Reducing NTSV Cesarean Birth Rates in Oregon

Practical approaches from the local context

DATE: OCTOBER 18, 2024

Panelists

Elizabeth Melendez, MD – OB hospitalist, Kaiser Permanente, Portland

Miriam Rosenberg, CNM – Legacy Emanuel, Portland

Wendy Smith, MD, MPH – OB hospitalist, Legacy Emanuel, Portland

Stacey Wilson, CNM – CNM Lead, Kaiser Westside Medical Center, Hillsboro

Emily Zeno Yeast, CNM – Samaritan Obstetrics, Gynecology & Midwifery, Corvallis

Definitions: NTSV Cesarean Birth Rate

NTSV = Nulliparous, Term, Singleton, Vertex

Good basis for comparison, reduces variables

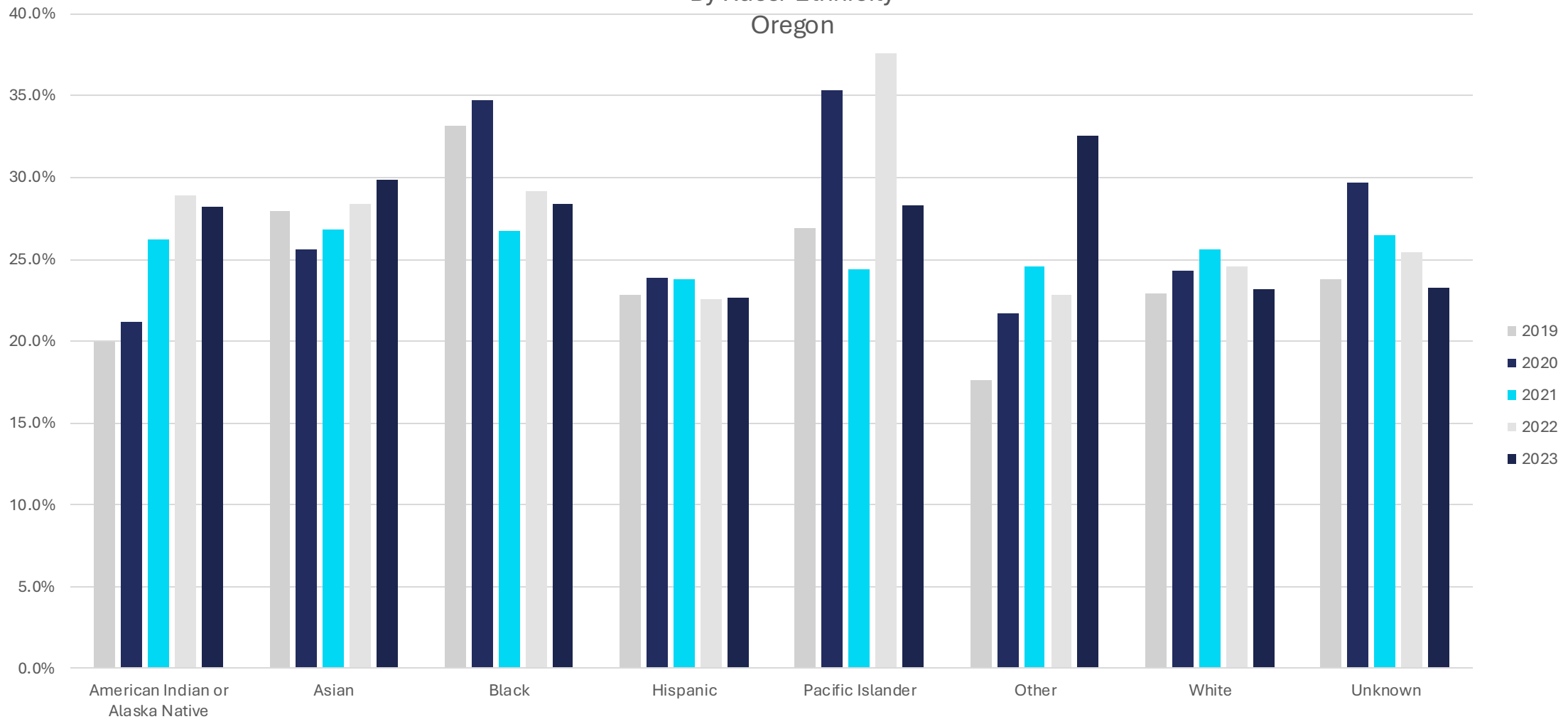
Does not exclude IOL, higher risk conditions

Goal NTSV c/s rate < 23.6%
(Joint Commission; WHO)

Oregon NTSV c/s rate: 24.8%*
National NTSV c/s rate: 26.3%*

*National Center for Health Statistics, Mortality Data, 2018-2021; National Center for Health Statistics, Natality Data, 2022.

5 yr Trend NTSV C/S Rates By Race/ Ethnicity Oregon

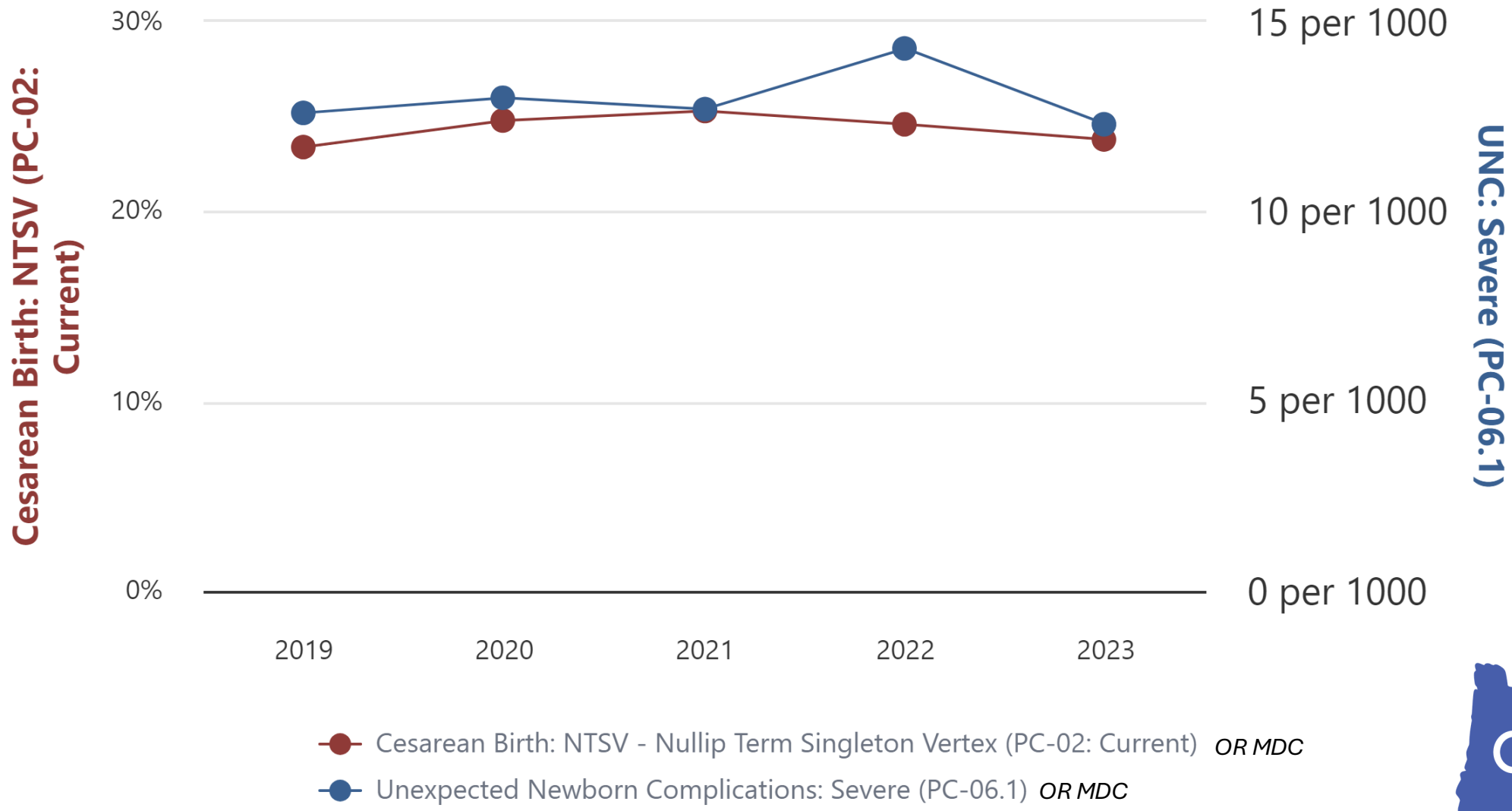


American Indian or Alaska Native	Asian	Black	Hispanic	Pacific Islander	Other	White	Unknown
Annual Den: 65-80	Annual Den: 676-830	Annual Den: 268-322	Annual Den: 1837-2113	Annual Den: 90-127	Annual Den: 119-145	Annual Den: 6083-6560	Annual Den: 580-964*

Source: Oregon Maternal Data Center, prepared 10/1/24

Cesarean Birth: NTSV (PC-02: Current) vs. UNC: Severe (PC-06.1)

Jan 2019 - Aug 2024



Source: Oregon Maternal Data Center, prepared 10/1/24

Selected Contributors to NTSV Cesarean Birth Rate

- Models of Care
  - Midwife-led and collaborative models of care
  - Hospitalist model of care
- Induction Practices
- External Cephalic Version
- Labor Support: RNs and Doulas
- Operative Vaginal Deliveries: forceps and vacuum

Three local models

Kaiser Permanente Northwest

Elizabeth Melendez, MD – OB hospitalist
Stacey Wilson, CNM – CNM Lead, Kaiser Westside Medical Center

- Two Kaiser hospitals with full-scope Certified Nurse-Midwives
- OB Hospitalist model
- Managed Care Organization
- Located in Portland Metro

  (includes Salem and Vancouver)

Kaiser Permanente Northwest

	Westside (Level 1)	Sunnyside (Level 3)
Primary Cesarean 2023	23.9% (1,450 births)	24% (2,443 births)
Primary Cesarean 2022	18.8% (1,455 births)	23.9% (2,804 births)

Cesarean rate stable over time

Induction rates: 45-50%

Samaritan Obstetrics, Gynecology & Midwifery – Corvallis

Emily Zeno Yeast, CNM

Samaritan Health Services

Integrated Model of Care

CNM 1st call, OB 2nd call
CNMs receive all community birth transfers and unassigned patients
CNMs round on all postpartum/post-op patients

Entry to Care

Prenatal Care
CNM/OB

Triage, Labor
CNM

Vaginal Birth
CNM

OB Consult for High Risk
(mag, insulin)

Cesarean Birth
OB/CNM

Ancillary/supplemental services in clinic include CenteringPregnancy care model, nutritionist, psychologist, and OMT practitioner.

opc

Samaritan Obstetrics, Gynecology & Midwifery – Corvallis

Samaritan Health Services

Outcomes, 2017-2022

- **~ 500 births annually** Level II Maternity Care hospital; all risk levels
- **NTSV cesarean birth rate ~ 16%** (mean, median and mode for 2017-2022: 12-19%)
- **Overall cesarean birth rate 20-24%**
- **Induction rate 30-50%** of patients
- **Possible contributing factors:**
  - follow guidelines for preventing the first cesarean birth, failed IOL
  - extensive cervical ripening/Bishop score utilization
  - offer ECV with regional anesthesia
  - elective IOL consent
  - midwifery care
  - doulas available to all Medicaid patients

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Legacy Emanuel Midwifery

Miriam Rosenberg, CNM

- **~ 500 births annually** Level IV Maternity Care hospital
  - Midwives care for low/moderate risk patients in consult w/MFM and OB hospitalists
- **NTSV cesarean birth rate 15%** (wide annual range: 7-25%)
- **Overall cesarean birth rate 20%** (2021 hospital average 38%)
- **Induction rate 34%** of patients
- **Possible contributing factors:**
  - Community birth transfer improvement work
  - Project Nurture
  - Extensive cervical ripening/Bishop score utilization
  - Offer ECV w/regional anesthesia
  - Midwifery care
  - Doulas available to all Medicaid patients and some private insured patients

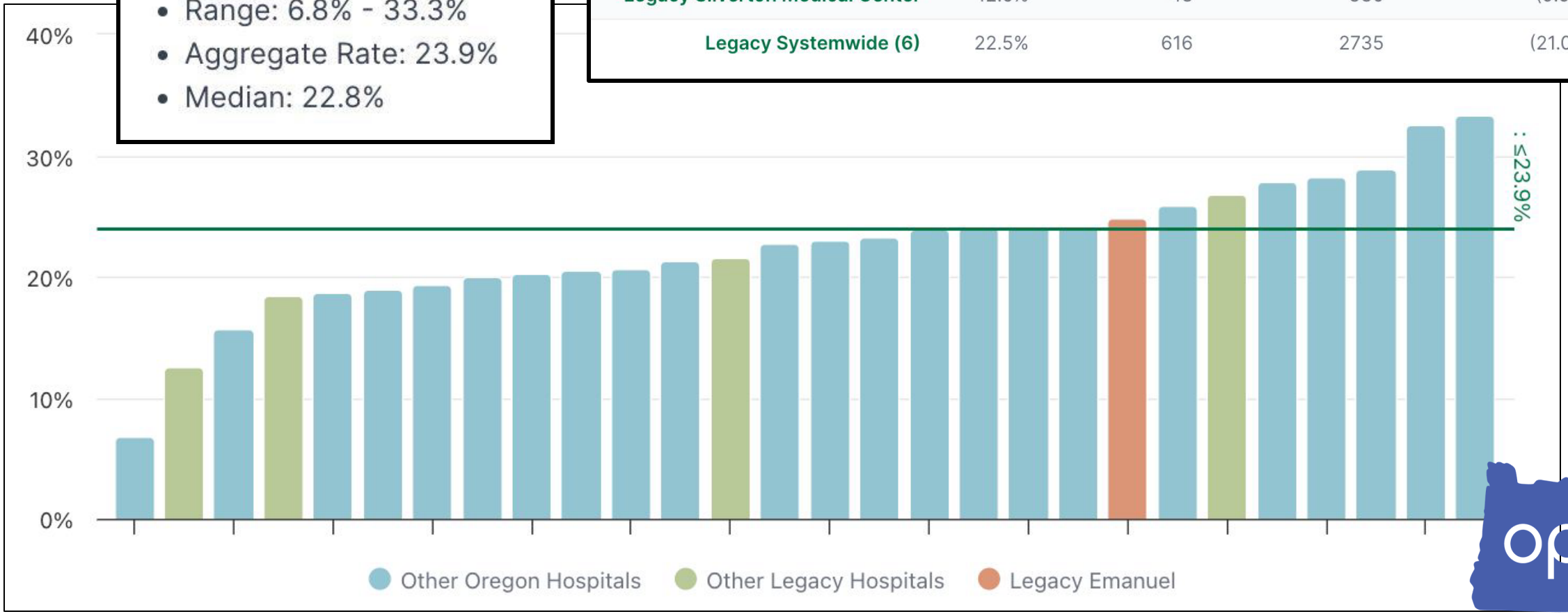
Legacy: NTSV

Wendy Smith, MD, MPH

	Rate	Numerator	Denominator	Confidence Interval
Legacy Emanuel	24.8%	140	565	(21.3%, 28.6%)
Legacy Good Samaritan	26.8%	84	314	(21.9%, 32.0%)
Legacy Meridian Park	21.6%	61	282	(17.0%, 26.9%)
Legacy Mount Hood	18.4%	37	201	(13.3%, 24.5%)
Legacy Salmon Creek	24.8%	246	993	(22.1%, 27.6%)
Legacy Silverton Medical Center	12.6%	48	380	(9.5%, 16.4%)
Legacy Systemwide (6)	22.5%	616	2735	(21.0%, 24.1%)

All Oregon Hospital Statistics

- Included Hospitals: 28
- Range: 6.8% - 33.3%
- Aggregate Rate: 23.9%
- Median: 22.8%



Legacy – OB Hospitalist Model of Care

Wendy Smith, MD, MPH

Compared to traditional OBGyn Model of Care

- Decreased cesarean birth
- Improved staffing ratios
- Reduced costs
- Reduced sentinel events → reduced compensation payments
- High patient satisfaction

Discussion

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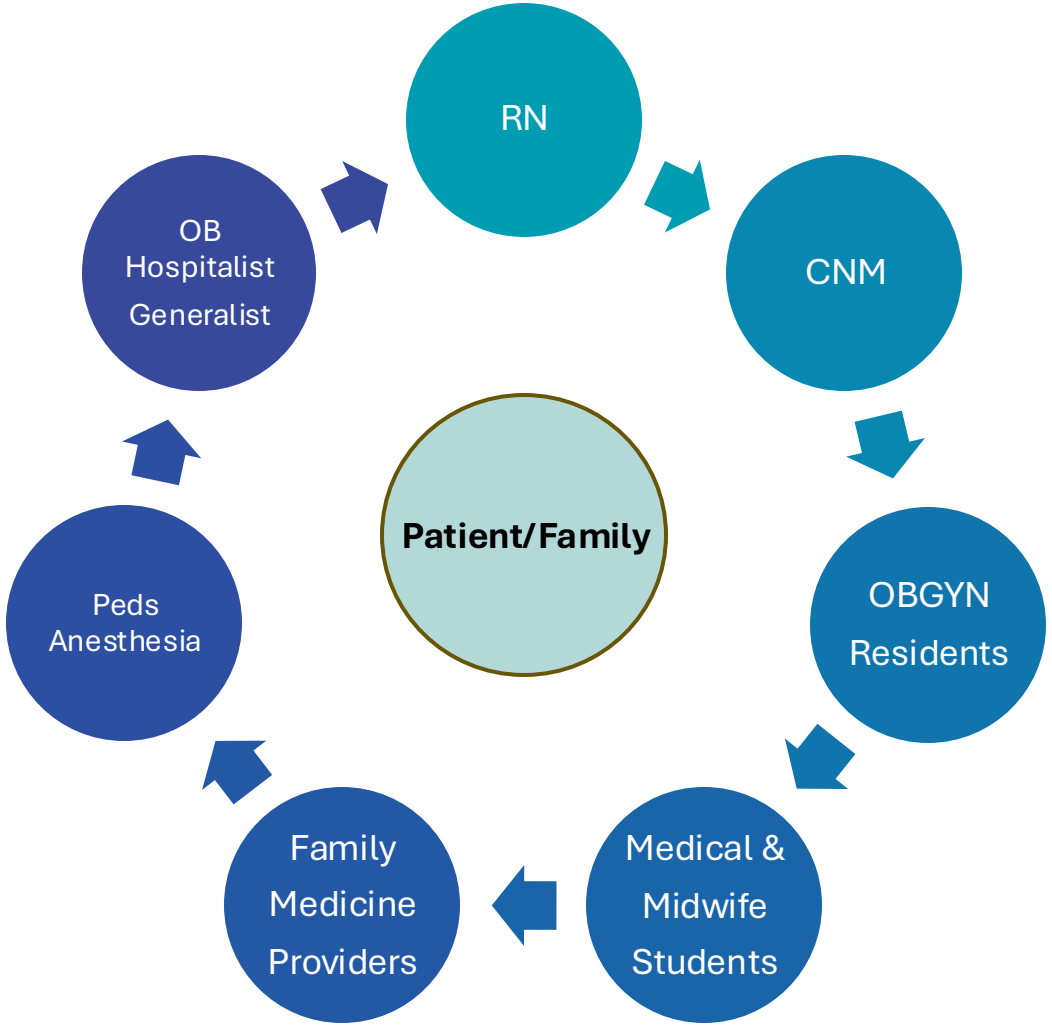
Models of Care

Kaiser Permanente Northwest

Collaborative Team Members – Labor and Birth

- Patients and families are central; actively engaged as members of their health care team
- The team has a shared vision
- Role clarity is essential
- All team members are accountable for their own practice and to the team
- Effective communication is key to quality teams
- Team leadership is situational and dynamic with “shared power”



Kaiser Permanente Northwest

Collaborative Care: Communication & Collaboration

- Review of patient care at change of shift reports
  - CNM, Physician, Charge RN, Residents, Peds, Anesthesia
- Team Huddles once a shift
  - Nurse presents patient to the team, everyone contributes
- Team STEPPS
- For IOL: Documentation of verbal case review q24h
- Team Huddle 2h into 2nd stage
- Case review/consultation documented


Consultation

Verbal Case Review


Collaboration or Co-management


Referral

Transfer of care


On Labor and Delivery: “A team huddle”

Legacy – OB Hospitalist Model of Care

Wendy Smith, MD, MPH

“Hospitalist” (1996): primary focus general medical care of hospitalized pts

- 2003: first OB/GYN report >24/7 in-house model of OB care
- Patient care, teaching, research, inpatient leadership
- ACOG: approach to improve pt safety and professional satisfaction

Number of hospitals using OB/Gyn Hospitalists increasing:

- 2010 NPIC/QAS hospitals: 40% used hospitalists
- 2012: 1-2 new OB/Gyn Hospitalist (OBGH) programs/month
- 2020: survey of 520 hospitals in 13 states: 46% staffed 24/7 w/OBGH
  - 57% staffed with inhouse provider able to manage OB emergency
  - OB Hospitalist use most associated w/delivery volume, not w/location

Legacy – OB Hospitalist Model of Care

Wendy Smith, MD, MPH

Iriye et al:

- >6,200 primiparous, >37 wks (2006-2011)
- Change from traditional model of care > 24/7 OBGH care
- CD rate: **39.2% > 33.2%**

Nijagal et al:

- >9,300 births (2005 and 2010)
- Ob/gyns in traditional model of care: 29.8% NTSV cesarean birth rate
- OBGH w/ CNM: 15.9% NTSV cesarean birth rate

Staffing

Torbensen et al (2024)

- 520 hospitals w/ OBGH vs. non-OBGH staffing
- Mean SMM 1.70 vs 2.11 (Adjusted for level of NICU care)

Legacy – OB Hospitalist Model of Care

Wendy Smith, MD, MPH

Torbensen et al (2024)

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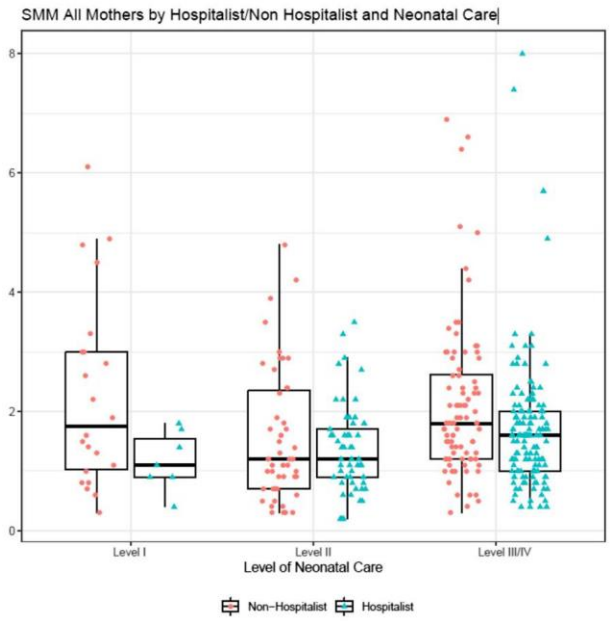


Srinivas et al: **Patient satisfaction after implementation of OBGH Program**

- 4166 patients (54% response rate)
- Overall experience in the labor and delivery unit: 90% highly satisfied
- 687 respondents: rate experience with the practitioner for delivery
  - Excellent: 75%
  - good/very good: 18%
  - Neutral: 3.4%
  - Informed during prenatal care about OBGH model: 85%

Legacy – OB Hospitalist Model of Care

Wendy Smith, MD, MPH

Yale (2015): improvements in OB adverse outcomes, culture of safety

- ○ reduced median annual malpractice claims 1.31 to 0.64 (*P*=.02)
- ○ reduced median annual payments/1000 birth: $1.1 M> $63,470 (*P*<.01)

New York Presbyterian–Weill Cornell:

- ○ reduced sentinel events per 1,000 deliveries: 1.04 (‘00)>0 (‘08, ‘09)
- ○ reduced compensation payments: $50,940,309 (‘03) > $250,000 (‘09)

Induction Practices

Induction Practices

Following an algorithm

Using miso and cervical catheter balloon concurrently

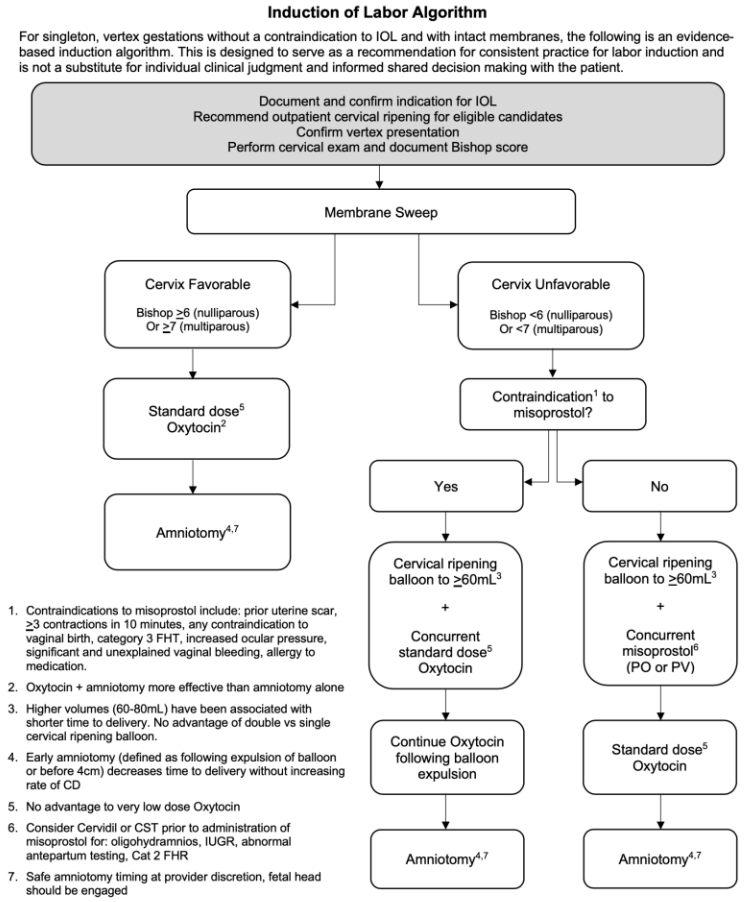
Kaiser has not done elective IOLs since pandemic

Elective IOL Consent

Outpatient management of PROM

Outpatient cervical ripening

Waiting to admit until active labor (avoiding augmentation)



Induction Resources

Standardized diagnosis of failed induction of labor - ACOG Clinical Practice Guideline, Jan 2024

First and Second Stage Labor Management

Management of Category II Fetal Heart Rate Tracings - Clark et al, 2013

External Cephalic Version

External Cephalic Version

Odds of successful ECV were **lower** if:

- nulliparous
- anterior placenta
- higher BMI

Odds of successful ECV **higher** if:

- fetus transverse or oblique (not breech)

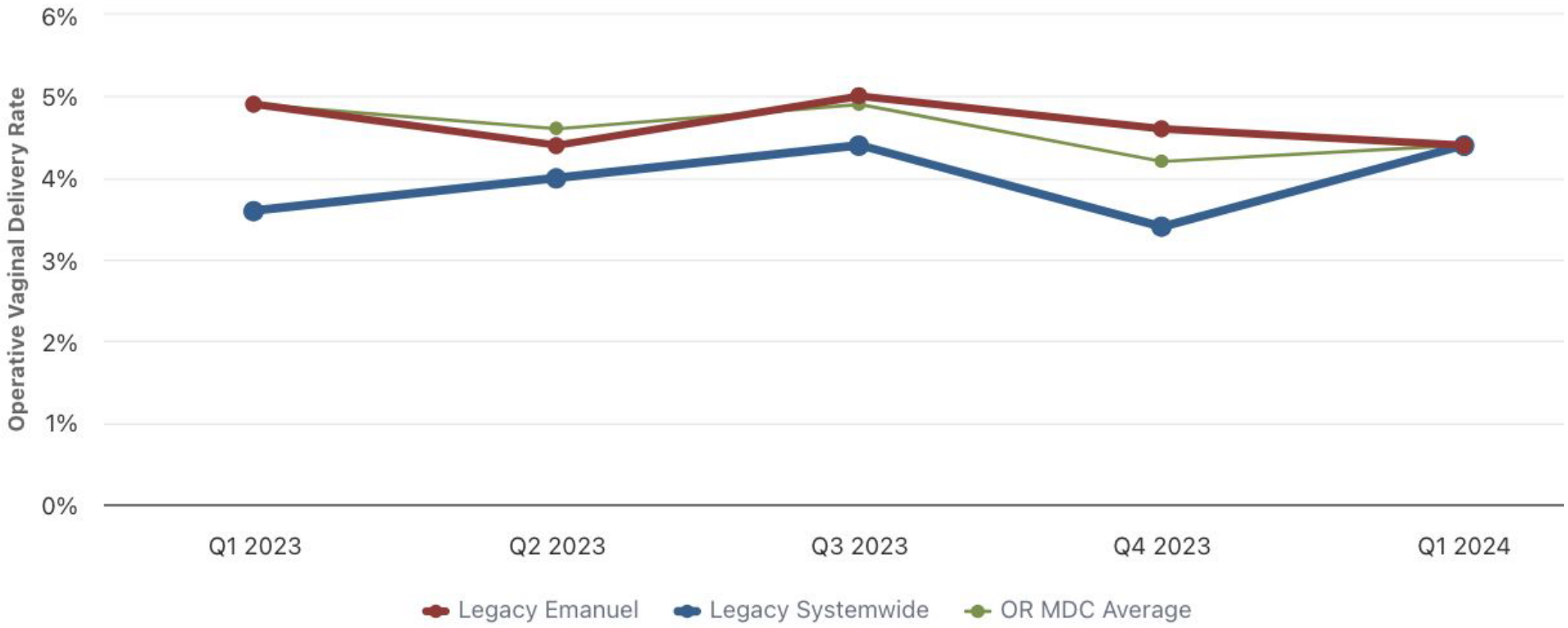
Systematic review of ECV and **anesthesia for procedure,** Hao et al (2020)

- Outcome: Successful ECV
- Neuraxial anesthesia vs. Control: OR = 2.59
- Intravenous anesthesia vs. Control: OR = 2.08
- Inhalational anesthesia (NO) vs Control: OR = 2.30

Operative Vaginal Delivery:

Forceps & Vacuum

Legacy: Rate of forcep- and vacuum-assisted vaginal delivery



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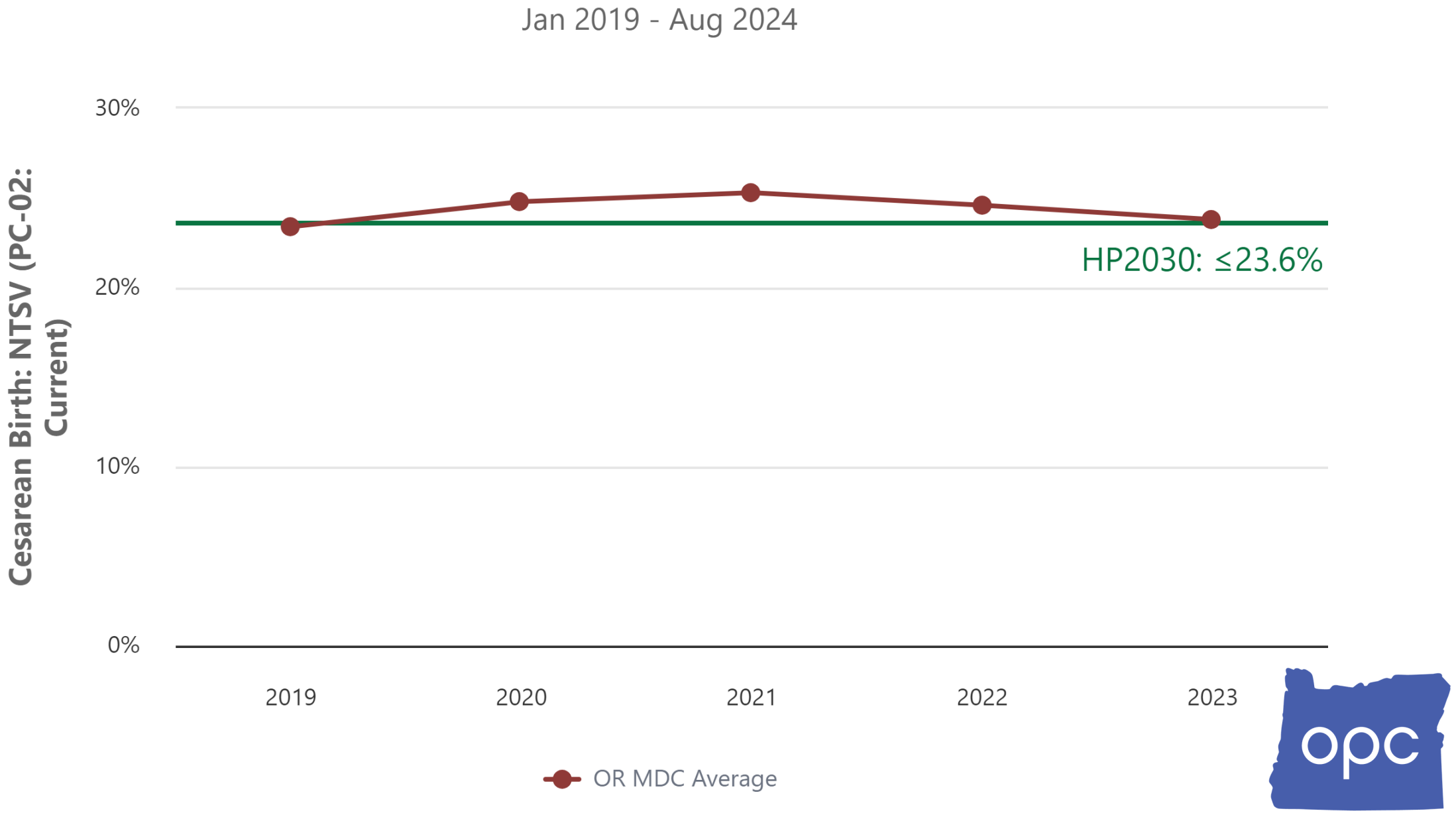
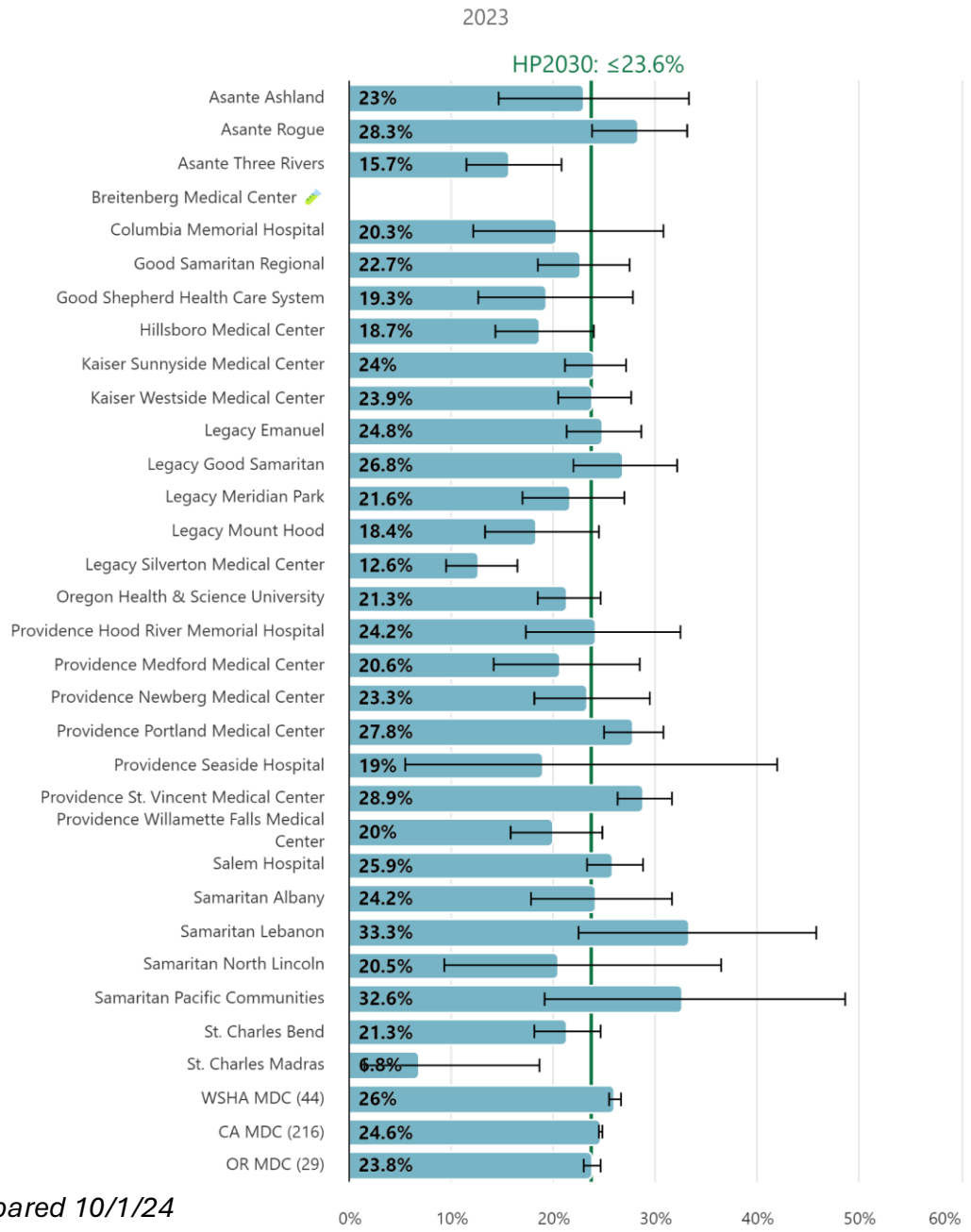
APPENDIX

Trend: Cesarean Birth: NTSV - Nullip Term Singleton Vertex (PC-02: Current)



Source: Oregon Maternal Data Center, prepared 10/1/24

Hospital: Cesarean Birth: NTSV - Nullip Term Singleton Vertex (PC-02: Current)



Source: Oregon Maternal Data Center, prepared 10/1/24

Oregon Maternal Data Center Categories

Race-Ethnicity Categories for Hospitals Outside of California

Updated 9/2023

- Sourced from the Patient Discharge Data submitted by hospitals participating in the Maternal Data Center
- WSHA-MDC Hospitals utilize the categories defined by the Office of Management and Budget (OMB)
- Oregon MDC Hospitals can utilize the categories defined by *either* the Office of Management and Budget (OMB) *or* the CDC (used by the OR Apprise System).
- National MDC Hospitals utilize the categories defined by the CDC system.

MDC Category	Definition	Mapping Details
Hispanic	Hispanic Origin (including Spanish, Mexican, Puerto Rican, Cuban, South American or other Spanish culture or origin, regardless of race.)	Ethnicity = 1 (OMB) or E1 (CDC)
White	White	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) and Race = 1 (OMB) or R5 (CDC)
Black	Black or African-American	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) and Race = 2 (OMB) or R3 (CDC)
American Indian or Alaska Native	American Indian or Alaska Native, including Canadian Inuit, Metris or First Nation, Indigenous Mexican, Central American or South American or Other American Indian.	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) and Race = 3 (OMB) or R1 (CDC)
Asian	Asian (including Chinese, Vietnamese, Korean, Hmong, Laotian, Vietnamese, Filipino/a, Japanese, South Asian, Asian Indian or Other Asian.	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) and Race = 4 (OMB) or R2 (CDC)
Native Hawaiian / Pacific Islander	Native Hawaiian or Pacific Islander (including Guamanian, Chamorro, Samoan or Other Pacific Islander.)	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) and Race = 5 (OMB) or R4 (CDC)
Other	A person having origins not already mentioned in the above stated categories	Ethnicity = E2, E8, E9 (CDC) and Race = R9 (CDC)
Multiracial (WSHA only)	A person having 2+ origins in the above stated categories	Race = 2+ of any R#
Unknown	• Refused (Patient declined to answer regarding race) *or* • Unknown • Missing/Blank/Not Available	Ethnicity = 2, 8, 9 (OMB) or E2, E8, E9 (CDC) or Blank/NA and Race = 8,9 (OMB) or R7, R8 (CDC) or Blank/NA

Balancing Measures for NTSV C/S Rate: Unexpected Newborn Complication (UNC)

Balancing measure goal: identify unintended consequences of QI activities for other measures

- clinical outcomes that are impacted by process being focused on

Unexpected Newborn Complication

- national quality metric proposed as balancing measure for NTSV
- measure of adverse outcomes in full-term newborns w/o preexisting conditions
- UNC measure is based on idea that complications are viewed from the perspective of the family
- respiratory, infection, transfer to another hospital, neurologic/birth injury, shock/resuscitation, and long length of stay without a clear diagnosis most common

Severe	Neonatal death, transfer to another hospital, severe birth injuries, neurologic damage, severe respiratory and infectious complications
Moderate	Diagnoses or procedures that raise concern but at a lower level than severe, such as use of CPAP or bone fracture

To be valid indicator: complication should reflect BOTH an adverse event AND one that could occur less often with improvements in clinical care. UNC may not be preventable (ie shoulder dystocia) or a result of labor management (ie IAI).

Hospitalist model of care: References

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Veltman L, Ferrentino VN. The Obstetrics and Gynecology Hospitalist: Risk Management Implications. Obstet Gynecol Clin North Am. 2024 Sep;51(3):463-474.

Additional References

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- Review and Meta-analysis of Clinical Trials of Neuraxial, Intravenous, and Inhalational Anesthesia for External Cephalic Version. Anesth Analg. 2020 Dec;131(6):1800-1811.
- California Maternal Quality Care Collaborative : Support Vaginal Birth and Reduce Primary Cesareans Toolkit: www.cmqcc.org
- Teams STEPPS https://www.ahrq.gov/teamstepps-program/index.html