Fetal Care in Focus:

Multidisciplinary Care Planning for Families Facing a Fetal Diagnosis

By Katie Francis, MSN, APRN



Katie Francis

In the United States, approximately 1 in 33 newborns is born with a congenital anomaly each year, and congenital anomalies account for nearly 1 in 5 infant deaths (Centers for Disease Control and Prevention, 2025). Early detection and prenatal preparation for congenital anomalies have become central to contemporary perinatal practice, supported by growing national infrastructure: at least 57 fetal care programs now provide specialized, coordinated services for affected families (North American Fetal Therapy Network, 2026).

The Multidisciplinary Model

Fetal care centers provide comprehensive, multidisciplinary care for pregnant patients and their families following the diagnosis of a fetal anomaly. These programs offer coordinated evaluation and consultation from a team that typically includes maternal–fetal medicine specialists, neonatology, genetics, social work, palliative care, and diagnosis-specific pediatric subspecialists. Care coordination is often led by nurse navigators, who serve as the primary point of contact for families throughout the pregnancy (Francis et al., 2023).

Diagnostic evaluation may include detailed ultrasound, fetal echocardiography, fetal magnetic resonance imaging (MRI), and genetic testing. These assessments establish the diagnosis and enable anticipatory planning. Findings, then drive an individualized care plan that guides prenatal surveillance, delivery planning, and postnatal management.

Building the Care Plan

Care plans are communicated in different ways depending on the fetal program. At the SSM Health Cardinal Glennon Children's Hospital St. Louis Fetal Care Institute (FCI), nurse navigators create detailed care plans using the problem list within the electronic health record medical record (EHMR).

Navigators enter the diagnosis "Fetal Abnormality in Pregnancy" under the standardized title "FCI – Fetal Abnormality in Pregnancy," accompanied by the FCI logo so that any team encountering the chart can immediately identify an FCI patient.

Additional safety measures include an alert flag in the patient's chart and a best practice advisory (BPA) alert that appears upon hospital admission. The care plan is intended to function as a concise summary rather than a replacement for individual provider documentation. It includes the prenatal care providers, fetal consultants, fetal diagnosis, planned prenatal surveillance, delivery recommendations, postnatal follow- up needs, social service concerns, and genetic testing recommendations. The multidisciplinary team reviews each plan weekly during multidisciplinary fetal care conferences to ensure accuracy and alignment across specialties.

Delivery Planning

The multidisciplinary team collaborates to provide recommendations regarding delivery mode, timing, and location, which are then discussed with the patient and family. When immediate neonatal intervention is not anticipated, patients are encouraged to deliver at the hospital of their choice with their primary obstetric provider. In all cases, the FCI care plan is shared with the primary provider to ensure continuity and clarity of recommendations.

When immediate neonatal intervention care is anticipated, delivery plans may be redirected to occur at a tertiary care center. These decisions incorporate not only medical considerations but also psychosocial factors, including proximity to the delivery hospital, transportation needs, and family support systems.

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Mode of delivery is discussed with every patient and family. In the absence of obstetric contradictions, vaginal delivery is generally preferred because of its lower maternal morbidity. However, certain fetal or maternal conditions may necessitate cesarean delivery (Lagrew et al., 2018). Some scenarios present complex ethical and clinical considerations, such as pregnancies complicated by life-limiting fetal conditions. In these cases, discussions include fetal monitoring preferences and whether cesarean delivery would be offered for nonreassuring fetal status. Timing of delivery is also carefully considered, including coordination with the availability of specialized neonatal and surgical teams.

Preparing the Neonatal Team

Detailed prenatal planning gives the neonatal team what it needs to prepare for resuscitation and immediate management. Congenital heart disease illustrates the value of that specificity. The fetal cardiologist and neonatologist provide very specific plans that address the presence of ductal dependent lesions, the need for prostaglandin E1 infusion, anticipated timing of neonatal intensive care unit (NICU) transfer, urgency of cardiac intervention, and recommendations for immediate umbilical arterial and venous line placement.

For anticipated genetic testing, genetic counselors provide specific recommendations for cord blood collection, including test orders and required laboratory tubes, ensuring timely and appropriate diagnostic evaluation can proceed without delay after birth.

Psychosocial Screening and Support

The fetal care social worker meets with patients during pregnancy and uses the Edinburgh Postnatal Depression Scale (EDPS) every 2 weeks to screen both the patient and her partner for perinatal depression and psychosocial stressors. During the first visit the patient will also be screened for bipolar with CICI-3. Receiving a fetal diagnosis is a known risk factor for perinatal depression, anxiety, and traumatic stress, all of which may require further assessment and, when indicated, referral for psychological treatment (Hansen et. al., 2024).

Identified concerns are documented within the fetal care plan to promote clear communication among providers and ensure appropriate follow-up. When an FCI patient delivers a neonate requiring NICU admission, the fetal care social worker provides a formal handoff to the neonatal social worker to support continuity of care, psychosocial support, and access to resources.

Palliative and Bereavement Care

When palliative care is involved, particularly in cases where fetal or neonatal death is anticipated, detailed palliative and bereavement plans are included in the care plan. This may include documentation of family wishes regarding comfort care, memory- making, and end-of- life support.

Postnatal Follow-Up

Following delivery, the FCI team conducts postnatal follow-up with each family. They ensure that recommended evaluations and specialty appointments are completed and facilitate handoffs to postnatal care teams as needed. In cases of fetal or neonatal loss, follow-up support is provided by social workers or psychotherapists. The fetal care team also acknowledges the loss through bereavement outreach, reinforcing continued support and remembrance.

What This Means for Referring Providers

For obstetric and pediatric clinicians outside the FCI, three practical points follow.

1. *The care plan lives in the shared record and is sent to the primary obstetric provider, so the recommendations travel with the patient.*
2. *Patients remain with their own provider and deliver at the hospital of their choice unless immediate neonatal intervention requires a tertiary delivery.*
3. *The nurse navigator serves as a single, named point of contact for questions at any point in the pregnancy, including questions that arise before a diagnosis is confirmed.*

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Katie Francis, MSN, APRN, has been a nurse for 26 years at SSM Health Cardinal Glennon Children's Hospital, first as a NICU nurse, and then as a pediatric and neonatal transport nurse. Katie was the founding nurse coordinator of the SSM Health St. Louis Fetal Care Institute, where she has served for the last 17 years. She currently works as the program coordinator. She provides comprehensive and compassionate care to every family facing a fetal diagnosis.

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- Other

Consultations Requested

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- Cardiology
- CT Surgery
- Neonatology
- Genetics
- Social Services
- Fetal Heart Program Nurse Coordinator
- Other Consultations

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Indication For Consultation

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Indication For Consultation

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Referring Physician Name *please print*

Physician's Email

Office Phone ( ) Office Fax ( )

Referring Physician Signature and Date

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Reviewing Terminology of Fetal Monitoring to Improve Team Communication

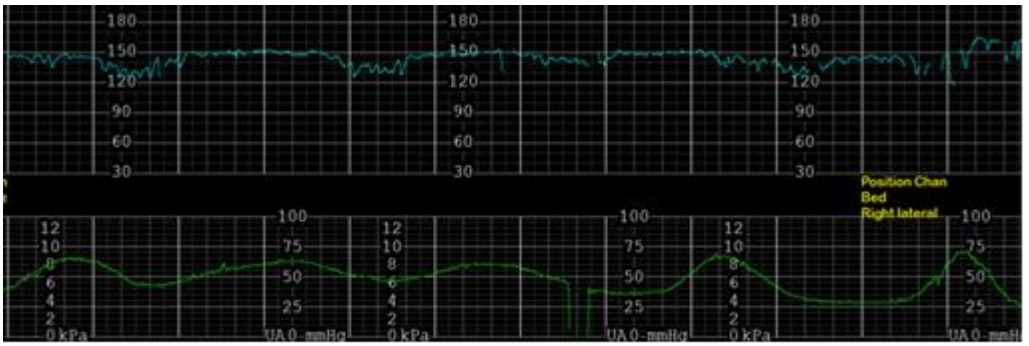


Figure 1 tracing

A shared vocabulary is a patient safety intervention. Where our language drifts from the standardized definitions and how to close the gap at the bedside and in the chart.

By Christine Gamboa, MSN, RNC-OB, C-EFM, CLC



Christine Gamboa

In October 2025, ACOG released a new clinical practice guideline for fetal monitoring. Alongside its clinical recommendations, the guideline reviews the standardized terminology used in fetal monitoring (Table 1; ACOG 2025). Every nurse, midwife, and physician who cares for perinatal patients should have these definitions on immediate recall. When clinicians speak and document, they should use terms that are clearly defined, so that the whole team is working from one language.

Using the same terms, with a clear understanding of what they mean, lets a team work from a shared mental model. Correct utilization of terminology is also a precondition for what comes next: interpretation and evaluation of electronic fetal monitoring (EFM) (Miller & Miller, 2013).

"Reassuring" is a conclusion, not a description

The clearest example of an undefined term in daily use is "reassuring." Do not stop with "the fetal heart rate tracing is reassuring." Continue with what makes it so, "The tracing is reassuring, evidenced by moderate variability." The listener receives the complete picture. The word is common, but on its own it does not convey an adequate interpretation.

Variability is read at the baseline

Variability is a second common pitfall. It is interpreted during the baseline – not during a deceleration.

The tracing in Figure 1 was documented as a baseline of 150 bpm with moderate variability and late decelerations. At baseline of 150, this tracing shows minimal, not moderate variability. Variability seen during a deceleration should not be factored into interpretation or documentation.

Abrupt or gradual – time it, don't eyeball it

In Figure 2 tracing, every deceleration is gradual, from onset to nadir takes 30 seconds or more. Shape tempts practitioners to call some of them decelerations, and gradual onset is missed. Variables decelerations are abrupt, taking less than 30 seconds from onset to nadir (ACOG, 2025). Too often, practitioners read the overall shape of a deceleration without evaluating whether its onset is abrupt or gradual.

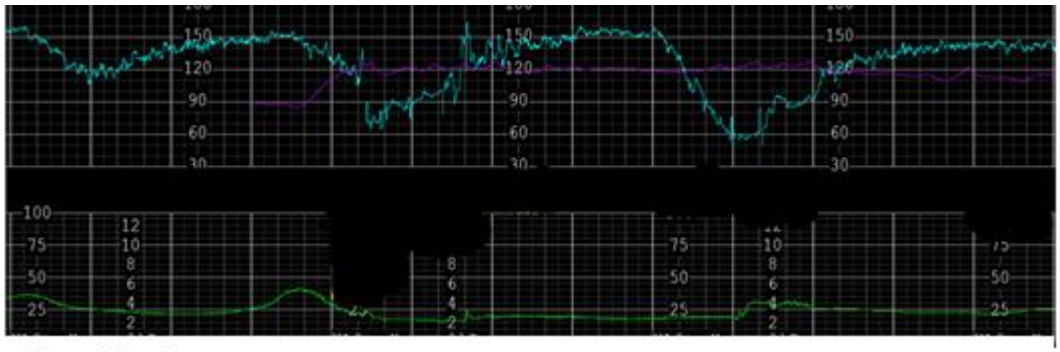


Figure 2 tracing

Significant decelerations

Intrapartum providers routinely discuss "significant decelerations". Clark et al. (2013) defined significant

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decelerations as "any variable decelerations lasting longer than 60 seconds and have a nadir 60 beats lower than the baseline, variable decelerations lasting longer than 60 seconds and reaching a nadir of 60 beats per minute or lower, any lates, or any prolonged decelerations." Shields et al. adopted this definition in their 2018 algorithm.

"Significant deceleration" is not a recognized term in ACOG Practice Bulletin 10, AWHONN's fetal monitoring position statement, or in the National Institute of Child Health and Human Development (NICHD) terminology in table 1 (AWHONN, 2024, ACOG, 2025). "Significant deceleration" is a term that can be used, but only alongside what makes the deceleration significant.

The terminology defined in table 1 is widely known, taught, and used by perinatal clinicians. When a term falls outside the NICHD standardized nomenclature, define it on the moment – every time.

Why it's a safety issue, not a style issue

In The Joint Commission's Sentinel Event Data 2024 Annual Review, communication failure and the lack of a shared mental model are cited repeatedly among the causes of sentinel events. Reviewing EFM tracings as a team and talking through the care plan together builds that shared model. So does precision in the chart. Documentation is communication with other care providers, with our patients, and with our future selves when care is reviewed. A note reading "EFM reassuring" leaves too much ambiguity. A defined vocabulary closes it – and patients are safer for it.

What to do differently on your next shift

- *Never let "reassuring" stand alone. Name the finding that supports it.*
- *Read variability at the baseline. What happens inside a deceleration does not count.*
- *Time the onset to nadir before you name the deceleration: under 30 seconds is abrupt (variable); 30 seconds or more is gradual (early or late).*
- *If you use a term that isn't in Table 1 — "reassuring," "significant" — define it in the same breath.*
- *Review tracings out loud, as a team. The shared mental model is built in that conversation.*

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Table 1

Table 1. Electronic Fetal Monitoring Definitions	
Pattern	**Definition**
Baseline	• The mean FHR rounded to increments of 5 beats per minute during a 10-minute segment, excluding: ◦ Periodic or episodic changes ◦ Periods of marked FHR variability ◦ Segments of baseline that differ by more than 25 beats per minute • The baseline must be for a minimum of 2 minutes in any 10-minute segment, or the baseline for that time period is indeterminate. In this case, one may refer to the prior 10-minute window for determination of baseline • Normal FHR baseline: 110–160 beats per minute • Tachycardia: FHR baseline is greater than 160 beats per minute • Bradycardia: FHR baseline is less than 110 beats per minute
Baseline variability	• Fluctuations in the baseline FHR that are irregular in amplitude and frequency • Variability is visually quantitated as the amplitude of peak-to-trough in beats per minute: ◦ Absent—amplitude range undetectable ◦ Minimal—amplitude range detectable but 5 beats per minute or fewer ◦ Moderate (normal)—amplitude range 6–25 beats per minute ◦ Marked—amplitude range greater than 25 beats per minute
Acceleration	• A visually apparent abrupt increase (onset to peak in less than 30 seconds) in the FHR • At 32 weeks of gestation and beyond, an acceleration has a peak of 15 beats per minute or more above baseline, with a duration of 15 seconds or more but less than 2 minutes from onset to return • Before 32 weeks of gestation, an acceleration has a peak of 10 beats per minute or more above baseline, with a duration of 10 seconds or more but less than 2 minutes from onset to return • Prolonged acceleration lasts 2 minutes or more but less than 10 minutes in duration • If an acceleration lasts 10 minutes or longer, it is a baseline change
Early deceleration	• Visually apparent usually symmetric gradual decrease and return of the FHR associated with a uterine contraction • A gradual FHR decrease is defined as from the onset to the FHR nadir of 30 seconds or more • The decrease in FHR is calculated from the onset to the nadir of the deceleration • The nadir of the deceleration occurs at the same time as the peak of the contraction • In most cases the onset, nadir, and recovery of the deceleration are coincident with the beginning, peak, and ending of the contraction, respectively
Late deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction • A gradual FHR decrease is defined as from the onset to the FHR nadir of 30 seconds or more • The decrease in FHR is calculated from the onset to the nadir of the deceleration • The deceleration is delayed in timing with respect to the timing of the contraction, with the nadir of the deceleration occurring after the peak of the contraction • In most cases, the onset, nadir, and recovery of the deceleration occur after the beginning, peak, and ending of the contraction, respectively

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Less Invasive Surfactant Administration (LISA):

A Quality Improvement Project

By Kaitlin Evans, DO and Jane Anne Gorham, DO

Respiratory distress syndrome (RDS) is one of the leading causes of morbidity and mortality in preterm infants (McCrossan & Sweet, 2018; Pareek, et al., 2021; Speer, et al., 2013). It is caused by a deficiency of pulmonary surfactant leading to respiratory distress and the need for respiratory support (Lau et al., 2017). RDS can often be managed with noninvasive respiratory support such as nasal continuous positive airway pressure (nCPAP), reducing the need for intubation and mechanical ventilation by preventing atelectasis, lowering work of breathing, and preserving natural surfactant.

Escalation of treatment beyond CPAP has traditionally involved the administration of exogenous surfactant via endotracheal intubation and the need for mechanical ventilation (Speer et al., 2013). Mechanical ventilation, however, is a known risk factor for bronchopulmonary dysplasia (BPD) because volutrauma and barotrauma trigger inflammatory response in the lungs.

From INSURE to less invasive methods

Large randomized controlled trials (RCT) have shown that using nCPAP as primary respiratory support, with selective use of surfactant is equally safe and reduces rates of death and BPD. To limit the complications of mechanical ventilation, Victorin et al. (1990) introduced the INSURE method: intubation, surfactant delivery, brief ventilation, and immediate extubation. INSURE was common by the end of the 1990s, and Cochrane reviews and RCTs in the 2000s and 2010s confirmed its benefits, including less need for mechanical ventilation and lower rates of BPD (Lau et al., 2017).

More recently, less invasive methods have been developed to give surfactant without the need for mechanical ventilation. These methods are safe and effective and lower the risk of inducing lung inflammation by avoiding positive pressure ventilation (Liebers et al., 2021). Compared with INSURE, less invasive surfactant administration has been linked to fewer days on respiratory support and to lower rates and severity of BPD (Silveira et al., 2024). European, British, and Canadian consensus guidelines have already adopted it as the standard of care (Sweet, Carnielli, Greisen, et al, 2025; Ng & Shah, 2021).

What is LISA?

Less invasive surfactant administration (LISA), also called minimally invasive surfactant therapy (MIST), delivers surfactant via use of a thin catheter, most often an angiocath, rather than an endotracheal tube. The infant continues to breathe spontaneously throughout. LISA was first introduced in Europe in the 1980s but was not widely used until the late 2000s-early 2010s (McCrossan & Sweet, 2018; Speer et al., 2013).

In the late 2010s, some U.S. institutions began introducing LISA/MIST through their own quality improvement projects. The OPTIMIST-A trial, a large international RCT published in 2021, demonstrated the procedure's safety and efficiency and contributed to its wider adoption, including in the United States (Dargaville et al., 2021).

Our previous approach

Before LISA, our unit's standard of care for giving surfactant was rapid sequence intubation (RSI) with atropine, fentanyl, and succinylcholine. Infants were then placed on mechanical ventilation and weaned toward extubation as tolerated, but many remained on the ventilator for several days to weeks, depending on gestational age and clinical condition. The decision to intubate to give surfactant was provider-dependent and was usually avoided until an infant on non-invasive respiratory support needed a higher fraction of inspired oxygen (FiO2), typically above 40%, or showed signs of respiratory distress.

Launching the project

Given the evidence for LISA, we introduced it in December 2024 through a quality improvement (QI) project at our institution using standardized QI framework. We assessed our key drivers before QI implementation and began our first Plan-Do-Study-Act (PDSA) cycle from February to June 2025.

After the clinical guideline was developed, we trained all attending neonatologists, nurse practitioners, and neonatal fellows in our division. Training included hands-on sessions and an instructional video created by the two attending neonatologists and two fellows

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leading the project. Neonatal nurses and respiratory therapists received role-specific education.

We also created a flow diagram outlining indications and inclusion and exclusion criteria, and a LISA-specific equipment kit stocked in the supply room. Procedure data was tracked and shared the division, along with reminders and recommendations on specific areas of improvement.

First PDSA cycle

Implementation began in the Level III NICU at St. Mary's Hospital – St. Louis, in February 2025. The first PDSA cycle included infants between 28 weeks 0 days to 34 weeks 6 days gestation on non-invasive respiratory support (nCPAP/NIPPV), who needed FiO2 of 30% or more, with the goal of deciding on LISA by 90 minutes of life. Any infant meeting criteria during the first days of life was eligible.

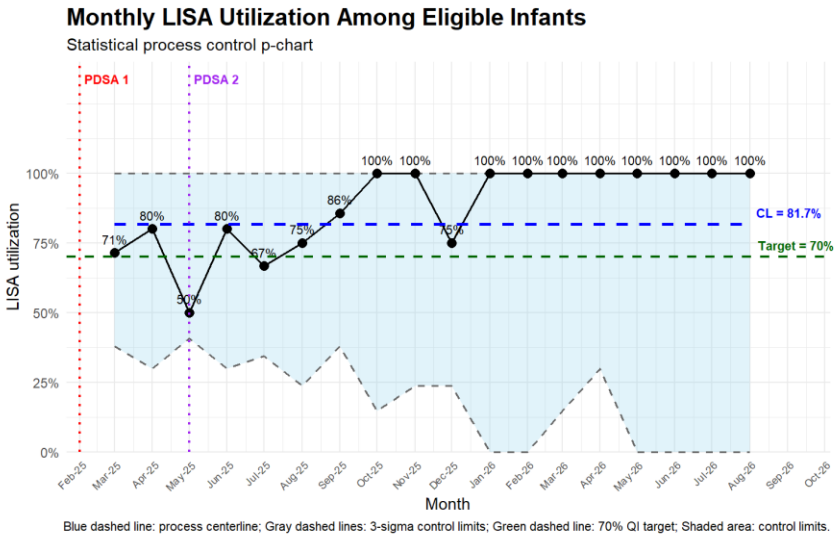
Sedation for LISA is debated in the literature and in clinical practice, and there is no true consensus recommendation (Liebers et al., 2021). Premedication varies by institution. In our first PDSA cycle, infants received atropine (0.02 mg/kg) and fentanyl (1 mcg/kg) before the procedure.

During the first three months multiple infants became apneic and needed positive pressure ventilation (PPV) during the procedure. All responded to PPV, but because of these complications, we stopped using fentanyl in our second PDSA cycle in May 2025. We continued atropine and encouraged use of oral sucrose (SweetEase) for patient comfort. After this change, far fewer infants became apneic or required PPV, with no decrease in procedural success.

From February 1, 2025-June 30, 2025, 13 neonates received surfactant through LISA, and 85% of attempted procedures attempted were successful. With feasibility established, we expanded the clinical pathway to include infants up to 36 weeks 6 days as well as infants 37 weeks or older at provider discretion, with careful consideration of the cause of the hypoxia.

From July 1 through September 30, 2025, LISA was performed on 15 more infants, with a 100% procedural success rate. Due to the success and providers becoming more comfortable with performing it, the team introduced the project at the Level IV NICU at SSM Health Cardinal Glennon Children's Hospital in October of 2025, after nursing and respiratory therapy education was completed.

Since implementation, we have seen FiO2 requirements fall after the procedure, with most infants reaching room air (21%) shortly afterward and main low requirements by 24 hours of life. Our procedural success rate has remained around 80-85%. Data collection continues at both NICUs.



What's next

With continued success and comfortability with LISA, we hope to expand the project to include infants down to 26 weeks 0 days as well as explore expanding to SSM Health community hospitals.

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Neonatologist Closer to Home:

TeleNICU for Community Hospitals

By Jenny Garst, MSN, RN, C-NPT



Jenny Garst

Telemedicine has evolved from telegraph and radio communication to today's computers and smart phones. Its first use in newborn care came in 1977, when neonatologists at University Hospitals of Cleveland at Case Western Reserve University used live video to round in the newborn nursery at Forest City Hospital (Jagarapu et al., 2021). Lead researcher Grundy concluded that although telemedicine equipment was expensive, it served as an "important link between a small hospital and a large medical center favorably influencing the quality of care" (Jagarapu et al., 2021).

The U.S. Department of Health and Human Services defines telehealth as the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration. Telemedicine, a subset of telehealth, involves either real-time or asynchronous communication between healthcare providers, patients, and patients' families.

Why community hospitals need telehealth support

Approximately 10% of infants need some respiratory assistance at birth and 1% require extensive resuscitation. According to the Neonatal Resuscitation Program (NRP), ventilation is the most effective intervention in neonatal resuscitation. Yet resuscitation skills rapidly decline after training when they are not used regularly.

Hospitals that deliver fewer than 500 newborns per year have a neonatal mortality rate three times higher than hospitals with more than 1,500 births per year (Fang, 2021). The problem is amplified in rural areas, where hospitals are closing their obstetric services. As a result, 15-20% of very low birth weight infants in the U.S. are born at a hospital without a NICU (Chuo et al, 2022).

Real-time support during resuscitation

Before these technology advances, most community hospitals relied on telephone calls to reach a neonatologist. Neonatal telehealth with video now supports resuscitation, consultations, virtual rounding, the transition home after discharge, follow-up care, and more (Fang, 2021).

In simulated neonatal resuscitation, video-assisted telemedicine helped providers reach effective ventilation faster and follow the NRP algorithm more closely, and staff reported higher satisfaction afterward. In one study, the video-assisted group achieved effective ventilation 89 seconds faster and avoided intubation (Fang et al., 2014). These findings show that telemedicine can improve the quality of resuscitation when a neonatologist is not present.

Telemedicine can also support routine procedures. In one case, a term infant at a rural community hospital developed a left-sided tension pneumothorax. Local physicians and staff performed a thoracentesis with real-time guidance from the neonatal transport physicians before the transport team arrived (Abou Mehrem et al., 2021).

Keeping newborns closer to home

Neonatal telehealth also supports routine consultations. Multiple studies show that neonatal patients can be accurately assessed through synchronous audio-video telemedicine and seeing the patients help providers collaborate on the care plan.

Over five years, the TeleNICU Program at Children's Health Dallas found that more than half of infants seen through telemedicine consults were able to stay at their birth hospital (Jagarapu et al., 2021). By avoiding unnecessary transfers, telehealth lets newborns safely remain closer to home and family.

Subspecialties including cardiology, ophthalmology, surgery, neurology, and genetics also benefit. For example, infants with suspected neonatal encephalopathy can receive neuro examinations sooner, speeding transfer and the start of therapeutic

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hypothermia (Chuo et al., 2022). And when an infant fails a critical congenital heart disease (CCHD) screening, a cardiologist with the right equipment can review the echocardiogram remotely and decide whether transfer is needed (Chuo et al, 2022). Table 3 outlines additional benefits of neonatal telemedicine for NICUs of various levels, as well as for with patients, families, and insurers (Jagarapu et al., 2021).

TeleNICU at SSM Health Cardinal Glennon

SSM Health Cardinal Glennon Children's Hospital offers TeleNICU services through a team of 19 neonatologists. The program currently supports five special care nurseries and is working to expand and meet the needs of more communities. For more information on the TeleNeonatal Medicine Program email: CGTeleNICU@ssmhealth.com.

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Table 3 – Benefits of a teleneonatology program in a hub and spoke model.

Hub Site University Hospital / Children's Hospital (Level IV and Level III NICU 'S)	▪ Extended Outreach ▪ Triage Transfers and optimize bed space utilization ▪ Promote Education ▪ Promote standardization of care ▪ Promote family centered care
Spoke Site Level I – II nurseries Level III NICU without sub-specialist access	▪ Increased access to Neonatol-ogists, pediatric sub- special-ists (for a level III spoke) ▪ Second opinions without need for transfers ▪ Promote family centered care ▪ Patient retention with avoided transfers ▪ Revenue retention
Patients / Parents	▪ Staying closer to home and family ▪ Access to specialists regardless of distance ▪ Avoid loss of work or pay ▪ Avoid travel
Payors (Insurance/Medicaid)	▪ Consumer or Patient satisfaction ▪ Decreased cost of care (daily charges are lower in lower-level units) ▪ Transport cost savings

Benefits of a teleneonatology program to hospitals, patients and payors.

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The SSM Health Perinatal Outreach Program

The Perinatal Outreach Program is a collaborative effort between SSM Health St. Mary's Hospital – St. Louis, SSM Health Cardinal Glennon Children's Hospital, and Saint Louis University School of Medicine.

It is designed to improve outcomes for mothers and babies through educational programs and quality improvement activities for regional perinatal care providers in Eastern Missouri and Southern Illinois.

SSM Health Cardinal Glennon Children's Hospital and SSM Health St. Mary's Hospital – St. Louis are designated by the Illinois Department of Public Health as the Administrative Perinatal Center for Southern Illinois.

Continuing Education Opportunities

Many continuing education opportunities are available for perinatal professionals in eastern Missouri and Southern Illinois. For course calendars or more specific information on programs, please visit ssmhealth.com/perinataloutreach, call the Perinatal Outreach Program at 314-577-5317, or send an email to SSM-PerinatalOutreach@ssmhealth.com.

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