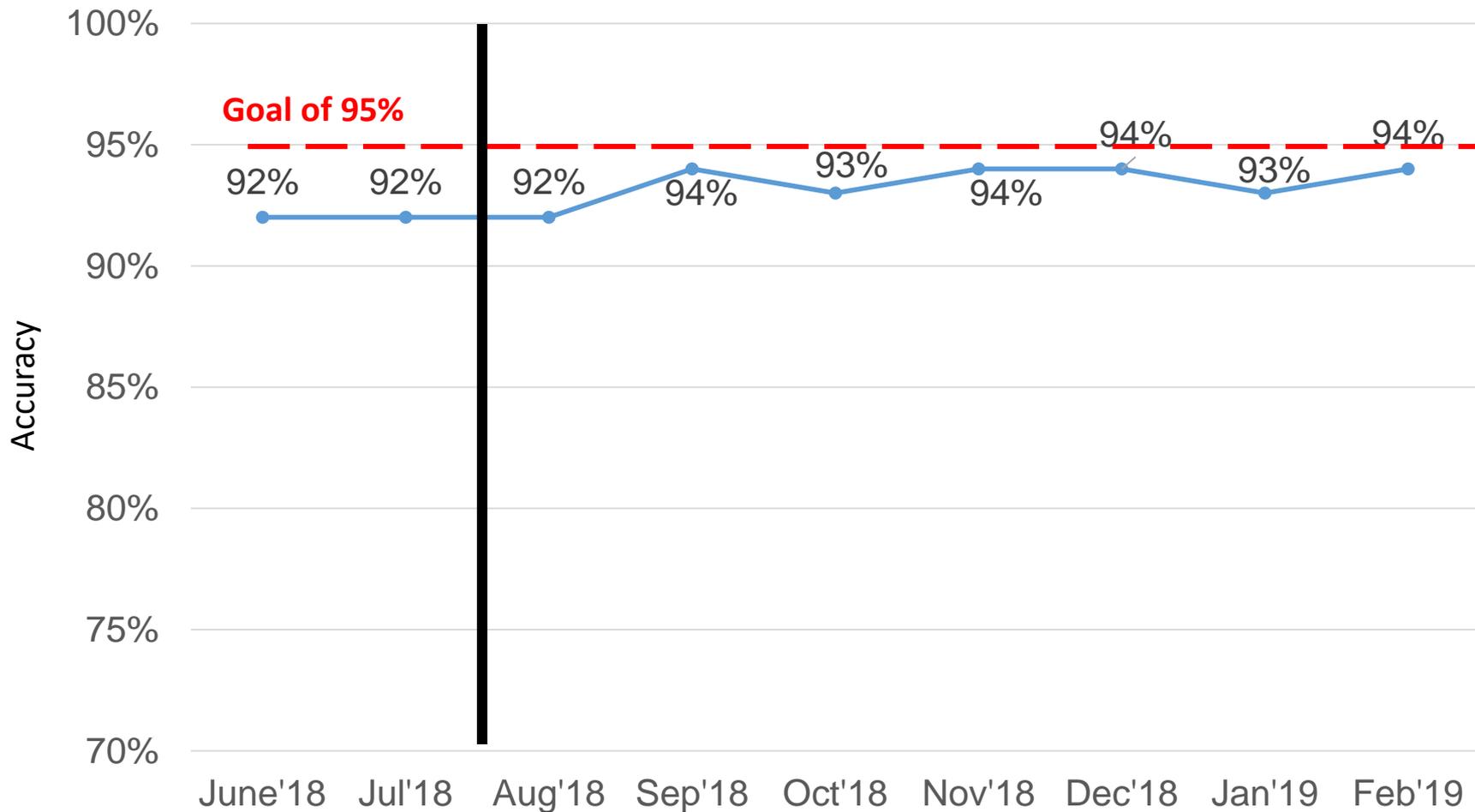
BCI – Project Manager

FPQC

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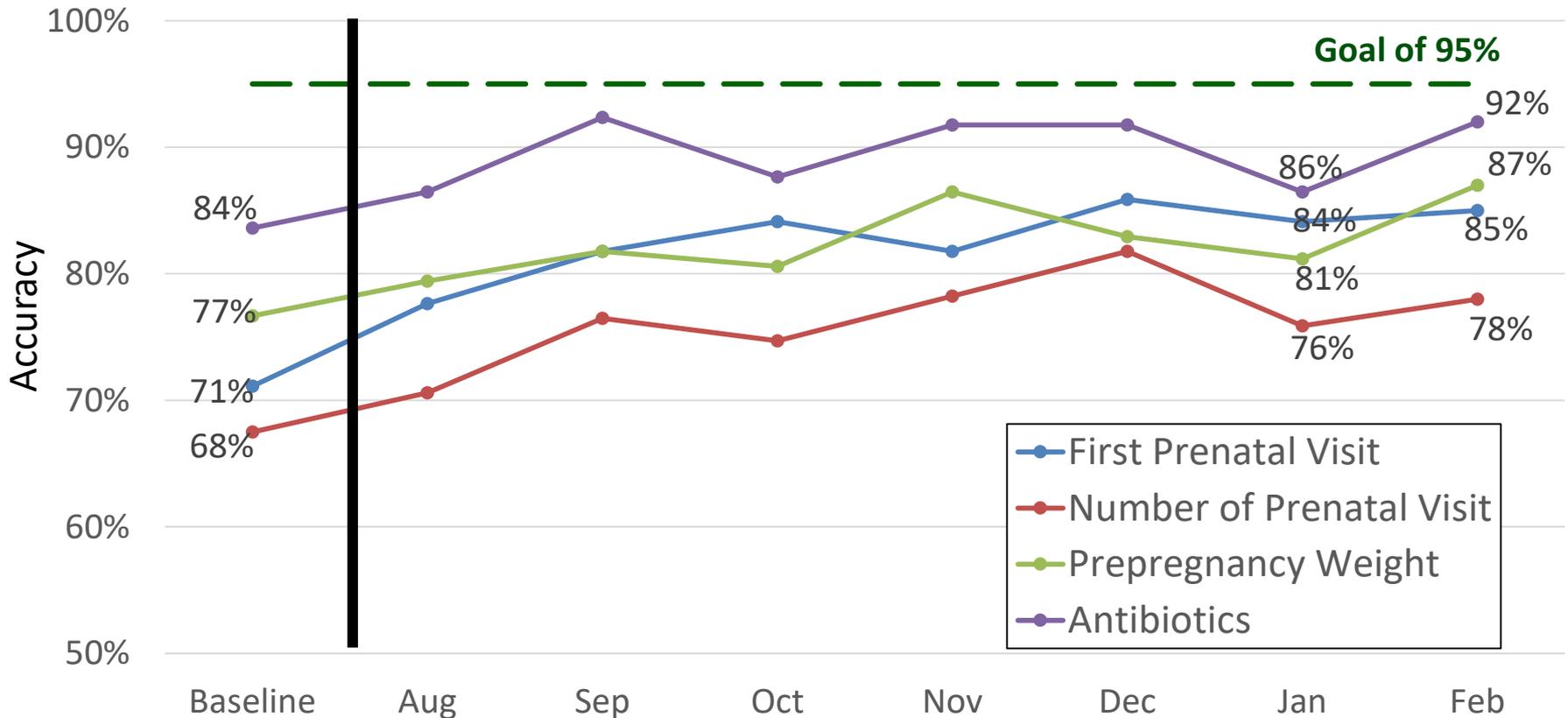


Average Percent Accuracy of All 23 Birth Certificate Variables – BCI Initiative-Wide

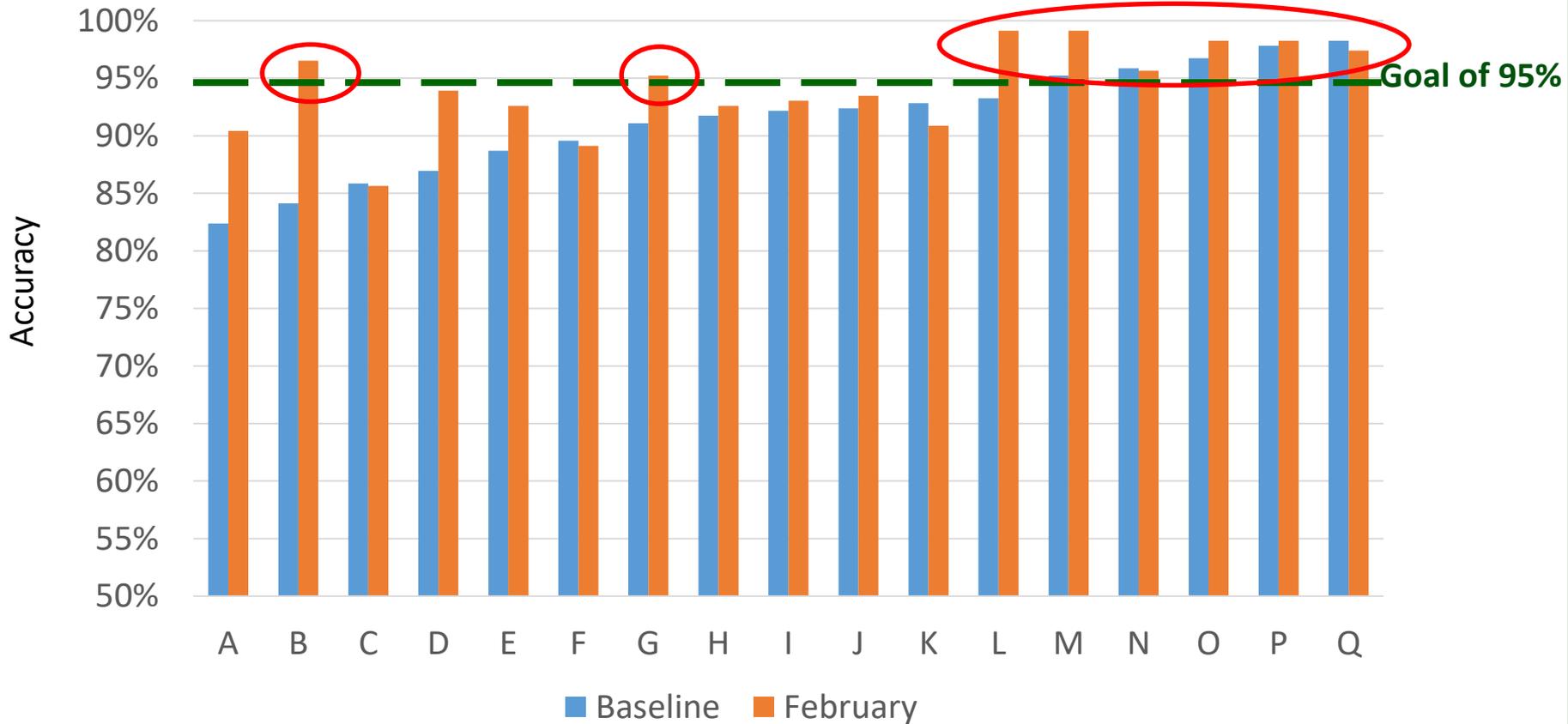


Average Percent Accuracy for BCI Hospitals

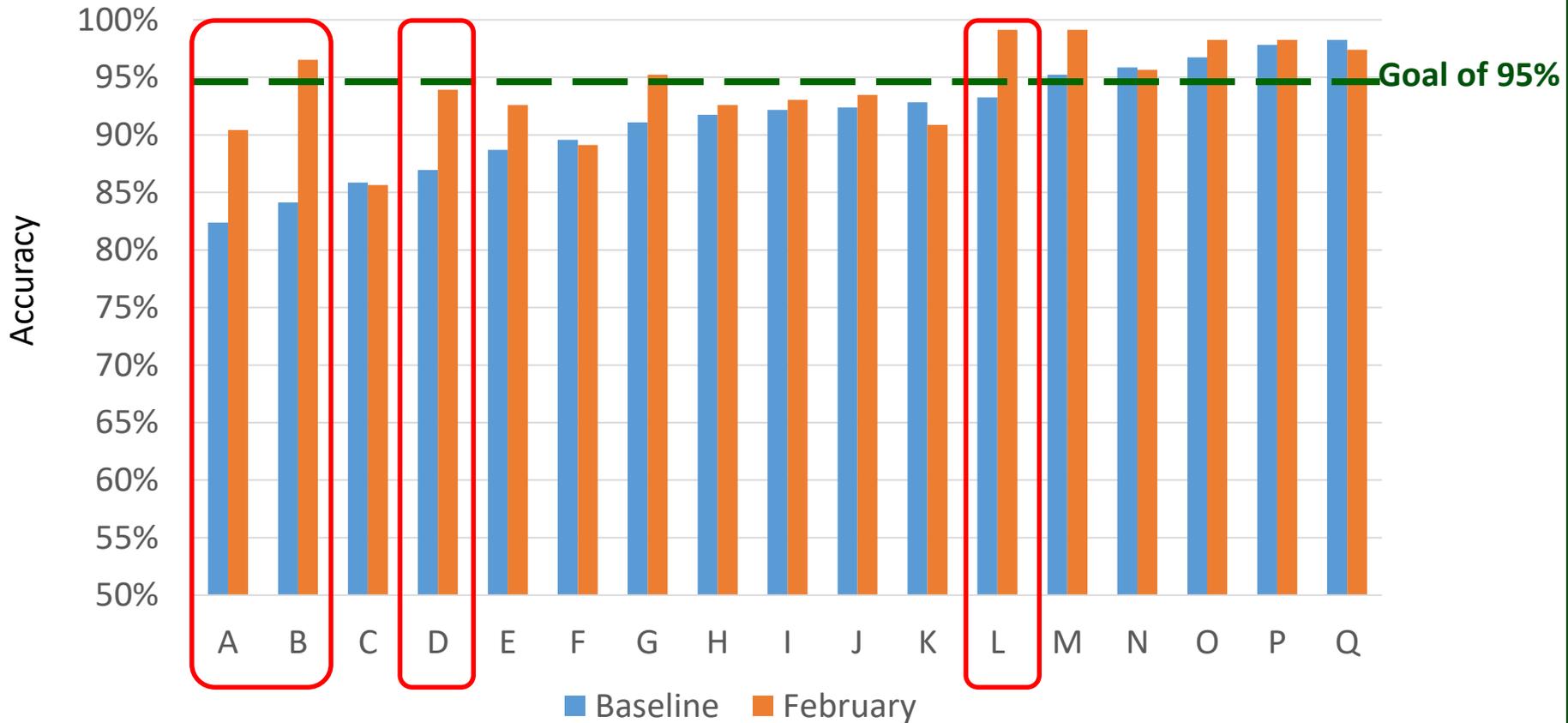
Least Accurate Variables - February



Average Percent Accuracy of All 17 BCI Hospitals from Baseline

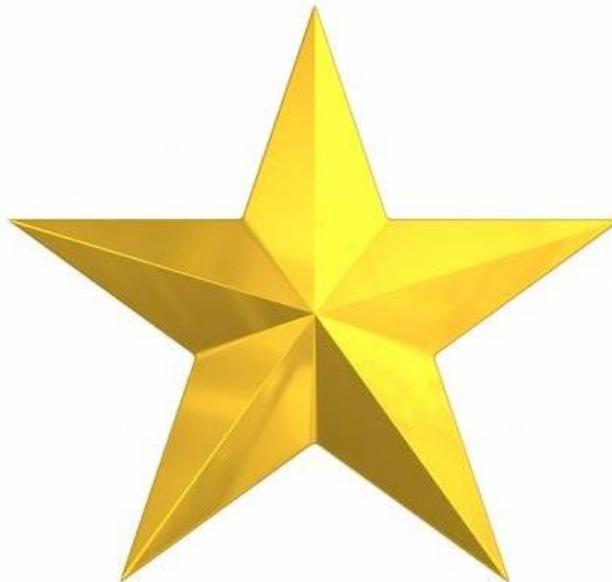


Average Percent Accuracy of All 17 BCI Hospitals from Baseline



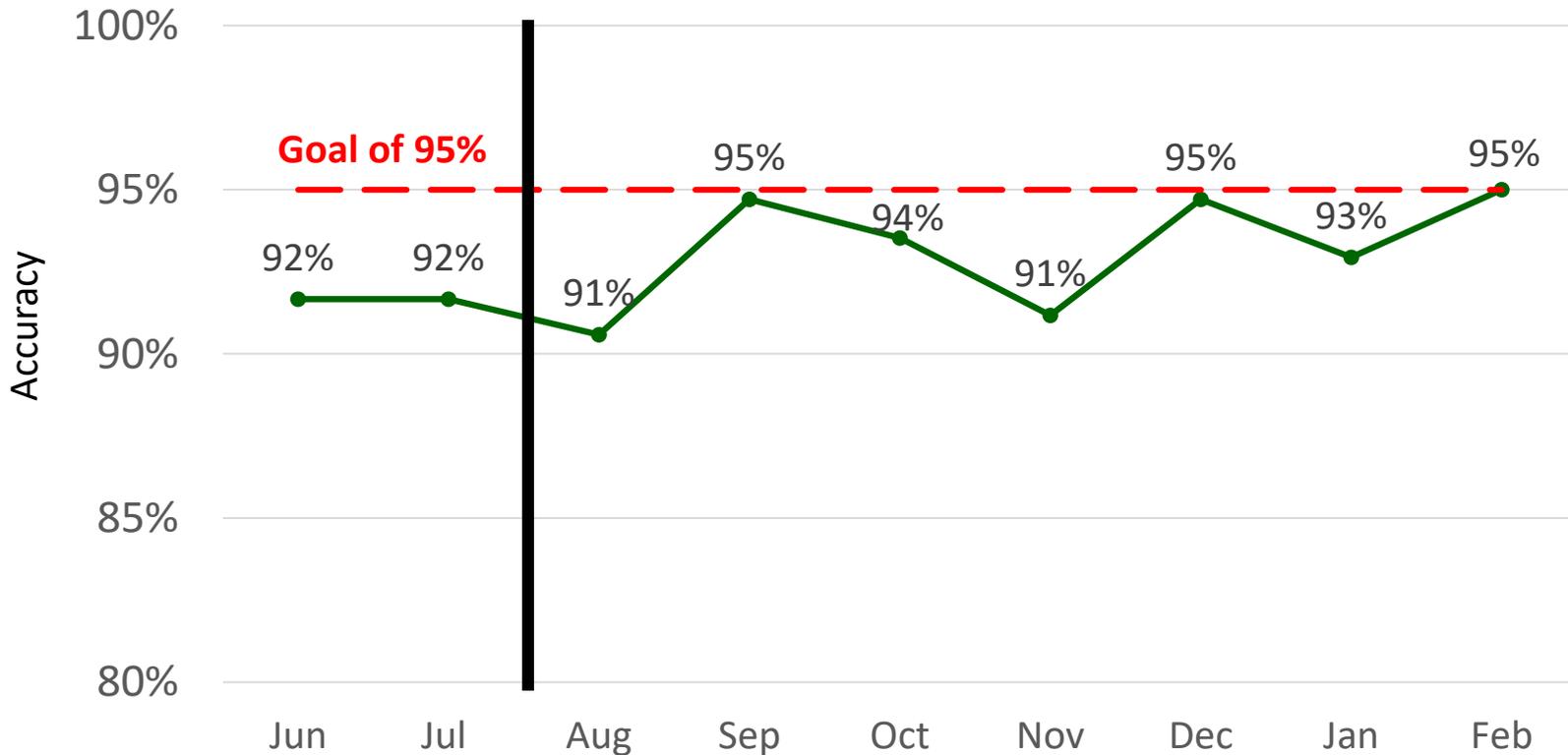
Most Improved Overall

Baseline to February



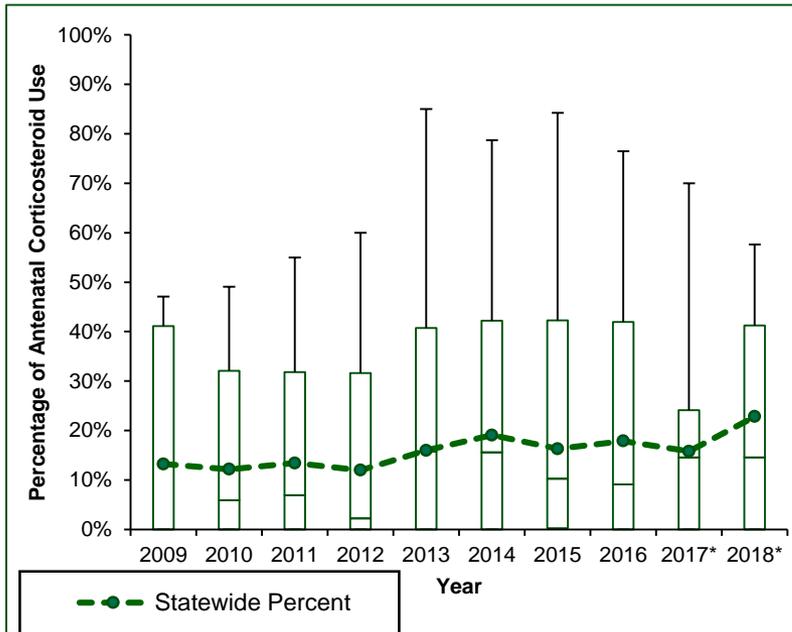
Holmes Regional Medical Center
Jupiter Medical Center
Mount Sinai Medical Center
Tampa General Hospital

Average Percent Accuracy of All 17 BCI Hospitals for Antenatal Corticosteroids

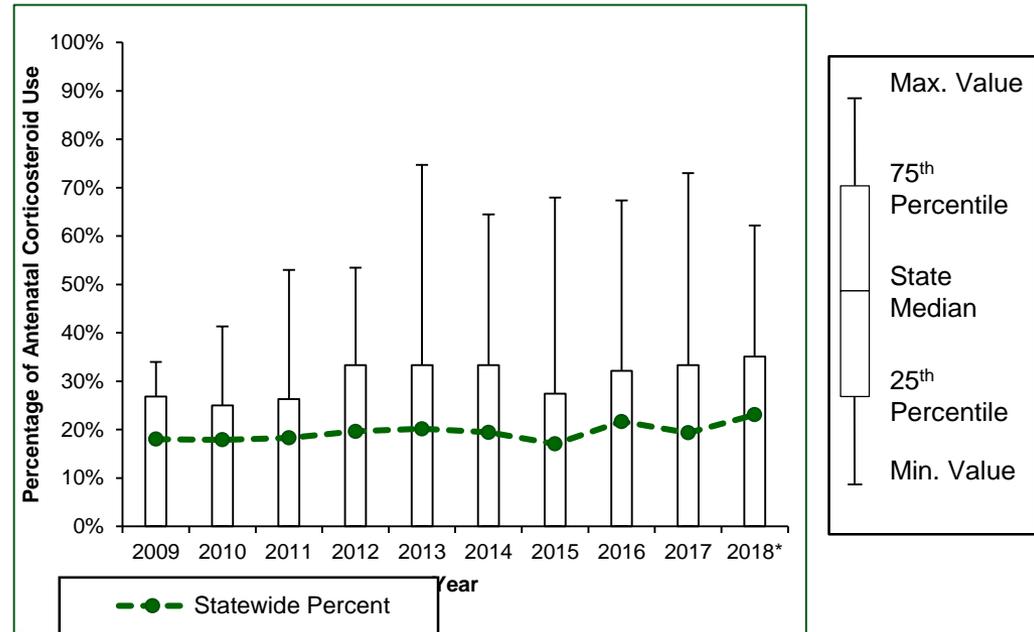


Percentage of Antenatal Corticosteroid Use Among Infants Born at 24-31 Weeks of Gestation, 2009-2018

For All **Level III** NICU Hospitals in Florida

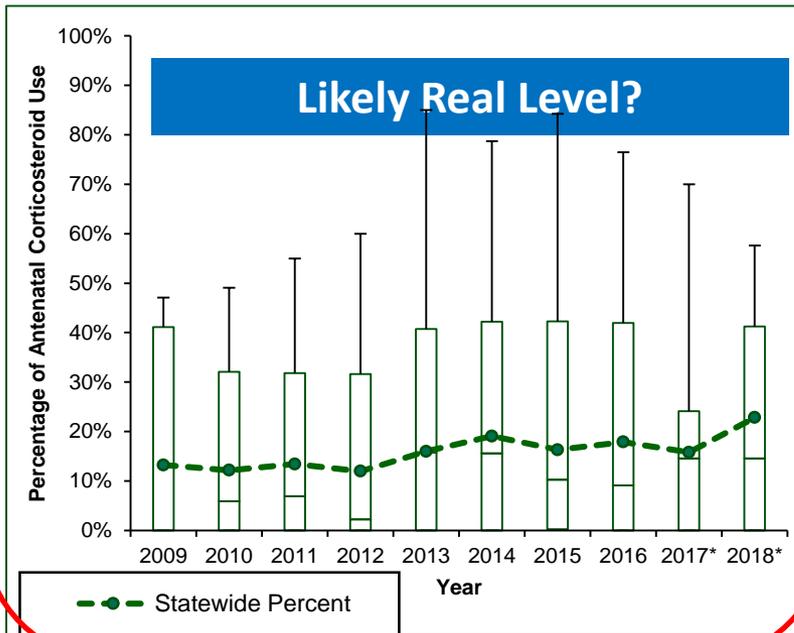


For All **Level I and II** NICU Hospitals in Florida

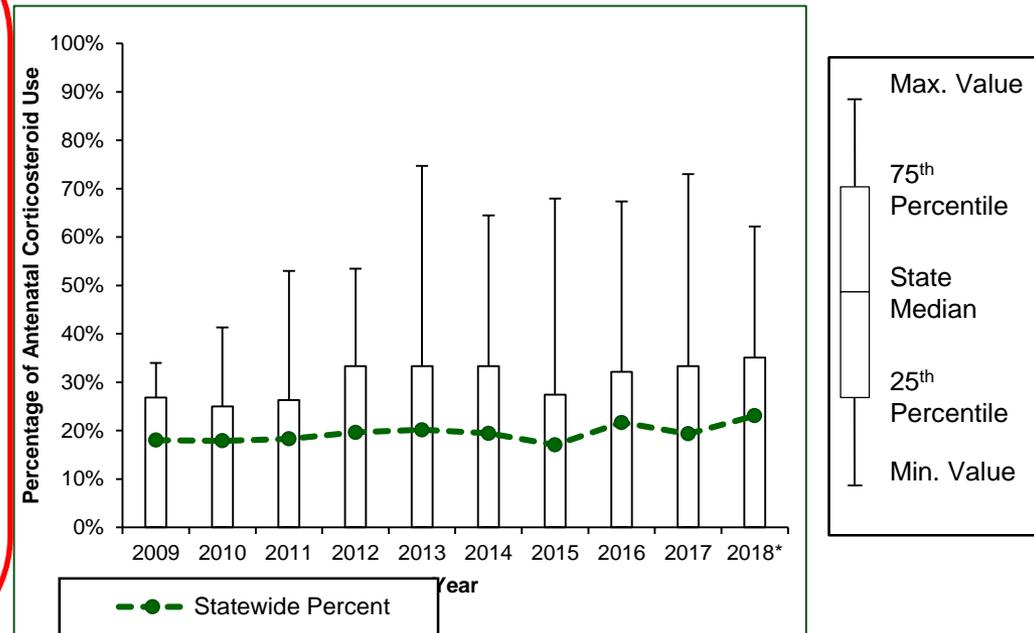


Percentage of Antenatal Corticosteroid Use Among Infants Born at 24-31 Weeks of Gestation, 2009-2018

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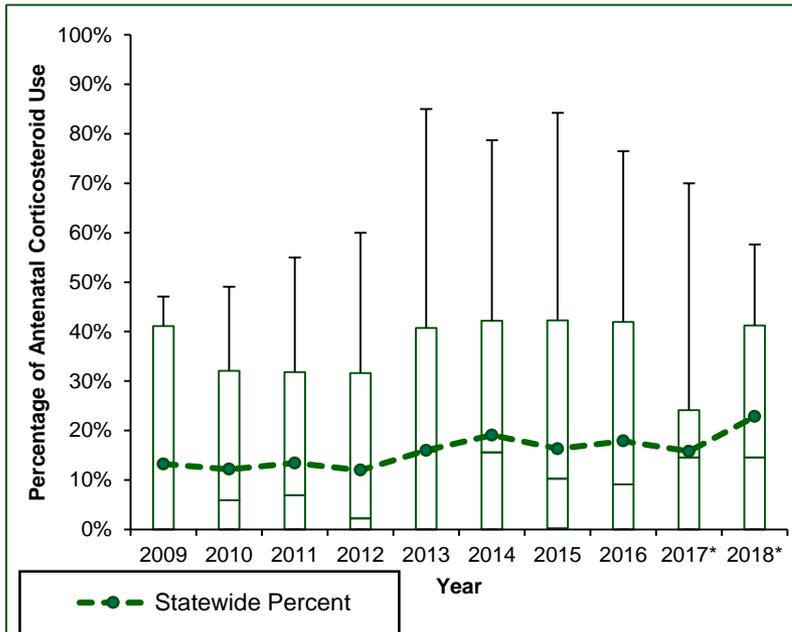


For All **Level I and II** NICU Hospitals in Florida

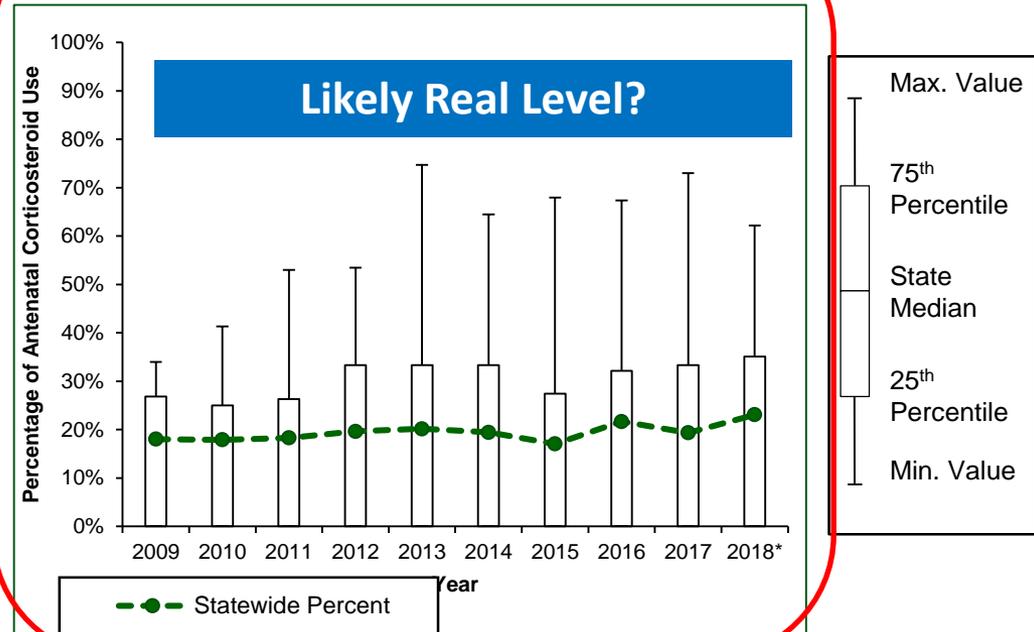


Percentage of Antenatal Corticosteroid Use Among Infants Born at 24-31 Weeks of Gestation, 2009-2018

For All **Level III** NICU Hospitals in Florida



For All **Level I and II** NICU Hospitals in Florida





Importance of Antenatal Steroids

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Associate Professor

Department of OB/GYN

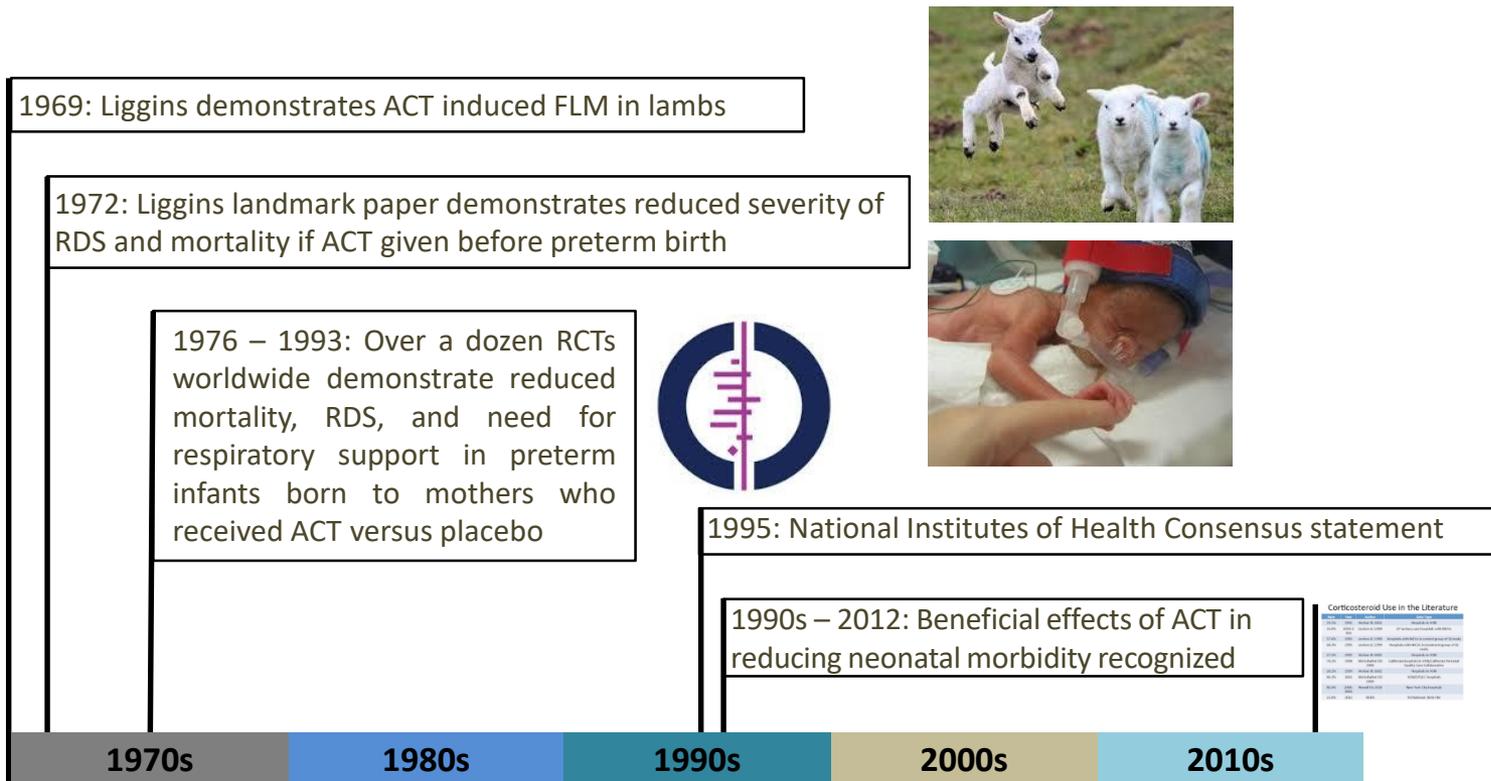
USF Morsani College of Medicine



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Antenatal Corticosteroid Treatment (ACT) Timeline



Women who are at Risk for Preterm Delivery: Candidates for ACT

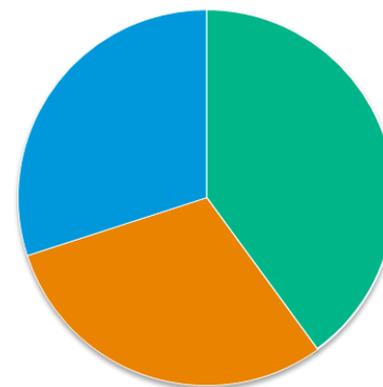
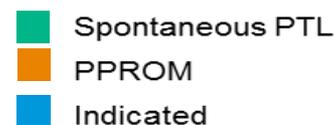
-ACT should be immediately administered when delivery is anticipated within 7 days of diagnosis

Condition*	Contraindications
<ul style="list-style-type: none">▪ PTL▪ PPROM▪ Non-reassuring FHR▪ Vaginal bleeding▪ Hydrops▪ IUGR▪ Preeclampsia▪ Eclampsia	<ul style="list-style-type: none">▪ Allergy to betamethasone or dexamethasone▪ Systemic infection▪ Patients have already received a course of ACT

*Not an all inclusive list: includes any other condition in which delivery is anticipated within 7 days

Causes of Preterm Delivery

- Spontaneous Preterm Labor 40-45%
- Preterm Premature Rupture of Membranes (PPROM) 30-35%
- Indicated 30-35%



Goldenberg RL, et al. Lancet 371:75, 2008b.

Dosage: The Tale of Two Drugs

Betamethasone	Dexamethasone
Intramuscular	Intramuscular
Two doses	Four doses
12 mg	6mg
24 hours apart	12 hours apart

*Additional research is still needed to establish which antenatal steroid drug and dosage regimens are most effective

Proven Benefits of ACT between 24 & 34 Weeks

Antenatal corticosteroids led to reduction in:

Neonatal death (NND)	~ 30%
Respiratory distress syndrome (RDS)	~ 35%
Intraventricular hemorrhage (IVH)	~ 50%
Cerebroventricular hemorrhage	~ 50%
Necrotizing enterocolitis (NEC)	~ 55%
NICU admissions	~ 20%
Early systemic infections	~ 50%

Roberts D, Dalziel S. Cochrane Database of Systematic Reviews 2006; Issue 3

Major Morbidity Reduced by ACT

Pulmonary

Respiratory Distress Syndrome (RDS)

- **How does this happen:** Insufficient surfactant production + decreased ability of the lungs to expand and absorb oxygen → hypoxemia (decreased oxygen in the blood)
- **Incidence:** Increases with decreasing gestational age (93% < 28 weeks, 10.5% at 34 weeks)
- **Prevention:** Mother – ACT (prior to delivery), Baby – Surfactant, CPAP (after delivery)
- **Treatment:** Placement of arterial catheters, supplemental oxygen, positive pressure ventilation, chest tubes, and the use of endotracheal tubes
- **Short Term:** Hypoxemia, Pneumothorax (air in the chest that prevents lung expansion)
- **Long Term Underdevelopment of the Lungs:** Bronchopulmonary dysplasia (BPD) → increased death rate, poorer neurodevelopmental outcomes such as cerebral palsy and learning delays

Pulmonary

Respiratory Distress Syndrome (RDS)

- RDS creates hypoxemia (decreased oxygen in blood)
- Most other major problems and death in premature infants are related to hypoxemia

Gastrointestinal

Necrotizing Enterocolitis (NEC)

- **How does this happen:** Decreased oxygen supply and inflammation of the fragile intestines (usually terminal ileum and colon), death of intestinal tissue and perforation (hole in the intestines which allows stool and bacteria into the abdomen)
- **Incidence:** 2–10% of VLBW infants (<1500gms)
- **Treatment:** Antibiotics, TPN, laparotomy, removal of affected intestines
- **Short Term:** Sepsis (infection of the blood), DIC, increase in neonatal death
- **Long Term:** Growth and neurodevelopmental delays (such as cerebral palsy and learning disabilities), persistent diarrhea and frequent bowel movements

Cerebral/Neurodevelopmental

Intraventricular Hemorrhage (IVH)

- **How does this happen:** Fragile brain tissue + hypoxemia and disturbances of cerebral blood flow → capillary bleeding into brain tissue and intraventricular spaces.
- **Incidence:** Increased with decreasing gestational age – 36% between 22 and 28 weeks , 3.3-6.3% from 30-34 weeks
- **Long Term:** Hydrocephalus (water on the brain), hemorrhagic infarction (stroke), and hardening of the brain tissue, cerebral palsy, learning delays, visual or hearing problems

ACOG (2012) Practice Bulletin 127: Management of Preterm Labor

*“The **most** beneficial intervention for patients in true preterm labor is the administration of corticosteroids.”*

ACOG Practice Bulletin No 127. Obstet Gynecol. 2012;119(6):1308-17

ACOG (2012) Practice Bulletin 127: Management of Preterm Labor

- A single course of corticosteroids is recommended between 24 weeks and 34 weeks gestation when risk of preterm delivery is within 7 days.
 - ✓ Betamethasone: Two doses of 12mg IM, 24 hours apart **OR**
 - ✓ Dexamethasone: Four doses of 6mg IM, 12 hours apart
- A single course of repeat antenatal corticosteroids should be considered in women whose prior course of ACT was administered at least 7 days previously and who remain at risk of preterm delivery before 34 weeks gestation, irrespective of the fetal number.
- These recommendations are also outlined in NICHD Consensus Statement published in 1994 and the NIH Consensus Statement published in 2000.

ACOG Practice Bulletin No 127. Obstet Gynecol. 2012;119(6):1308-17.

Questions? Comments?





Improving Hospital Reporting

Annette Phelps, ARNP, MSN

FPQC Nurse Consultant



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Antenatal Corticosteroid Treatment (ACT)

- Joint Commission QI measure: PC-03
- Important to standardize documentation to be compliant
- Definition:
 - ✓ Documentation that antenatal steroids (ANS) was initiated before delivery (for fetal lung maturation).
 - ✓ Includes documentation of administration in another facility or current hospitalization.
 - ✓ Patients delivering preterm at 24 to <34 weeks gestation receiving ANS prior to delivery.
- Agents: Betamethasone 12 mg or Dexamethasone 6mg
- Improvement Noted As: Increase in the rate
- Mandatory reporting:
 - ✓ Began first quarter of 2014 and due in June 2014.
 - ✓ Added preterm infants up to 33 ^{6/7} weeks gestation beginning January 2015.

ACT Documentation System & Reporting

- Hospital policy is a **key driver** to improving ACT reporting
- **Intervention:**
 - ✓ Establish system to remind/flag patient not receiving ACT or when course is completed
 - ✓ Standardize documentation of ACT in hospital chart and/or EMR
 - ✓ Communicate and document ACT at maternal transport
 - ✓ Teach coders/birth registry staff your ACT terminology and documentation system

Improving ACT Documentation

- U.S. Standard certificate of live birth, rev 11/2003, #45.

47. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply)

<input type="checkbox"/> Induction of labor	<input type="checkbox"/> Augmentation of labor	<input checked="" type="checkbox"/> Steroids (glucocorticoids) for fetal lung maturation received by the mother/parent prior to delivery
<input type="checkbox"/> Antibiotics received by the mother/parent during labor	<input type="checkbox"/> Clinical chorioamnionitis diagnosed during labor or maternal temperature > 38°C (100.4°F)	
<input type="checkbox"/> Fetal intolerance of labor such that one or more of the following actions was taken: in-utero resuscitative measures, further fetal assessment, or operative delivery		
<input type="checkbox"/> Epidural or spinal anesthesia during labor		
<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None	

Information Sources for ACT

1st Delivery record

– Maternal OB/labor or delivery summary record

2nd Maternal medication record

3rd Newborn admission H&P

4th Maternal physician order sheet

5th Prenatal care records

Other Potential Sources for ACT Info

- Physician and nursing maternal admission history
- Transfer notes from referring hospital
- Prior hospitalization discharge summary notes
- ACT Passport

Standardizing Clinical Practice

- Standardize where ACT is found in:
 - ✓ Prior admissions
 - ✓ Given at referring hospital
 - ✓ Given at doctor's office
- For example, use of an ACT Implementation Checklist

ACT Implementation Checklist

- Standardized protocol for assessing imminent preterm delivery within 7 days
- Hospital procedures to standardize ACT
- Hospital policy to memorialize ACT*
- Standardized order sets*
- Availability of ACT on Labor and Delivery 24/7
- Maternal transport documentation forms*
- Documentation of ACT administration, including patients discharged undelivered
- Physician education
- Staff education
- Patient education

*Sample forms can be found at www.prematurityprevention.org

Improving ACT Documentation

- Teach birth registry staff ACT terminology and where to look for the data
- Antenatal Corticosteroids referred to differently in many ways
- For example, American Congress of Obstetricians and Gynecologists (ACOG) refers to ACT in three different ways
 - Antenatal Corticosteroids
 - Antenatal Steroids
 - Corticosteroids

Improving ACT Documentation

- Additional terminology and acronyms for ACT include:
 - ACS**
 - ANCS**
 - ACT**
 - ANS**
 - Betamethasone**
 - Betamethasone phosphate**
 - Beta-PO4**
 - Betamethasone acetate**
 - Beta-Ac**
 - Dexamethasone**
 - Glucocorticoids**
 - Steroids**
- Audit medical records to understand compliance



Clinical Scenarios

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FPQC – Director

USF Chiles Center



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**So how does this relate to
collecting birth certificate data?**

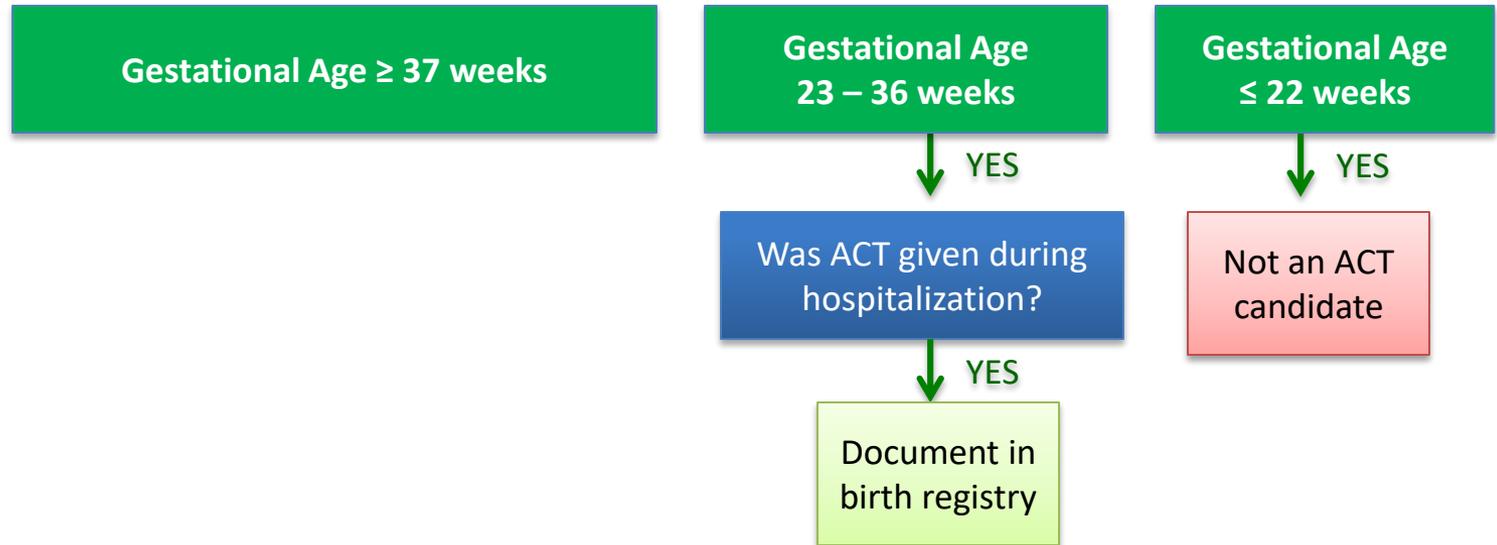
Flowchart For Birth Registry Staff

Gestational Age \geq 37 weeks

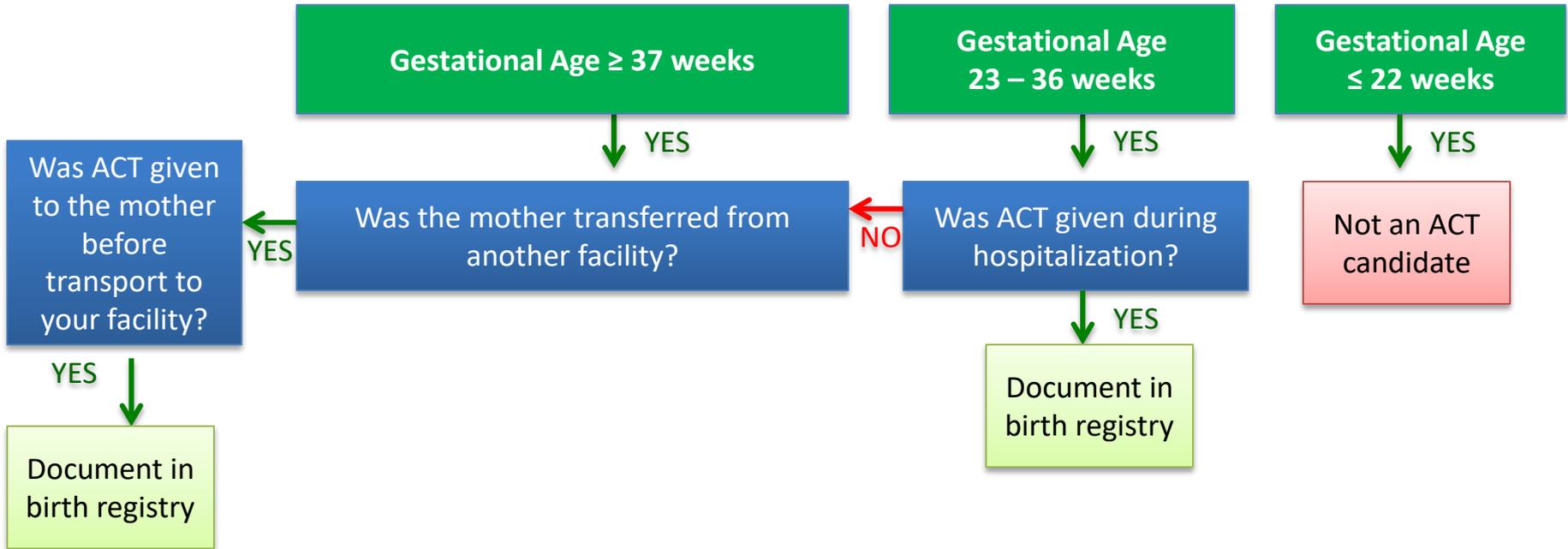
Gestational Age
23 – 36 weeks

Gestational Age
 \leq 22 weeks

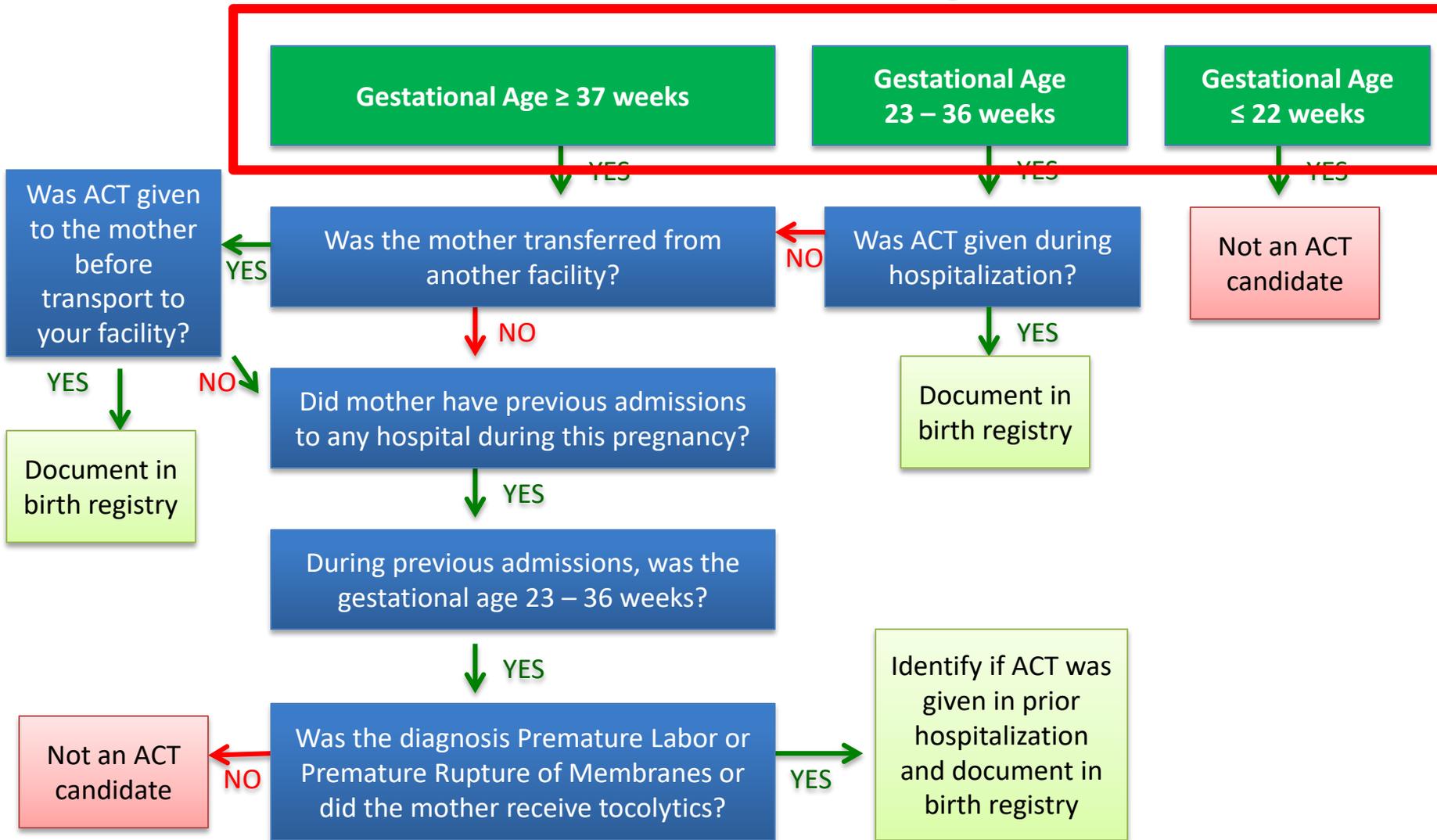
Flowchart For Birth Registry Staff



Flowchart For Birth Registry Staff



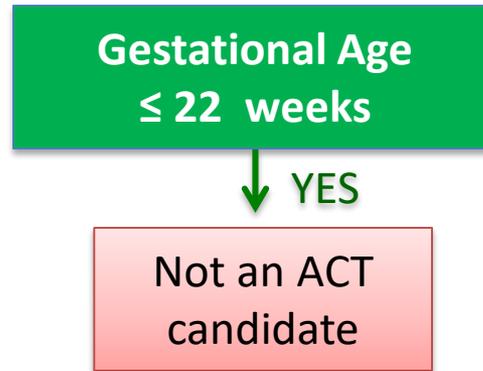
Flowchart For Birth Registry Staff



Antenatal Corticosteroids Scenario 1

Mother was hospitalized and kept strict bed rest. She gave birth during this hospitalization. Infant was born at 22 weeks of gestational age.

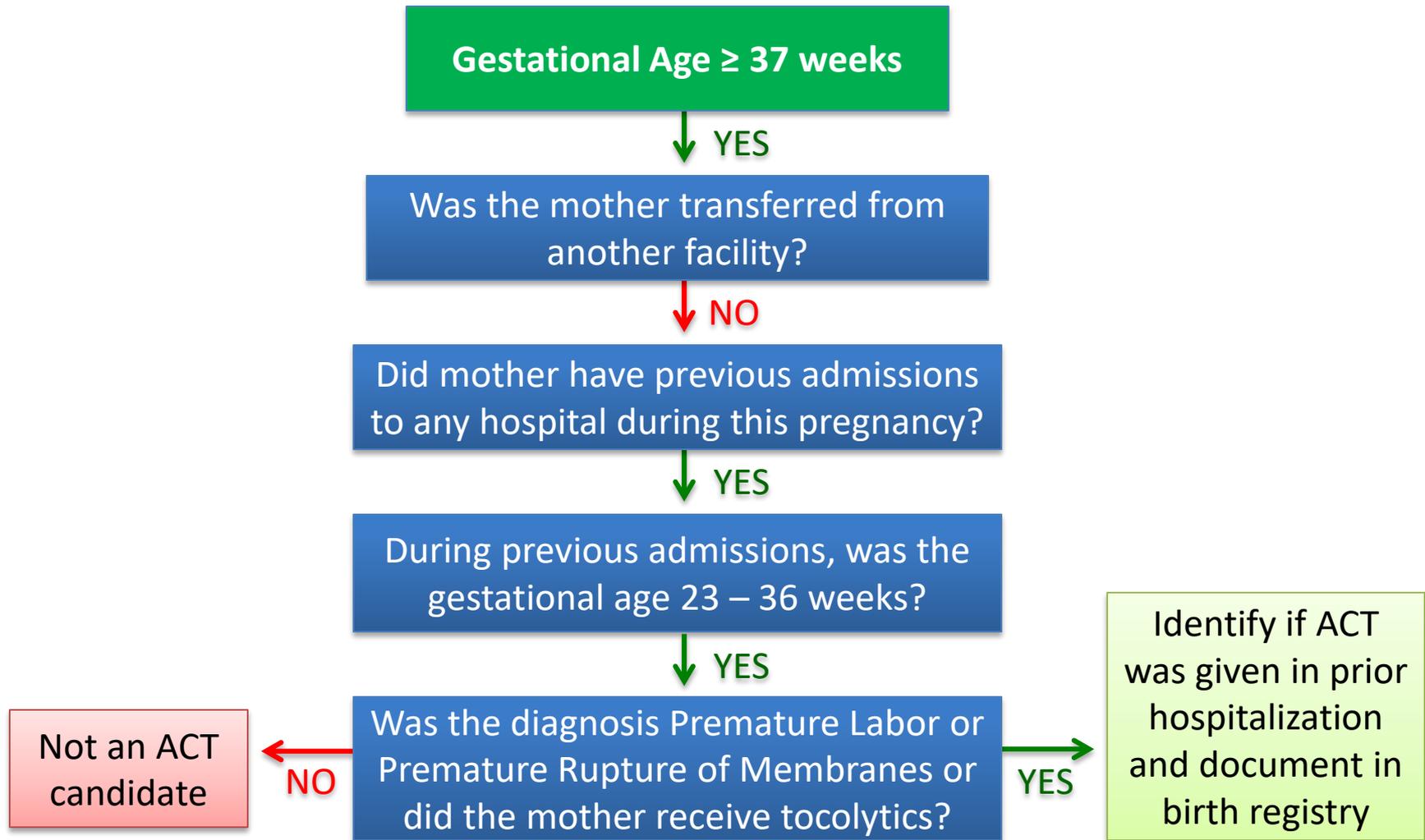
Flowchart Scenario 1 Pathway



Antenatal Corticosteroids Scenario 2

Infant was born full term with a gestational age of 38 weeks. The mother came directly from home for the delivery. Her records indicate a previous hospitalization during this pregnancy when 30 weeks of gestation was completed. She did not receive antenatal steroids prior to or during the hospital admission.

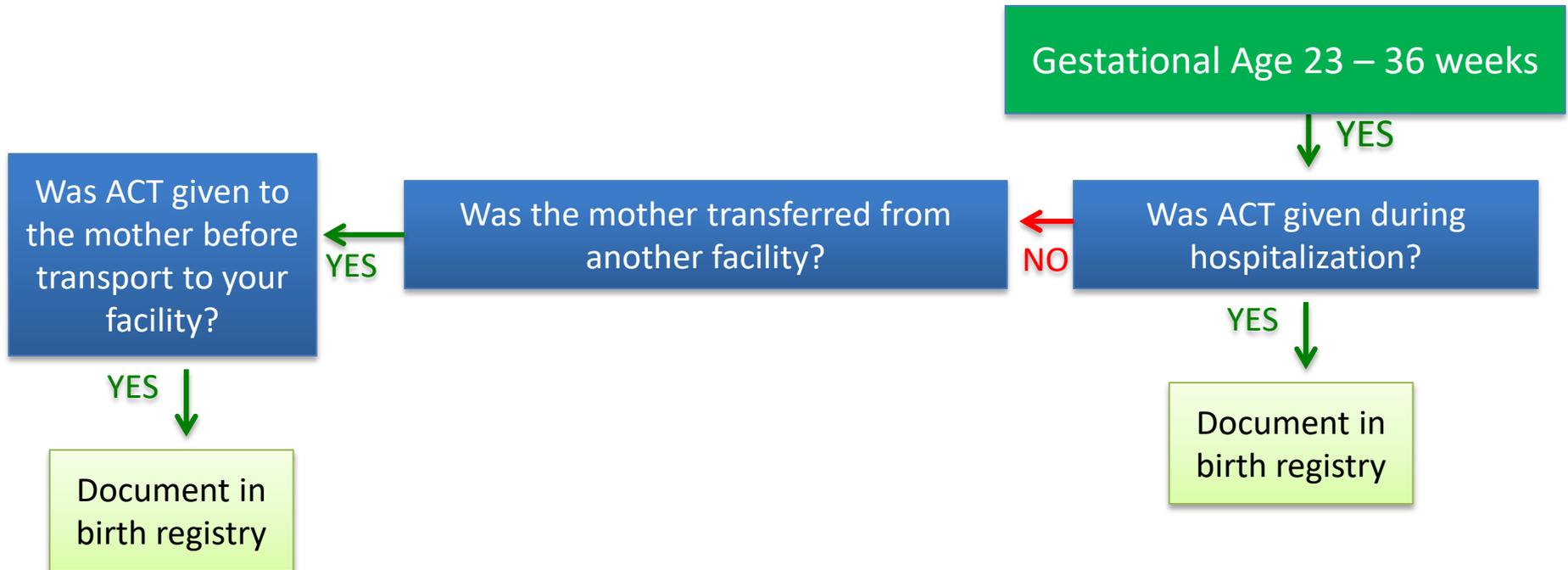
Flowchart Scenario 2 Pathway



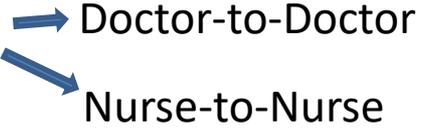
Antenatal Corticosteroids Scenario 3

Infant was born with a gestational age of 28 weeks. The mother did not receive ACT at the delivering facility, however you notice the mother was transferred from another medical facility. Upon review, you note she did not receive antenatal steroids during the prior hospitalization.

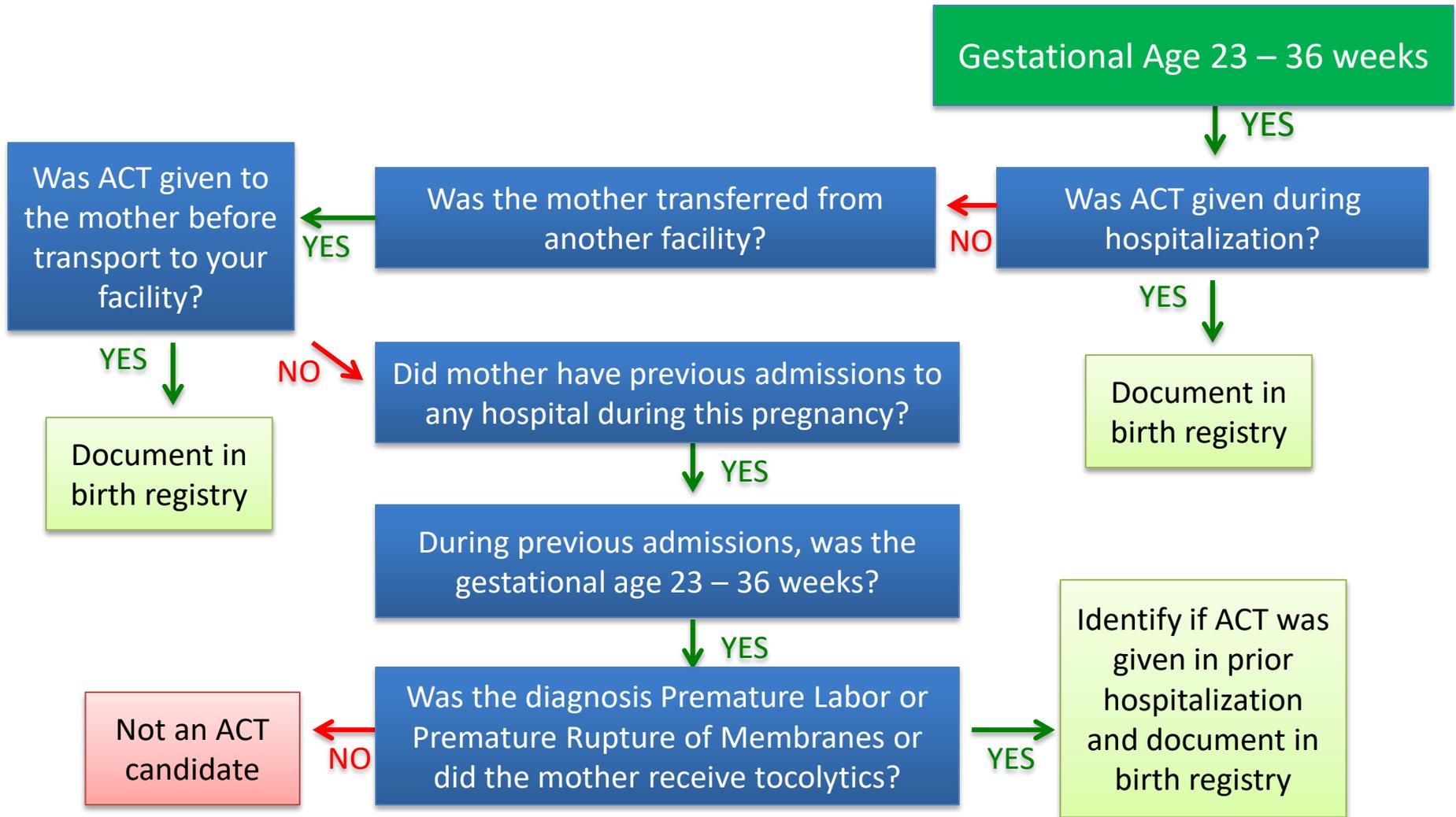
Flowchart Scenario 3 Pathway



Maternal Transfers –Key ACT Steps

- Communication is key to optimizing ACT when transferring an at risk preterm patient between institutions.
- Steps to help improve ACT during maternal transports include:
 - ✓ Documentation of ACT at transferring hospital
 - ✓ Duplicate Handoff coming from 2 sources: 
- Standardize ACT documentation at receiving hospital
- Standardize handoff tool
 - ✓ Transfer Summary Form for Referring Hospital
 - ✓ Physician Transport Intake Form
 - ✓ Nursing Transport SBAR

Flowchart Scenario 3 Pathway



Hospital Grids

- It is important that you refer to your hospital's flow chart for Antenatal Corticosteroids pathway
- Flow chart should **also** be used for deliveries at GA < 34 weeks

ACT Administration Red Flags

Check if the mother had any of the following:

- Transferred** from another facility
- Prior **admissions** during this pregnancy
- Diagnosed with **premature labor** or **premature rupture of membranes** (PROM; PPRM)
- Received medications to suppress premature labor: called **tocolytics** (e.g. terbutaline, nifedipine)

Summary

- Standardize language for antenatal corticosteroids
- Provide hands-on training – records review and searches, skills lab
- Immediate feedback on actual or simulation reviews of records
- Cross train providers in standard language and documentation in the patient record, so that they understand the importance for BC preparation
- Need to look at other sources because mother could have received ACT at:
 - ✓ A previous admission
 - ✓ A different facility prior to transfer
- If poor reporting of ACT is identified, audit data abstractors and implement additional training

Questions? Comments?



Upcoming Final Webinar

June 6th, 2019

‘A Photo Finish - Celebrating Your Success’



Thank you!

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