Unique QI needs for Low Birth Volume Hospitals

Challenges, Opportunities and Best Practices

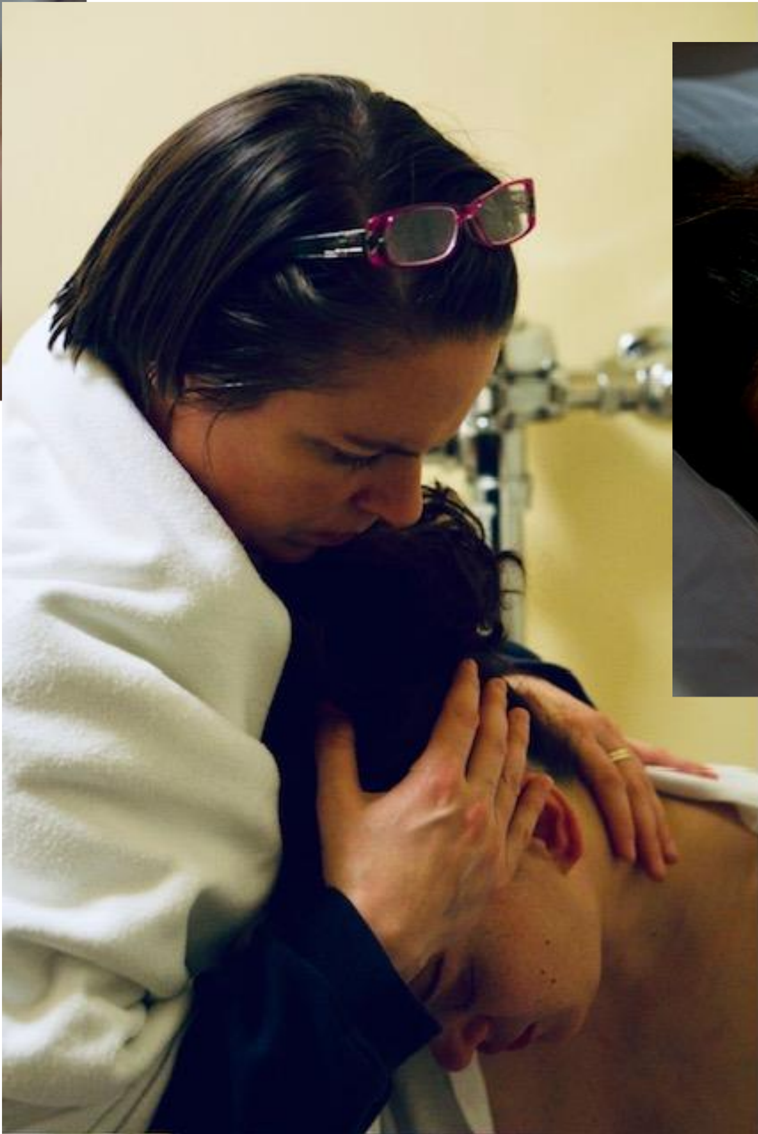
DATE: October 18, 2024 PRESENTED BY: Annie Gill, RN, BSN; Jessica McElreath, BS, MS, RNC; Jen Pierce, RN, BSN; Brooke Renard, MD

QI in Low Birth Volume Hospitals

- Introduction to panel
- Definition of terms
  - Urban vs Rural
  - Level of Care
  - Low volume
  - Level of maternal and newborn care
- Current Research:
  - CDC Pregnancy-related mortality ratio by urban-rural classifications: 2020
  - Obstetric Volume and Severe Maternal Morbidity Among Low-Risk and Higher-Risk Patients Giving Birth at Rural and Urban US Hospitals
- Challenges
- Opportunities

Why do you do this work?

Supported



Every woman deserves a SAFE

Birth

What does it all mean?!?!

- Urban, rural, frontier
- Low Volume
- Critical Access
- Level of maternal care
- Level of neonatal care

Photo by Brandon McMullen (1/2/2023) @ bgmichaelimages.smugmug.com, posted with permission

ORH Defined Urban, Rural, and Frontier Areas

CLATSOP
COLUMBIA
WASHINGTON
MULTNOMAH
TILLAMOOK
HOOD RIVER
Hillsboro
Portland
Gresham
Beaverton
Tigard
Lake Oswego
YAMHILL
CLACKAMAS
WASCO
SHERMAN
GILLIAM
MORROW
UMATILLA
UNION
WALLOWA
Salem
POLK
MARION
LINCOLN
Albany
Corvallis
BENTON
LINN
JEFFERSON
WHEELER
GRANT
BAKER
CROOK
Eugene
Springfield
LANE
Bend
DESCHUTES
MALHEUR
HARNEY
COOS
DOUGLAS
LAKE
CURRY
JOSEPHINE
Grants Pass
JACKSON
Medford
KLAMATH

ORH Rural (>10 miles from center of 40,000 or more)
Frontier (counties with 6 or fewer people per square mile)
ORH Urban Areas (<10 miles from center of 40,000 or more)
Centroids of cities w/40,000 or more people
Primary/Secondary Roads

www.ohsu.edu/ruraldata

1/18/2024

- **Rural:** > 10 miles from center of 40,000 or more
- **Frontier:** counties with 6 or fewer people per square mile
- **Urban Areas:** < 10 miles from center of 40,000 or more

ORH Defined Urban, Rural, and Frontier Areas, retrieved 10/1/24 https://www.ohsu.edu/media/881

Birth Volume

- Annual Hospital Obstetric Volume: number of births per year
  - May include # of live births AND stillbirths (> 20 weeks gestation)
- Birth Volume not standardly defined
- Low birth volume categorized/defined by location (rural vs urban)
- Low Volume: Less than 240-500 birth per year

Handley SC, Passarella M, Herrick HM, et al. Birth Volume and Geographic Distribution of US Hospitals With Obstetric Services From 2010 to 2018. JAMA Netw Open. 2021;4(10):e2125373. doi:10.1001/jamanetworkopen.2021.25373

Number of Births in Oregon Rural Hospitals in 2023

Columbia Memorial Hospital
227 Astoria
Providence Seaside Hospital
54 Seaside
COLUMBIA
CLATSOP
TILLAMOOK
WASHINGTON
Adventist Health Tillamook
94 Tillamook
MULTNOMAH
Providence Newberg Medical Center
597 Newberg
109 McMinnville
YAMHILL
Willamette Valley Medical Ctr
CLACKAMAS
Samaritan North Lincoln Hospital
Lincoln City 106
West Valley Hospital
Dallas 0
1247 Silverton
Legacy Silverton Medical Center
LINCOLN
POLK
Samaritan Pacific Communities Hospital
137 Newport
177 Stayton
MARION
Santiam Hospital
LINN
207 Lebanon
Samaritan Lebanon Community Hospital
BENTON
PeaceHealth Peace Harbor Medical Center
33 Florence
LANE
PeaceHealth Cottage Grove Community Medical Center
0 Cottage Grove
Lower Umpqua Hospital
0 Reedsport
Bay Area Hospital
574 Coos Bay
Coquille Valley Hospital
0 Coquille
Mercy Medical Center
632 Roseburg
Bandon 0
Southern Coos Hospital & Health Center
DOUGLAS
COOS
JACKSON
KLAMATH
Curry General Hospital
0 Gold Beach
Asante Three Rivers Medical Center
Grants Pass 675
CURRY
JOSEPHINE
Asante Ashland Community Hospital
232 Ashland
Sky Lakes Medical Center
621 Klamath Falls
Providence Hood River Memorial Hospital
320 Hood River
HOOD RIVER
183 The Dalles
Adventist Health Columbia Gorge
SHERMAN
WASCO
St Charles Madras
150 Madras
JEFFERSON
St Charles Prineville
Redmond 1
0 Prineville
St Charles Redmond
CROOK
DESCHUTES
LAKE
Lake District Hospital
51 Lakeview
Good Shepherd Health Care System
378 Hermiston
CHI St Anthony Hospital
276 Pendleton
MORROW
UMATILLA
GILLIAM
Pioneer Memorial Hospital & Nursing Facility
0 Heppner
WHEELER
WALLOWA
Wallowa Memorial Hospital
43 Enterprise
Grande Ronde Hospital
245 La Grande
UNION
Saint Alphonsus Medical Center - Baker City
43 Baker City
GRANT
BAKER
Blue Mountain Hospital
28 John Day
Saint Alphonsus Medical Center - Ontario
Ontario 368
MALHEUR
Harney District Hospital
51 Burns
HARNEY

00 Number of Births
Main Roads
Frontier Counties

0 50 mi

*birth counts from Apprise

6/26/2024

www.ohsu.edu/orh

Critical Access Hospital

- CMS designation
- Designed to reduce the financial vulnerability of rural hospitals and improve access to healthcare by keeping essential services in rural communities.
- Eligible hospitals must meet the following conditions to obtain CAH designation:
  - Have 25 or fewer acute care inpatient beds
  - Be located more than 35 miles from another hospital (exceptions may apply – see What are the location requirements for CAH status?)
  - Maintain an annual average length of stay of 96 hours or less for acute care patients
  - Provide 24/7 emergency care services

Rural Health Information Hub, Critical Access Hospitals. Retrieved 10/2024 from https://www.ruralhealthinfo.org/topics/critical-access-hospitals

ACOG Levels of Maternal Care

- Level I—Basic Care
  - Care of **low- to moderate-risk** pregnancies with ability to detect, stabilize and initiate management of unanticipated maternal-fetal or neonatal problems that occur during the antepartum, intrapartum or postpartum period until the patient can be transferred to a facility at which specialty maternal care is available.
- Level II—Specialty Care
- Level III—Subspecialty Care
- Level IV—Regional Perinatal Health Care Centers

ACOG Levels of Maternal Care, Obstetric Care Consensus Number 9, August 2019.

Levels of Newborn Care

- Level I—Well Newborn Nursery
  - Offer a basic level of newborn care to infants at low risk
  - Have personnel who can care for physiologically stable infants who are born at 35 weeks gestation or more
  - Can stabilize ill newborn infants who are born at less than 35 weeks gestation until they can be transferred to a facility where the appropriate level of neonatal is provided
- Level II—Special Care Nursery
- Level III—Neonatal Intensive Care Unit (NICU)
- Level IV—Regional NICU

Guidelines for Perinatal Care, American Academy of Pediatrics, 8th edition, 2017. Retrieved 10/2024.

Is obstetric volume associated with poor maternal health?

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Pregnancy-related mortality ratio by urban-rural classifications: 2020

- In 2020, the highest pregnancy-related mortality ratio persisted among people residing in the most rural classification.

Pregnancy-related Mortality Ratio

40
35
30
25
20
15
10
5
0

23.1
19.6
22.5
27.7
31.2
37.9

Large central metro
Large fringe metro
Medium metro
Small metro
Micropolitan
Noncore

RURAL

*CDC Pregnancy Mortality Surveillance System
www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm

Pregnancy-Related Deaths: Data From Maternal Mortality Review Committees in 38 U.S. States, 2020

- Pregnancy-related deaths occurred during pregnancy, delivery, and up to 1 year postpartum.
- The leading cause of pregnancy-related death varied by race and ethnicity.
- Over 80% of pregnancy-related deaths were determined to be preventable.

Trost SL, Busacker A, Leonard M, et al. Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 38 U.S. States, 2020. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; 2024. Retrieved 10/1/24 from https://www.cdc.gov/maternal-mortality/php/data-research/index.html

Obstetric Volume and Severe Maternal Morbidity (SMM)

- Cross sectional study
- Linked vital statistics and discharge data from 2004-2020
  - CA, MI, PA, SC
  - 11 million urban births
  - 519,953 rural births
  - Categorized annual birth volume (low, med, med-high, high)
  - Low vs high risk

JAMA Network™

From: **Obstetric Volume and Severe Maternal Morbidity Among Low-Risk and Higher-Risk Patients Giving Birth at Rural and Urban US Hospitals**

JAMA Health Forum. 2023;4(6):e232110. doi:10.1001/jamahealthforum.2023.2110

Table 4. Association Between Birth Volume Category and Severe Maternal Morbidity for Higher-risk and Low-risk Obstetric Patients at Hospitals in Rural Counties

	Risk ratio (95% CI)			
	Higher-risk patients		Low-risk patients	
Annual birth volume	Unadjusted	Adjusted	Unadjusted	Adjusted
Low (10-110 births)	1.29 (0.87-1.90)	1.49 (1.01-2.20)	2.37 (1.31-4.30)	2.32 (1.32-4.07)
Medium (111-240 births)	1.09 (0.84-1.41)	1.30 (1.03-1.65)	1.60 (1.15-2.22)	1.66 (1.20-2.28)
Medium-high (241-460 births)	1.05 (0.85-1.29)	1.16 (0.95-1.43)	1.54 (1.13-2.10)	1.68 (1.29-2.18)
High (>460 births)	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]

Table Title: Association Between Birth Volume Category and Severe Maternal Morbidity for Higher-risk and Low-risk Obstetric Patients at Hospitals in Rural Counties

Date of download: 9/30/2024

https://jamanetwork.com/journals/jama-health-forum/fullarticle/2806615

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JAMA Network™

From: **Obstetric Volume and Severe Maternal Morbidity Among Low-Risk and Higher-Risk Patients Giving Birth at Rural and Urban US Hospitals**

JAMA Health Forum. 2023;4(6):e232110. doi:10.1001/jamahealthforum.2023.2110

Table 3. Association Between Birth Volume Category and Severe Maternal Morbidity for Higher-risk and Low-risk Obstetric Patients at Hospitals in Urban Counties

	Risk ratio (95% CI)			
	Higher-risk patients		Low-risk patients	
Annual birth volume	Unadjusted	Adjusted	Unadjusted	Adjusted
Low (10-500 births)	0.71 (0.63-0.80)	1.04 (0.93-1.15)	0.84 (0.69-1.03)	0.92 (0.76-1.11)
Medium (501-1000 births)	0.81 (0.69-0.96)	1.06 (0.94-1.19)	0.80 (0.67-0.94)	0.85 (0.73-1.00)
Medium-high (1001-2000 births)	0.91 (0.82-1.00)	1.04 (0.98-1.11)	0.95 (0.83-1.09)	0.99 (0.87-1.14)
High (>2000 births)	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]

Table Title:

Association Between Birth Volume Category and Severe Maternal Morbidity for Higher-risk and Low-risk Obstetric Patients at Hospitals in Urban Counties

Date of download: 10/1/2024

https://jamanetwork.com/journals/jama-health-forum/fullarticle/2806615

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But not at my hospital...

- 37.9 estimated number of pregnancy-related deaths for every 100,000 live births

$$\frac{37.9}{100,000} = \frac{1}{x}$$

$$\frac{37.9x}{37.9} = \frac{100,000}{37.9}$$

$$x = 2638\tfrac{1}{2} / \text{death}$$

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Challenges in Providing Care

- Medicaid Reimbursement Rates
- Remote Location/Inclement Weather
- Resources (i.e. limited blood products)
- Recruiting and retaining experienced providers and nurses
- Obstetric and Neonatal emergency preparedness
- Developing and maintaining skills with low birth volume
- National/Statewide QI initiatives lack rural healthcare focus

How to Prevent Attrition of Skills

- Creating value and fulfillment in the workplace
- Review policies and best practices monthly
- Be engaged in Quarterly Drills
- Develop rapport and trust with team members – huddles & debriefs that aren't punitive
- Tailor education to your clinical work environment
- Yes, we must include the ED! ☺

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Seize the Opportunities

My Story: "If you're going to complain about something, you better be willing to be part of the solution"

- AWHONN Membership – free modules
- NRP Instructor – the best way to learn is to teach!
- Proposed my own job description with just 12 hours FTE allotment
- Discovered a love for learning and reignited my passion for this field

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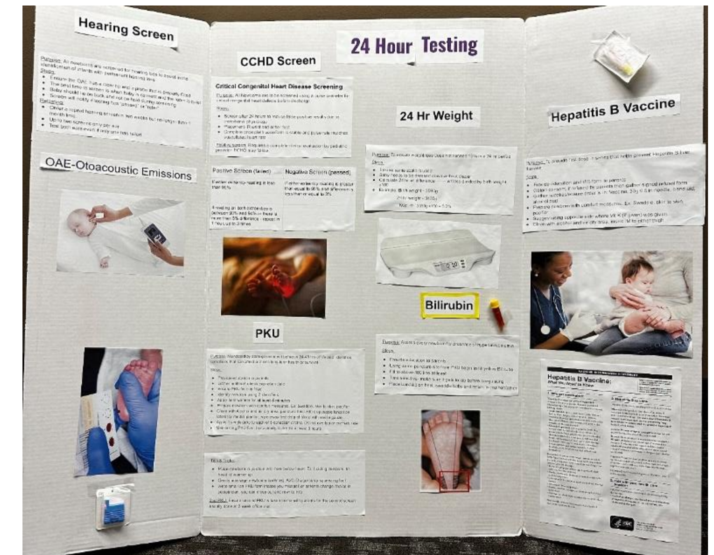
Empowering Education

Start Small

- Peer motivation – draw from their own experiences
- Utilize downtime for planning Drills and Sims
- Build in time for teach-back moments at Staff Meetings
- Send delegates to unique learning opportunities
- Network & Collaborate



Quarterly OPC CAH Maternal & Newborn Health Meetings

- Professional Peer Support
- Contact with others working in maternal and newborn care in other small, rural, and Critical Access Hospitals
- Quality improvement support
- Bring topics or challenges you face to brainstorm solutions and share ideas
- YOU DON'T HAVE TO DO THIS ALONE!

Maternal Health Series – Key Resources

- Learn about and report the data on the Maternal Morbidity Structural Measure and become a Birthing-Friendly Hospital
- Connect with the OPC
- Explore the Alliance for Innovation on Maternal Health Safety Bundles - SaferBirth.org
- Support the maternal mortality review process - MMRIA/ReviewtoAction
- FORHP and the Rural Health Information Hub five-part series on Rural Maternal Health https://www.ruralhealthinfo.org/webinars

Rural Maternal Health Update, Kristen Dillon, MD, FAAFP, Chief Medical Officer, Federal Office of Rural Health Policy Health Resources and Services Administration. Presented at 2024 ORH Hospital Quality Workshop 6/6/24, Bend, OR.

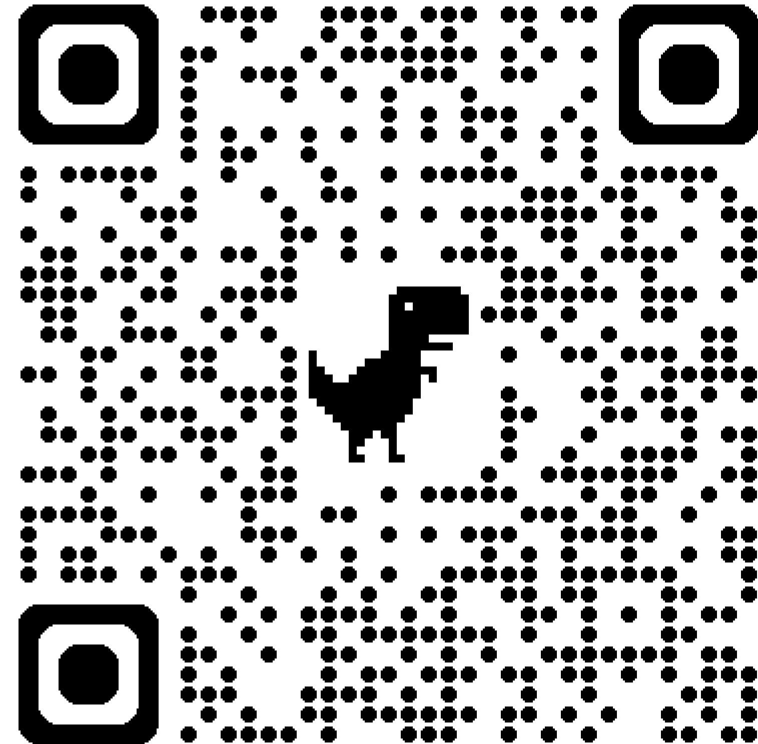
Maternal Morbidity Structural Measure

- Question: Does your hospital or health system participate in a Statewide and/or National Perinatal Quality Improvement Collaborative Program aimed at improving maternal outcomes during inpatient labor, delivery and post-partum care, and has implemented patient safety practices or bundles related to maternal morbidity to address complications, including, but not limited to, hemorrhage, severe hypertension/preeclampsia or sepsis? Bullets go here
- Answer Choices: (A) Yes, (B) No, or (C) N/A (our hospital does not provide inpatient labor/delivery care)

Birthing-Friendly Hospital

- CMS designation to describe high-quality maternity care.
- To earn the designation, hospitals and health systems report their progress on CMS's Maternal Morbidity Structural Measure to the Hospital Inpatient Quality Reporting (IQR) Program.
- The measure identifies whether a hospital or health system has:
  - Participated in a statewide or national perinatal quality improvement collaborative program; and,
  - Implemented evidence-based quality interventions in hospital settings to improve maternal health.

Season 2 “You Can’t Get There From Here” – 4 part rural perinatal care miniseries



The Rural Obstetric Workforce in US Hospitals: Challenges and Opportunities

- Individual hospitals working in isolation may struggle to address staffing challenges. Federal and state policy makers, regional collaboratives, and health care delivery systems can facilitate solutions through programs such as telehealth, simulation training, and interprofessional education.

Kozhimannil KB, Casey MM, Hung P, Han X, Prasad S, Moscovice IS. The Rural Obstetric Workforce in US Hospitals: Challenges and Opportunities. J Rural Health. 2015 Fall;31(4):365-72. doi: 10.1111/jrh.12112. Epub 2015 Mar 23. PMID: 25808202; PMCID: PMC4580490.

Tell me, what is it you plan to do with your one wild and precious life?

-Mary Oliver
The Summer Day

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