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Pragmatic High-Reliability Organization (HRO) During Pandemic COVID-19

Daved van Stralen, MD, FAAP

Abstract

The COVID-19 crisis demonstrates the difficulty of translating a method of organizing developed for extreme hazards to organizations with similar demands to be failure-free but in a markedly less hazardous environment. Three central reasons for this, discussed in this paper, are 1) the incomplete translation of HRO theory into practice, 2) the characterization of HRO practice: The embedded problem and 3) the internalization of HRO practice. The purpose of this paper is to make that missing part of HRO more visible, to be of greater help to the neonatal community, and to introduce readily adopted measures that move an organization.

Keywords: COVID-19, HRO, High Reliability Organization, Neonatal.

Introduction

Despite the extreme and pervasive challenges to healthcare by the COVID-19 crisis, our healthcare system must not fail. Healthcare has borrowed the concept of the High-Reliability Organization (HRO), codified from organizations that cannot fail despite working with hazards or in hazardous conditions (Bourrier 2011). HRO derived from studies by the *High-Reliability Organizations Project* at the University of California, Berkeley, in the 1980s to study nuclear aircraft carriers (USS Enterprise CVN 65 and USS Carl Vinson CVN 70), the Air Traffic Control System (Federal Aviation Administration), and Electric Operations and Power Generation Departments (Pacific Gas and Electric Company (Roberts and Bea 2001; LaPorte 2011; Rochlin 2011)). Changing an organization to HRO has been attempted through leadership, a top-down approach, with little use of Bloom's Affective Domain of Learning (Krahtwohl 1964), how will HRO methods help individuals. This borrowing has been in a restricted manner, mostly from the normative frame for preventing system failure, the more salient and relevant principles are less visible and often unnoticed. The occasion for academic observers to participate in live-or-die operations is severely limited; thus, the ability to identify characteristics necessary in both dangerous and routine operations is absent and their necessity in routine operations unnoticed.

The Incomplete Translation of Theory into Practice

In the medical world, practitioners engage with a flux of contingencies in an effort to make them more orderly. Efforts to enact order sometimes succeed, sometimes fail, and most often, they produce both. And that mixing can threaten reliable functioning. As an example, after a hospital had worked through a difficult period, the CEO gathered leadership to thank them for coming together, working hard toward the resolution of the problem, and supporting the staff. A voice in the back, from a leader, softly said, "Suckers!" (an attendee, personal communication). Is that remark cynical or insightful or both? It depends both on whether it is top-down or bottom-up and on whether it is made by a spectator or an insider.

Undoubtedly there was order within the "difficult period," but it was likely more pragmatic than normative, and the nature of that order was rendered less accurately by the concepts of a spectator than by the detailed acquaintance of the insider.

"In the medical world, practitioners engage with a flux of contingencies in an effort to make them more orderly. Efforts to enact order sometimes succeed, sometimes fail, and most often, they produce both. And that mixing can threaten reliable functioning."

Notions of high reliability make a big deal of that difference. The high-reliability theory relies partially on that outside view in its reliance on codifying a framework of guiding principles. But when those principles are seen as the core to produce reliability, that is where the emphasis gets misplaced. Reliability is more assured when practical engagement dominates when practice adjusts to the flux of circumstances. And it is the constituents of that engagement that make higher reliability a property of neonatal work as well as with public health in general. Another way to say this is that High-Reliability Organizing (HRO), as a verb, describes this social action to threats. The High-Reliability Organization (also HRO), as a noun, describes the results of leaders who model HRO attitudes and behaviors while supporting staff to engage covert discrepancy or disruption. As a verb, HRO is ever-present and will spontaneously overlay the organization's structure. As a noun, HRO emerges long before it is needed.

The verb and the noun are intertwined, which means that they jointly shape reliability. As a young medic on the Los Angeles City Fire Department, I was often the first person to reach someone overwhelmed by events. In a comfortable place where they felt safe, they now were beyond uncertainty. Their eyes wanted to know. She is OK, isn't she? He will be fine, won't he? Their eyes searched to stop things, stop the pain, stop the grief, stop time, just stop. Their eyes searched for a future as they trembled for a lost future. We did not stop the heart. We did not put them in the pool. We did not drive the car. We could not return their home, their health, or their loved one. By our presence, we represented humanity. The moment of our arrival, you could see it in their face, the ripping apart ended. We saw what we had stopped. Without words, we could feel their relief. We had meaning in our efforts. It was not our emergency. It was our rescue. That was a pragmatic constituent of our practice.

When pragmatics such as these are translated into more abstract

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normative statements, nuances and fine-tuning and subtle but important cues tend to be lost. Nuances get restored by action. Jim Denney, Capt., LAFD, himself a veteran of two Vietnam combat tours, would remind his crew, "The emergency has a vote. In the face of a void, move forward." A Los Angeles City firefighter, arriving on a confusing, volatile scene to assist me on the Rescue Ambulance, uttered a powerful version of a pragmatic stance: "I don't know what's happening, but I know what to do." Bill Corr, my fire captain, and WWII US Navy veteran, South Pacific Theater, gave meaning to our rescue work, "What we do is help people when they cannot help themselves."

"High reliability is seldom a heavy-handed intervention. Instead, it gets worked out during activity, by means of small activities that have larger consequences."

What's relevant here for the COVID-19 crisis is that key leaders from an outside position, misread subtle, recurrent cues and failed to alter their practice in ways that took those cues more seriously. High reliability is seldom a heavy-handed intervention. Instead, it gets worked out during activity, by means of small activities that have larger consequences. For example, a rescue ambulance responds with a team of two (except for shootings), both of whom were trained literally to protect the other's back. If we both faced the same direction at any time, it was a fail – you watched your partner's back and, if a threat approached, you took care of it, allowing your partner to treat the patient. I learned 1) the most important person on the scene was the firefighter on the hose or the medic treating the patient, they knew what was needed, and 2) there was no need to protect myself while treating a patient since that was my partner's job. One person could watch the backs of 3-5 people while effectively focusing on his or her task at hand. That's the secret of firefighters entering a burning building while others run out. They are safe because 3-4 people are watching their back. Treatment is possible because the team can focus on their task and help people when they cannot help themselves.

A further dimension of a pragmatic stance toward high reliability in rescue work is grounded in the belief that "When you go 'on scene,' you become part of the problem." 1) You may need to be rescued, keep where you can escape, or be reached. 2) Your countenance, stance, and voice change the scene. 3) You can only solve these problems from within. As neonatologists, physicians, nurses, respiratory care practitioners, social workers, dietitians, people need to become part of the problem so they can figure out solutions. Professionals cannot return life to what it was, but they can stop the destruction.

If we translate pragmatics of rescue protection and awareness into sensitivities in neonatal units, then it is clear that such units are more exposed to disruptions from the virus. COVID-19 can impair operations when experienced staff become infected due to life outside or movement within the hospital. COVID-19 can enter the NICU, infecting babies with unknown consequences. Safety from the virus has become more like safety from ionizing radiation in nuclear propulsion and nuclear power. Both are (1) invisible, (2) the damage is delayed, and (3) the disease is untreatable (supportive care is the only option).

Similarities between virus spread and radiation are not just a convenient metaphor. HRO originated in the context of nuclear reac-

tor operations when researchers tried to explain a surprisingly low rate of incidents and errors, even of aircraft incidents and errors, on a nuclear-powered aircraft carrier, CVN 70, Carl Vinson. In this setting, 'the nuclear way' of training. Safety awareness, and reliability of operations, permeated the ship.

The initial investigators, Rochlin et al. (1987; see also Bourrier 2005), coined the phrase HRO to describe an organization that "appears to succeed under trying circumstances, performing daily a number of highly complex technical tasks in which they cannot afford to 'fail.'" They elaborated that description in the very next sentence where they highlighted the notion of error: there is a "devotion to a zero rate of error [that] is almost matched by performance." Initially, reliability was interpreted to mean a zero rate of error. Less clear is the direction of causality. Do specific HRO practices reduce error, or does error reduction, for whatever reason, shape a more constrained routine for reliability? Whether HRO practices prevent errors or it is the prevention of errors that creates an HRO, the idea of error continues to dominate and to draw attention away from a more detailed look at how HRO is deployed on the front line.

"These organizations introduced HRO into healthcare through leadership, a top-down approach, with error reduction becoming a standard for safety and reliability. A lingering question is what is the practical essence of HRO? The COVID-19 Crisis has refocused attention away from the top-down normative strategies toward more bottom-up pragmatic tactics."

A preoccupation with error and with HRO as a remedy is found in several standards for healthcare. HRO is endorsed by the Joint Commission (Chassin and Loeb 2013), the US Agency for Healthcare Research and Quality (Hines et al. 2008), the US Military Health System (Department of Defense 2014), and the Institute for Healthcare Improvement (Nolan et al. 2004). These organizations introduced HRO into healthcare through leadership, a top-down approach, with error reduction becoming a standard for safety and reliability. A lingering question is what is the practical essence of HRO? The COVID-19 Crisis has refocused attention away from the top-down normative strategies toward more bottom-up pragmatic tactics. That reorientation has grounded high reliability more firmly in operations, less preoccupied solely with error, and less fully in the managerial language of design, human factors, leveraging, anticipation, rules, root causes, and problem-solving.

Well-meaning professionals overlook or leave behind the practical, bottom-up nature of HRO that produces its pragmatic strength. Responsiveness to rapid, nuanced, or subtle changes in the environment occur at the level of the individual, hence the bottom-up characteristics of HRO (van Stralen 2008, van Stralen et al. 2008, van Stralen and Mercer 2015).

Captain Chesley Sullenberger has been especially eloquent on the importance of reliance on bottom-up, pragmatic processing, as a core property of HROs. "During a crisis, there is not time to think about each specific bit of knowledge or experience that we depend on to make sense of imperfect information and ambiguity. But having those resources immediately accessible in our minds,

we use them in a conceptual decision-making process to frame the decision. We essentially quickly come up with a paradigm of how to solve the problem. It is after the fact that we retrospectively begin to attribute specific reasons for the decisions that we made. Capt. Chesley “Sully” Sullenberger (personal communication).”

“COVID-19 disrupted healthcare systems that had incorporated robust, responsive patient safety programs intended to absorb regional disasters. The magnitude of the COVID-19 crisis overwhelms healthcare systems worldwide, yet we must continue with routine healthcare demands while accommodating the system impairment and increased healthcare demands caused by COVID-19.”

The Characterization of Practice: The Embedded Problem

COVID-19 disrupted healthcare systems that had incorporated robust, responsive patient safety programs intended to absorb regional disasters. The magnitude of the COVID-19 crisis overwhelms healthcare systems worldwide, yet we must continue with routine healthcare demands while accommodating the system impairment and increased healthcare demands caused by COVID-19. Healthcare, other than public health and occupational medicine, tends to occur in controlled medical environments. A disease creating an epidemic is an ill-defined problem that has challenged societies in the past. COVID-19 has changed the environment, embedding itself to reduce healthcare assets such as people, equipment, buildings, and medication. HRO, as codified from US Naval aviation, emerged from the embedded problem. Normative HRO, an abstract representation of HRO, has replaced Pragmatic HRO.

The first and most susceptible assets are our healthcare personnel. HRO for individuals and small groups increases strength, effectiveness, self-efficacy, and resilience to identify, engage, and continue to engage novel, emergent, and unexpected situations. The demands will continue to assault personnel, but to do nothing or to continue the normative stance will increase the harm to those who work in this environment and impair medical care. We cannot return personnel to their pre-crisis state during or after the COVID-19 crisis, but we can ensure they are supported, given meaning to their efforts, and that the inevitable damage is not gratuitously allowed to increase.

For organizations, personnel and executives will become alert to subtle and nuanced disruptions, early heralds of failure, and covert compensated states to engage early and more effectively. Improvisation and learning by doing, components of Pragmatic HRO, generate solutions, and reduce damage in unforeseen ways. HRO values and attitudes support personnel in their natural drive to find what works to help people who cannot help themselves. HRO, as the verb form, describes a scale-free network approach that overlays organizations and systems to increase sensitivity to early heralds of failure to increase the effectiveness of interventions. While HRO methods move the organization toward a more

desirable end-state, it does not, except for mental performance, increase resources

In a disruptive, confusing, and volatile situation, the analysis of the situation, the search for patterns, and attempts to create structure teaches people how to engage and create stronger designs to prevent system failure effectively. Traveling backward in time to attribute specific reasons for an incident develops sturdier structures for our future but with a hidden bias directing individuals to pursue pathways that make sense rather than have authentic causality. The pragmatic stance frames the incident with “that could be me,” a personal stance for introspection, an examination of our personal capabilities, asking what early heralds we should be attentive to, the actions we might take, responses we could expect, and whom we could turn to for help. Framed as a normative incident, the water landing applies to engineers, pilots, flight crews, and passengers. Framed as a pragmatic incident, the water landing applies to all of us because unexpected incidents are a part of living.

Capt. Sullenberger was trying to increase the angle of attack as much as possible just prior to touchdown before the aircraft stalled, in order to maximize the flare and thus minimize the airplane’s downward velocity when it impacted the water. His effort was frustrated because the phugoid damper prevented him from getting the last 3 1/2 degrees of nose-up pitch that would otherwise have been available before the stall. Consequently, the sink rate was higher than it otherwise would have been, and the rear fuselage structure was breached to the extent that a flight attendant seated in the rear was injured and water entered the airplane. Automation that was intended to improve safety and comfort actually hindered the most adaptable part of the system, the human pilot. *Sully was not aware of this until we discovered it in our investigation.* (Emphasis added) Christopher A. Hart, former Chairman NTSB (personal communication).

A convergent, deductive, analytic approach drives the search for facts and information which will guarantee our conclusions. The security offered by structures we create and actions we take reinforces the normative frame, but that is narrowing and increasingly confining, destined to cascade into destructive failure when the environment intrudes into the problem. As in Sullenberger’s water landing, a pragmatic frame enhances our capability to solve problems linked to deeper, unidentifiable structures.

Structuring a problem enhances our ability to teach and develop solutions. We describe problems with numerical variables and quantities, goals, objectives, protocols, and rules – these are well-structured problems (Simon 1973). The presenting situation identifies the well-structured problem; it is readily observed, categorized, and defined. The most trivial well-structured problem contains the defined elements of the situation, intervention, and objective (Dieterly 1980), a common source for protocols and rules. For other defined problems, we select from a limited array of interventions and/or identify a limited number of objectives.

The well-structured problem supports planning and risk analysis and reinforces the normative frame, creating complacency toward the organization’s capability to respond to crises. Some problems, however, are not well-structured, such as the *ill-structured problem* (Simon 1973), the environment modifies or creates problems, and the environment will precipitate failure with a visible symptom: unacceptable performance in the field (Von Hippel and Tyre 1995). More likely, we encounter problems with symbolic or verbal variables, vague or nonquantitative goals, and no available protocols or algorithms – the ill-structured or ill-defined problem (Simon 1973). Information is in the problem space; if the problem space is modified, then the problem-solver must draw upon long-term

memory, modify instructions, and obtain information from the environment outside of the problem space (Simon 1973).

The ill-structured problem presents as an undefined situation, a discrepancy observed or disruption experienced, with the operator unable to clearly define or readily identify the situation for engagement. Between the rules and protocols, interventions will be uncertain and multiple, and objectives vague, multiple, in parallel, or serial (Dieterly 1980).

Disturbances and disruptions occur in the world of practice, not theory. COVID-19 is such a disruption. Because concepts are discrete, interruptions in a process can break the causal chain of classical logic and rationality. Continuous perceptions do not match discrete concepts; our grasp of events challenges the accuracy of our concepts with the consequence of misidentification and misunderstanding (Schulman 2004). Used rigidly, problems become linear, puzzle-solving processes, utilizing only the concepts we could conceive, which has carried grave consequences at the international level (Wolfberg 2006). To Boyd (1976), though, the analysis served to differentiate concepts, a trait particularly useful during disruptions or for complex situations when he would combine analysis, a destructive cognitive force, with synthesis, a constructive cognitive force, for his model *Destruction and Creation* (Boyd 1976).

Theories follow the law of the excluded middle from classical logic, which ensures discrete concepts, not permitting facts or concepts to overlap. Properties and concepts that are discrete, coherent, and congruent will tightly couple with other properties and concepts. This tight coupling results in tightly coupled principles and concepts that lack interstices or overlap between other principles and concepts. Tight coupling permits design and interpretation for research, development of algorithms and rules to integrate systems, and the creation of procedures and protocols to guide people carrying out complex tasks. The tight coupling, however, comes at the expense of being congruent with the operational environment, an environment which commonly comprises multiple systems that incorporate diverse models.

“Tight coupling permits design and interpretation for research, development of algorithms and rules to integrate systems, and the creation of procedures and protocols to guide people carrying out complex tasks. The tight coupling, however, comes at the expense of being congruent with the operational environment, an environment which commonly comprises multiple systems that incorporate diverse models.”

Practice does not follow the law of the excluded middle. In practice, nonlinear interactions generate properties that are unpredictable because of the combination of various characteristics of the source elements. Boundaries between properties are fuzzy and in flux and will overlap with properties of other principles and concepts. Though the concepts within a specific system are tightly coupled, interactions of diverse concepts and systems are loosely coupled. That is, interactions within the environment generate

new concepts that are imprecise and superimposed on and/or disconnected from other concepts. Loosely coupled concepts are the general experience in the operational environment.

The operational environment influences perceptions, interacts with situations, and, ultimately, affects solutions. Problems emerge or appear as disruptions in processes, or they become noticed as discrepancies in the environment, either must be identified and interpreted. The perceptions of individuals are continuous, yet the frame for identification and analysis is established through organizational or social norms and discrete concepts. Paul Schulman (2004) observed, “Discrete concepts simplify and lag behind continuous perceptions, which means that our grasp of events is subject to misspecification, misidentification, and misunderstanding.” The danger of these occurrences is not only failure from reliance on normative frames and discrete concepts ineffective for the situation, but it is also from that failure appearing or accepted as a success.

More likely is the problem that is embedded within the environment. In this conception of the ‘embedded problem,’ the environment contains information while influencing the structure of the problem. Reliance on a normative frame suffices in the majority of instances, but some embedded problems will not respond, objectives cannot be reached, or desired goals cannot be met. In those cases, a pragmatic frame can move the situation toward a more desired end-state. The ability to fluently utilize a pragmatic frame, where the sciences are brought to bear on the particular, is a form of practical wisdom.

I was a Los Angeles Fire Department paramedic working in Watts when I treated a patient on the side of the road. A police officer stood next to me. An older model car drove by, heavy blue smoke from the tailpipe clouded the street. Los Angeles struggled with smog, it was the mid-1970s, and vehicle emission controls had increased. “Don’t you give tickets for that?” I asked. He replied, “Well, I can give him a ticket. When he can’t pay the fine or ‘fix it’ costs, he loses his car. He can’t drive to work; he loses his job. His family has no income. What have I solved?”

The Gap Between Theory and Practice

The COVID-19 crisis demonstrates the gap between theory and practice is far deeper and more troubling than a discussion of the [normative] science and [pragmatic] art of medicine. Using a more accurate distinction, the normative stance and pragmatic stance will align the objective, decontextualized normative stance with theory and *scientific rationality*. The subjective, contextualized pragmatic stance would align with affective judgment and *practical rationality*. A science of practice can emerge.

The Limits of Scientific Rationality

Scientific theory and rationality assume discrete a priori themes and concepts that are outside of the human mind (Sandberg and Tsoukas 2011; Zundel and Kokkalis 2010). The goal is to represent an “outside” view of the world, a dispassionate, objective representation that is disinterested in personal experience and practical concerns. Two principles of classical logic also define concepts for scientific rationality: 1) *bivalence* is a statement that is either true or false, and 2) *the excluded middle* states that entities are discrete with distinct properties. With facts, deductive reasoning guarantees the truth of the conclusion. The application of classical logic, which emphasizes truth, with deductive reasoning provides top-down analysis of new concepts, whether they are within the originating theory. Scientific rationality ensures the integrity of theory by isolating theory from practice and context

Operators in the field develop their own logic of practice built upon contextual relations entwined with people and work (Sandberg and Tsoukas (2011). For Zundel and Kokkalis (2010), the absence of practice within the theory is how theoreticians see theory making, as themes in terms of a priori scientific assumptions, the *scientific subject domain*. By including engagement of practice, the theory would move into the practical world, closing the gap between theory and practice to create the *practical domain of engagement*. The significance of engagement of practice derives from the attitudes taught to rookies in the military and public safety – always engage, in some way, engage even if to evacuate the area.

A practical domain of engagement recognizes the overlapping and loose coupling of concepts necessary to complete a task, also the pragmatic stance, and illuminates the study of the problems of transferring academic work to organizational practice. Engagement is the active learning by doing in context, not an outcome of rational deliberation, and cannot be objectified for theory making (Zundel and Kokkalis 2010). Engaged action comes from insight and immediate feedback, with negative feedback marking the safe boundary of performance and positive feedback generating growth. All feedback generates information. “Mistakes” indicate a change in circumstances (Paget 1988) or interference from the environment (Von Hippel and Tyre 1995). But mistakes are observable, and therefore correctable (Weick 1979, 148). Effective responsiveness brings strength through change, allostasis.

Impaired engagement develops from motivated reasoning and failure to act. Motivated reasoning biases one to reject information that conflicts with closely held belief, a dangerous proposition during the COVID-19 crisis. Failure from not acting is not detectable, therefore not correctable and becomes organizational knowledge. The attitude toward error, mistakes, and failure, either as a generation of knowledge and safety or as intellectual failings, will leave

“Failure from not acting is not detectable, therefore not correctable and becomes organizational knowledge. The attitude toward error, mistakes, and failure, either as a generation of knowledge and safety or as intellectual failings, will leave a long imprint on the field of neonatology.”

a long imprint on the field of neonatology.

The COVID-19 Crisis shattered system qualities, attributes, and operations while creating further interrelated problems and contextual and influential factors, the reason for full-spectrum analysis (Wolfberg 2006). “There are valuable perspectives to be gained from diverse contexts,” Roger Bush, Chair “Achieving High-Reliability Task Force,” The Joint Commission (personal communication). Information in one area may address limitations in another, and the findings in a different area may explain the results elsewhere (Pawson et al. 2005). Between domains, ‘boundary objects,’ arrangements, or common objects in the shared boundary allow collaboration without consensus giving groups flexibility and shared structure (Leigh Star 2010).

“The airline industry collaborative safety improvement process, CAST, which greatly improved airline safety beyond expectations, contains all the major HRO elements and effectively implemented HRO at an industry level (as opposed

to a company level), and they did so without any reference to or knowledge of the concept of HRO.” Christopher A. Hart, former Chairman, NTSB (personal communication).

“To comprehend and cope with our environment, we develop mental patterns or concepts of meaning” (Boyd 1976). We reconstruct order and meaning through analysis of the mental patterns to discard and synthesis of new mental patterns, iterations of unstructuring and restructuring that create concepts and meaning, changing our perception of reality (Boyd 1976).

Why Does this Matter? The Pragmatic Stance

Forging our way through this embedded, ill-defined problem of the COVID-19 crisis, we will receive many recommendations from specialists in diverse fields. The stance we take now, whether the normative stance with Normative HRO versus the pragmatic stance with Pragmatic HRO, influences whom we will accept recommendations from and the relevance of what they offer. The stance we take will have long-lasting effects, including the perceptions and faith of the families we provide care for and the public in general. The gap between theory and practice can be closed by informed practice, that is, to understand the theory and scientific rationality to support practice rather than guide practice. Neonatologists, by engaging situations in context, bridge the gap by using theory to improve care for practical outcomes (Zundel and Kokkalis 2010.)

Discrete categories establish a basis for research. Disregarding subjective mental responses supports objective empirical measurement. Common sense forms a basis of judicious, practical decision-making. The environment can constrain or endanger operations. From these premises, academicians generate concepts and theories, creating bodies of knowledge others can master and teach. Concepts are discrete, coherent, congruent, organized mental models that contribute to research and understanding. The discrete nature of a concept follows from the rule of the excluded middle in classical logic, either the proposition is true, or its negation is true. Coherence describes how a concept, following a logical sequence or building from deeper structures, integrates with established models. Congruence describes how the concept represents, agrees with, or relates to established concepts and the real world.

What makes a discipline socially and politically relevant influences the agenda for research, education, and training. A normative frame is orderly, measurable, amenable to research studies, and able to be mastered. A pragmatic frame comprises continuous and overlapping perceptions with degrees of truth and contingent principles, a difficult area for academic scholarship. The public is more accepting of discrete, well-accepted concepts. The model of a domain, driven by theory or practice, is a social action with the public and government but also senior leaders in the field, producing a long-lasting influence on scholarship and practice (Sherman 1996). It also influences credibility, visible during the COVID-19 crisis as healthcare professionals engage an unseen virus with stochastic effects on patients, from mild symptoms to rapid death following a short illness. Inductive reasoning causes frequent

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adjustments in knowledge as the strength of evidence changes. Branching time and updated beliefs have symbols as propositions and operators, but not in classical logic. They come from temporal logic and doxastic (belief) logic, respectively, two of a number of modal logics that qualify the truth of judgment, like 'necessarily' or 'possibly.' Modal logics depend on the mode of the logic system, for example, epistemic logic (knowledge) and deontic logic (duty or obligation). How we develop practical rationality for our respective disciplines has long-acting implications for the public's trust and faith in healthcare.

Moving HRO into predictably stable environments relaxes pressure that had selected for HRO characteristics. Traits once necessary for survival may disappear, with some breaking down quickly while others linger (Lahti et al. 2009). Normative HRO represents a release from environmental pressure and constraints.

Behaviors and beliefs come in suites. For example, local response to the environment means you accept and respond to the actions of others who are also responding. When members share the same intent, this self-organizing action becomes adaptive improvisation. Imposing rigid hierarchy or rank, or blaming members, distracts from responsiveness and degrades team formation and performance. Adopting the normative form of HRO while continuing rigid enforcement of rules or authoritarian structures, such as obedience without initiative or conformity without creativity, degrades HRO. The qualities that make HRO a powerful method against severe adversity or operations in hostile environments are lost in the moment they are needed most.

"HRO, as an abstract representation of work that is done out there, a representation by academics, is the very object that has been turned into a normative frame, a frame you want to replace with a more pragmatic frame." Personal communication from Karl Weick

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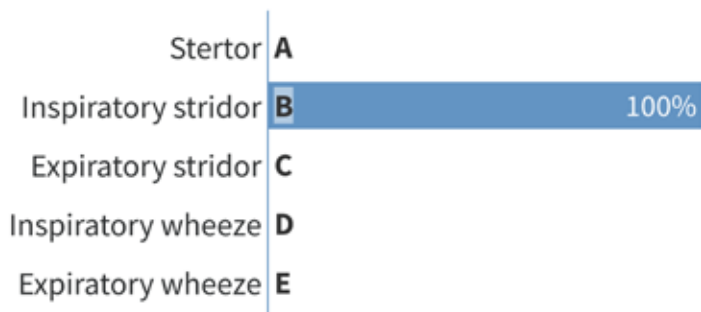
Fellow Column: Neonatal and Infant Upper Airway Malformations

Jane Huang, DO, Suzanne Jacob, MD

Editors Note: This Fellow's column was adapted from an academic presentation referred to as Super Tuesday, held weekly at Loma Linda University Children's Hospital by residents for their colleagues. Answers follow the audience response survey.

Q.
An infant presents with noisy breathing since birth. On exam, you hear a high pitched continuous sound when she inhales. On auscultation, the sound is best heard over her neck. What is this sound called?

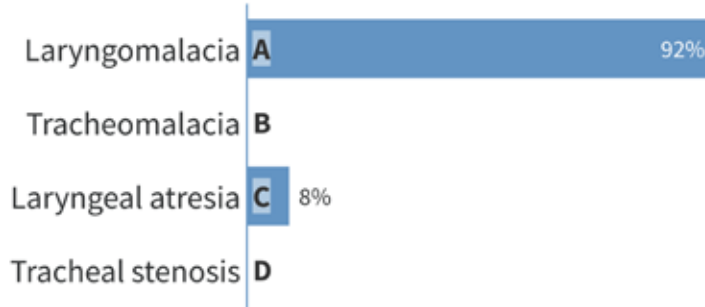
Is this sound called:



A.
The infant is presenting with inspiratory stridor. Stridor is a continuous musical sound produced in the larynx, best heard over the neck. Inspiratory stridor is produced by an upper airway lesion, such as laryngomalacia or vocal cord paralysis. It is heard during inspiration when the pressure inside the large airways falls, allowing the collapse of the airway. On the other hand, expiratory stridor is typically caused by a lower airway lesion in the thorax when intrathoracic pressure increases during expiration. Examples of lesions that cause expiratory stridor are tracheal stenosis and tracheomalacia. Another sound that may be confused with stridor is stertor, which is a snoring-like, low pitched sound typically due to a lesion in the nasopharynx. On the other hand, wheezing is multiple low or high pitched musical notes most often produced by the smaller airways and is best heard with lung auscultation.

Q.
A 6-month-old female is brought to your clinic by her mother because of worsening noisy breathing since birth. The sound is louder when she is lying down on her back. Her mother has tried nasal bulb suctioning and humidifiers without improvement. Throughout the exam, you appreciate inspiratory stridor. The sound worsens when she cries. On auscultation, it is best heard over her neck. What is the most likely diagnosis?

What is the most likely diagnosis?

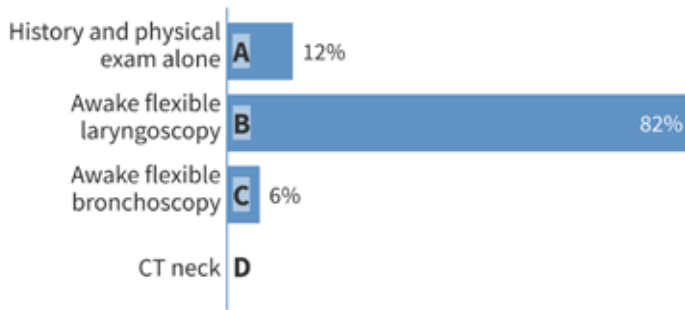


A.
Laryngomalacia is caused by delayed maturation of the cartilaginous structures of the larynx, resulting in the collapse of supra-glottic structures during inspiration. This produces inspiratory stridor, which worsens with feeding, sleeping, and agitation. Although inspiratory stridor can be heard at birth, it is more commonly heard at 4-6 weeks of life after inspiratory flow rates have increased high enough to generate sounds. Symptoms usually peak around 6-8 months and remit by two years old. Treatment for laryngomalacia depends on the severity. For mild disease, usually, no treatment is necessary as most infants will outgrow it by 12-24 months. However, frequent monitoring of adequate weight gain is recommended. Treatment of the moderate disease is mainly medical management with acid suppression to decrease airway inflammation, speech and swallow therapy, and high caloric formula. Severe disease requires referral to Pediatric ENT for surgical intervention.



Q. What is the best way to confirm a diagnosis of laryngomalacia?

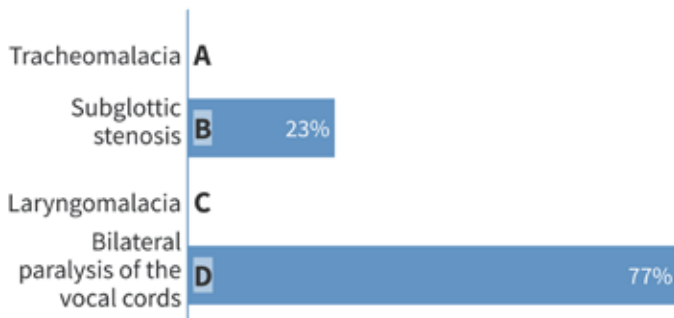
What is the best way to confirm the diagnosis?



A. Laryngomalacia can be diagnosed with a history and physical exam alone. However, the gold standard for diagnosis is awake flexible laryngoscopy to directly visualize the airway, which will reveal omega-shaped epiglottis that prolapse over the larynx during inspiration.

Q. A 1-month-old boy presents to the clinic. He was born full-term via spontaneous vaginal delivery with shoulder dystocia. He has had inspiratory stridor and feeding difficulty since birth. The stridor is associated with retractions when the infant becomes agitated. Physical examination reveals a weight of 2.8kg (3rd percentile), no expiratory stridor, and a weak cry. What is the most likely diagnosis?

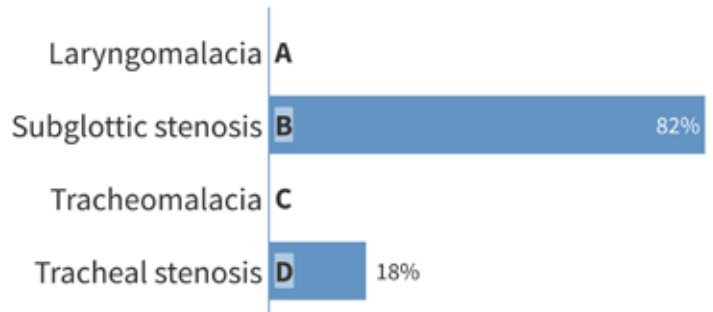
What is the most likely diagnosis?



A. Vocal cord paralysis can be an idiopathic congenital anomaly but is also associated with birth trauma, intubation, or surgery involving the neck and chest surgery. It can also be secondary to neurological disorders such as Arnold Chiari malformations and intracranial structural anomalies such as hydrocephalus, intracranial tumor, or corpus callosum agenesis. Patients present with inspiratory stridor and a weak cry. They can also have feeding difficulties and aspiration due to their inability to protect their airway adequately. Vocal cord paralysis is diagnosed with awake fiberoptic nasopharyngoscopy to visualize the movement of vocal cord during respiration directly. In mild cases, it can be treated with dietary modifications or NG feeds, but in severe cases, surgical intervention may be necessary, which include vocal cord injections, nerve grafting procedures, or tracheostomy.

Q. A 3-month-old boy presents to the clinic. He was born via spontaneous vaginal delivery with meconium-stained fluid and was subsequently intubated for two weeks due to meconium aspiration syndrome. He has had biphasic stridor since hospital discharge. The stridor is associated with retractions when the infant becomes agitated. He has had frequent illnesses and has been to the emergency room twice since birth for croup. What is the likely diagnosis?

What is the most likely diagnosis?

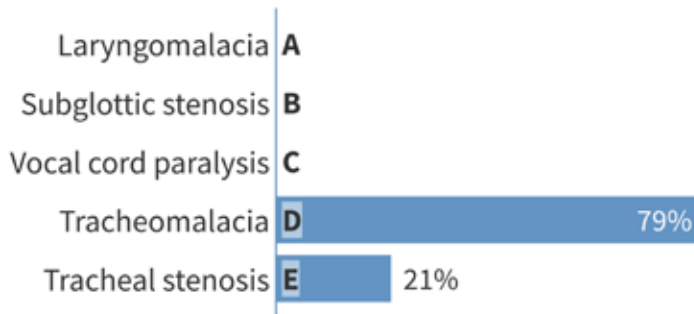


A. Subglottic stenosis is due to the narrowing of the lumen of the cricoid region. It is diagnosed when the diameter is less than 4mm in term infants and less than 3 mm in preterm infants. 5% of the cases are congenital, and 95% of the cases are acquired. It is often secondary to prolonged intubation or associated with Down syndrome patients. Patients usually present with recurrent croup and have biphasic (both inspiratory and expiratory) stridor on physical exam. Subglottic stenosis is diagnosed with direct laryngoscopy or bronchoscopy and is graded into four classifications based on the severity of the stenosis. Patients typically outgrow the stenosis if it is mild. It may only need frequent monitoring or brief periods of supplemental oxygen. Treatment for severe disease is surgical intervention.

“Subglottic stenosis is diagnosed with direct laryngoscopy or bronchoscopy and is graded into four classifications based on the severity of the stenosis. Patients typically outgrow the stenosis if it is mild.”

Q. A 6-month-old male infant is brought to you for hospital discharge follow up after he was admitted for croup. Mother is concerned because this is his third upper respiratory tract infection since birth, and he has been making choking sounds while feeding. Further history reveals he has had noisy breathing since he was born that worsens when he is awake and active. On physical exam, you hear expiratory stridor. What is the most likely diagnosis?

What is the most likely diagnosis?



A:

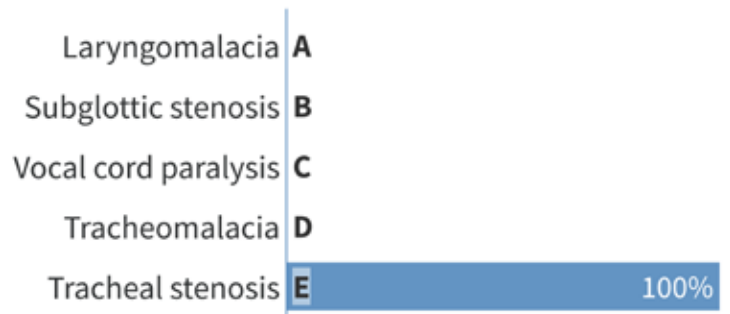
Tracheomalacia is defined as the dynamic collapse of the trachea and is classified into congenital (primary) or acquired (secondary tracheomalacia). Congenital tracheomalacia is caused by an intrinsic defect in the cartilaginous portion of the trachea resulting in an increased proportion of the membranous trachea. Acquired tracheomalacia can be caused by prolonged barotrauma from positive pressure ventilation, infection, inflammation, and surgical repair of esophageal atresia and tracheoesophageal fistula. Patients commonly present with expiratory stridor, frequent and prolonged respiratory infections, feeding intolerance, and, if severe, can have cyanotic and apneic spells. The diagnosis is confirmed with flexible bronchoscopy. Treatments vary based on the severity of the tracheomalacia. If mild, close monitoring until patients outgrow symptoms around 6-12 months is sufficient. If severe, surgical intervention may be necessary.

“Tracheomalacia is defined as the dynamic collapse of the trachea and is classified into congenital (primary) or acquired (secondary tracheomalacia). Congenital tracheomalacia is caused by an intrinsic defect in the cartilaginous portion of the trachea resulting in an increased proportion of the membranous trachea.”

Q:

A patient presents with the same symptoms and signs as the patient in the previous question; however, now he has other known congenital defects, namely hemivertebrae and corrected H-type tracheoesophageal fistula. What is the most likely diagnosis this time?

What is the most likely diagnosis?



A:

Tracheal stenosis is defined as the narrowing of the trachea, either complete stenosis or segmental stenosis. It can occur anywhere along the trachea and vary in length involvement. Its presentation is very similar to tracheomalacia with expiratory stridor, frequent infections, and prolonged respiratory infections. In severe cases, it may present with apnea and cyanosis. However, tracheal stenosis, unlike tracheomalacia, is more commonly associated with respiratory, esophageal, and skeletal anomalies. The diagnosis is confirmed by direct visualization of the trachea with bronchoscopy. Treatments include close monitoring until patients outgrow if symptoms are mild and surgical intervention with balloon dilation, stent placement, or resection and reconstruction if symptoms are severe.

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	Stridor	History	Associated Symptoms	Diagnosis
Laryngomalacia	Inspiratory	Worsens with cry, feeding, supine position		Awake flexible laryngoscopy
Vocal cord paralysis	Inspiratory	Birth trauma, intubation, CT surgery	Recurrent aspiration pneumonia, absent or weak cry	Awake fiberoptic nasopharyngoscopy
Subglottic stenosis	Biphasic	Intubation, Down syndrome	Recurrent croup	Airway fluoroscopy, Laryngoscopy, Bronchoscopy
Tracheomalacia	Expiratory	Extrinsic tracheal compression, prolonged positive ventilation, surgical repair of TEF	Frequent and prolonged respiratory infections	Dynamic CT, Airway fluoroscopy, Flexible bronchoscopy
Tracheal stenosis	Expiratory	Respiratory, esophageal, skeletal anomalies	Recurrent or prolonged croup, recurrent pneumonia	Bronchoscopy

<http://www.childrenshospital.org/conditions-and-treatments/conditions/t/tracheomalacia>. Published 2019. Accessed March 1, 2020.

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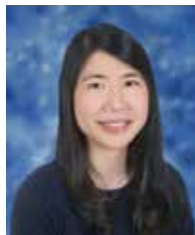
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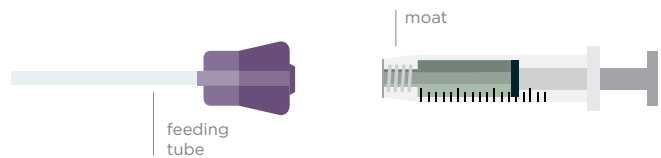
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Barb Himes, IBCLC



Saving babies. Supporting families.

First Candle's efforts to support families during their most difficult times and provide new answers to help other families avoid the tragedy of the loss of their baby are without parallel.

Introduction

During First Candle's decades-long work to reduce infant mortality due to sudden unexplained infant death (SUID), sudden infant death syndrome (SIDS) and other sleep-related causes of death, we have had the chance to identify a number of barriers and opportunities regarding safe sleep practices.

“Since beginning our work in 1994 as part of the coalition that developed the “Back to Sleep” public education campaign, we have conducted outreach and training based on the American Academy of Pediatrics set of recommendations for infant safe sleep, last updated in 2016. (1)”

Since beginning our work in 1994 as part of the coalition that developed the “Back to Sleep” public education campaign, we have conducted outreach and training based on the American Academy of Pediatrics set of recommendations for infant safe sleep, last updated in 2016. (1) The essentials of the guidelines are supine sleep on a firm surface, alone, with no bed-sharing or extraneous bed-sharing, which we term Room Share, Not Bed Share and Keep It Bare.

Unfortunately, after a 50% drop in SIDS rates between 1994 and 1999 (2), the national SIDS rate has not substantially changed. The CDC reports that SUID (which includes SIDS, and accidental suffocation and strangulation in bed (ASSB) is the leading cause of death for infants one month to one year of age, resulting in 3,600 infant deaths nationwide per year.

The good news is that rates of SUID can be decreased without requiring immunization or medical therapy, simply by changing parenting practices. But the challenging news is that changing behavior is often the most difficult thing to do even when the information is effectively shared and next to impossible to do when it is not.

SUID rates have quadrupled since 1984 and are three times greater in Black communities. Studies and direct feedback have identified implicit bias in the health care community as a major stumbling block, along with cultural, societal, and economic factors that foster bed-sharing and other at-risk sleep environments.

Professional Development

First Candle has actively recognized these barriers and made bias training for health care professionals central to our Straight Talk for Infant Safe Sleep program, launched in 2017. We also see the opportunity -- and the responsibility -- to convey to these professionals the critical role they play in reducing sleep-related infant deaths.

Straight Talk for Infant Sleep is about clearly disseminating the AAP safe sleep guidelines and breastfeeding messages in a way that parents will understand the importance of and accept. And in order to do that, it must first offer effective value for the health care professionals who provide counsel and support for expectant parents and their families.

It does this by being a train-the-trainer professional education workshop for health care providers, social service agencies, doulas, faith-based workers, childcare providers, third-party advocates, and nurses, who can earn five CEU contact hours. Key elements in the workshop include:



Did you know that premature and low birth weight babies have a 4x greater risk for SIDS?

At First Candle we're educating parents, grandparents and caregivers about safer sleep to make sure all babies reach their first birthday. Learn more at firstcandle.org

- Education assessment of safe sleep guidelines.
- Thorough review and discussion of the AAP safe sleep guidelines themselves.
- Open discussion to address obstacles to message delivery.
- Communications strategies and coaching techniques to recognize and overcome implicit bias and to develop skills in working with families who have varied environments, beliefs, and customs around infant sleep and breastfeeding practices.

“It is also critical that women have access to health care throughout the full prenatal and postnatal cycle. For that reason, First Candle also supports expanding Medicaid coverage for the 12 months following a child’s birth.”

Recognizing and Removing Practitioner and Parent Barriers

We have found that it is critical to acknowledge barriers families have in practicing safe sleep, and then meet those families where they are. Straight Talk for Infant Sleep participants learn how to help parents create a plan for implementing infant safe sleep and breastfeeding that takes into account their beliefs, experiences, values, and living and working conditions.

We also know that it is also critical to acknowledge practitioner barriers that arise from implicit bias; those preconceived and unspoken conclusions reached after “sizing up” patients based on race, age, dress, lifestyle, history, and other factors. All can block the education and willing compliance that needs to happen in order to save infant lives.

Neonatology and NICU Staff as Resource

New parents should also be learning about infant safe sleep practices and concepts such as Room Share, Not Bed Share and Keep It Bare at multiple touchpoints: during prenatal care, in the hospital setting, and at well-child check-ups. Giving parents the opportunity to understand and discuss infant safe sleep and breastfeeding practices increases the likelihood they will become part of their parenting framework.

This framework is especially important for parents with babies in the NICU, where infants may be in medically-indicated sleep positions for days or months that should not be practiced when they come home. Parents may seek to emulate what they see in the hospital setting, and need to be advised and helped to begin new procedures.

NICU nurses play a critical role in helping parents transition to the infant safe sleep practices they should follow at home. In the days immediately before babies are discharged from the NICU, nurses have a critical opportunity to help parents hear and see through demonstration how to help their baby sleep safely at home. The

NICU staff are a trusted resource for parents who may be unaware of what they need to know.

And in the COVID-19 times we find ourselves in now, providing infant safe sleep and breastfeeding practices support in a constructive, collaborative and clear manner is more important than ever as families face challenges caused by the pandemic. In a time of uncertainty and additional prophylactic measures, families should be able to find comfort in knowing there are proven steps they can take to safeguard their baby and create a safe sleep environment.

Straight Talk for Infant Safe Sleep workshops can be scheduled by contacting Barb Himes, Director of Education and Bereavement Services, at barb@firstcandle.org. More information on the program and AAP recommendations can be found on the First Candle website.

References:

1. *SIDS and Other Sleep-Related Infant Deaths Updated 2016 Recommendations for a Safe Infant Sleeping Environment.*
2. <https://safetosleep.nichd.nih.gov/activities/SIDS/progress>

Disclosure: The author is the Director of Education and Bereavement Services of First Candle, Inc., a Connecticut not for profit 501c3 corporation.

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Time is precious, just like your patients.



*Through the darkness of my grief
I light a candle to show the world
my love for you.*

**At First Candle we
provide bereavement
support to the over
27,000 families who
will experience the loss
of a baby every year.**

**We need your support.
Click here to help.**



**first
candle**

Saving babies. Supporting families.

The Survey says RSV



What you need to know about RSV

RSV stands for **Respiratory Syncytial Virus**

RSV is a **Really Serious Virus**

WHEN IS RSV SEASON?

Typically RSV season runs from November - March. But it can begin as early as July in Florida and end as late as April in the West.

Protect babies and families this RSV season
Educate. Advocate. Integrate.

National Perinatal Association

Consult the CDC's RSV Census Regional Trends to learn more www.cdc.gov/rsv/census/regional-trends-surveillance.html

www.nationalperinatal.org

5 THINGS

YOU CAN DO
TO CELEBRATE



NICU AWARENESS

1

Educate Yourself

Did you know that more than half of the babies admitted to NICUs were not born prematurely? See our fact sheets.

2

Post on Social Media

See examples at nicuawareness.org and nationalperinatal.org/NICU_Awareness

3

Recognize NICU Staff

Let them know the difference they are making in our babies' lives. Write a note, send an email, or deliver a gift to show them that you appreciate them.

4

Share Your Story

Most people have never heard of a NICU before. Let others know about the extraordinary care that NICUs provide.

5

Join Our Community

Get involved. Become a member of our organizations and share your talents.



This project is a collaboration between



www.nicuawareness.org

www.nationalperinatal.org/NICU_Awareness



In January, heaven gained a new angel - Laura Renc.

Laura was a SIDS mom and a guiding force at First Candle.

She worked tirelessly to end SIDS and was a source of comfort for many of our bereaved families.

Laura will be greatly missed.

first candle

Saving babies. Supporting families

Babies are just tiny adults, right? So ... half?

Infants need drugs tested and approved just for them.

Coalition for Clinical Trials in Pediatrics **NCJFH** National Coalition for Infant Health
Protective Access for Premature Infants through Age Two

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Still a Premie?

Some preemies are born months early, at extremely low birthweights. They fight for each breath and face nearly insurmountable health obstacles.

But that's not every preemie's story.

Born between 34 and 36 weeks' gestation? **STILL A PREMIE**

Just like preemies born much earlier, these "late preterm" infants can face:

- Jaundice
- Feeding issues
- Respiratory problems

And their parents, like all parents of preemies, are at **risk for** postpartum depression and PTSD.

Born preterm at a "normal" weight? **STILL A PREMIE**

Though these babies look healthy, they can still have complications and require NICU care.

But because some health plans determine coverage based on a preemie's weight, **families of babies that weigh more may face access barriers and unmanageable medical bills.**

Born preterm but not admitted to the NICU? **STILL A PREMIE**

Even if preterm babies don't require NICU care, they can still face health challenges.

Those challenges can extend through childhood, adolescence and even into adulthood.

Some Premies	All Premies
<ul style="list-style-type: none"> Will spend weeks in the hospital Will have lifelong health problems Are disadvantaged from birth 	<ul style="list-style-type: none"> Face health risks Deserve appropriate health coverage Need access to proper health care

NCJFH National Coalition for Infant Health
Protective Access for Premature Infants through Age Two
www.infanthealth.org

Raising Global Awareness of RSV

Global awareness about respiratory syncytial virus (RSV) is lacking. RSV is a relatively unknown virus that causes respiratory tract infections. It is currently the second leading cause of death – after malaria – during infancy in low- and middle-income countries.

The RSV Research Group from professor Louis Bont, pediatric infectious disease specialist in the University Medical Centre Utrecht, the Netherlands, has recently launched an RSV Mortality Awareness Campaign during the 5th RSV Vaccines for the World Conference in Accra, Ghana.

They have produced a personal video entitled “*Why we should all know about RSV*” about Simone van Wyck, a mother who lost her son due to RSV. The video is available at www.rsvgold.com/awareness and can also be watched using the QR code on this page. Please share the video with your colleagues, family, and friends to help raise awareness about this global health problem.



COVID-19 and the NICU Balancing Safety and Care

Rob Graham, R.R.T./N.R.C.P.

I dedicate this column to the late Dr. Andrew (Andy) Shennan, the founder of the perinatal program at Women's College Hospital (now at Sunnybrook Health Sciences Centre). To my teacher, my mentor and the man I owe my career as it is to, thank you. You have earned your place where there are no hospitals and no NICUs, where all the babies do is laugh and giggle and sleep.

One cannot watch television or pick up a newspaper without being bombarded with COVID-19 stories and information. In our lifetimes, we haven't seen anything like this; while the adult world is the focus of this pandemic, we in the NICU must contend with the risks associated with parental involvement in the care of their babies.

“There is no evidence of vertical transmission of novel coronavirus between mother and baby at this time. Infants born to COVID-19 infected mothers have not tested positive for the disease, nor has novel coronavirus been found in amniotic fluid or breast milk.”

There is no evidence of vertical transmission of novel coronavirus between mother and baby at this time. Infants born to COVID-19 infected mothers have not tested positive for the disease, nor has novel coronavirus been found in amniotic fluid or breast milk. (1,2) While this is ostensibly good news, it must be tempered with the fact that this is a hitherto unknown pathogen and that while our knowledge base is growing daily, there is still much we don't know. It is my opinion that one cannot be too cautious dealing with COVID-19; better to modify the policy as evidence becomes available than to wait for evidence to form policy. Unfortunately, the latter approach has been most common and has likely led to the explosion in cases outside the Wuhan epicentre.

Many hospitals have prohibited visitors during this crisis. This approach is certainly prudent given the increasing evidence of asymptomatic transmission but may not be in the best interests of the neonatal population. Regardless, in Toronto, there are discrepancies between institutions. (A copy of Toronto's guideline is attached. NOTE: this is an example and not intended as medical advice or protocol).(17) A previous column (December 2019) discussed the relationship between respiratory care and neuro-developmental outcome, including the benefits of direct parental involvement and kangaroo care. The clear benefits of parental contact must be weighed against the risks to the baby and those who care for it. The unit in which I am employed has limited visitation to one parent at a time. Overnight stays are permitted, parents are forbidden to leave the NICU area until leaving the hospital, and face masks must be worn at all times.

The major concern when breastfeeding an infant of a COVID-19 infected mother or symptomatic parent under investigation is twofold: prevention of transmission to the infant and protection of those charged with the infant's care. It is not breastmilk that is of concern, rather the potential infection of others via droplet. The safest approach here is to have parents wear masks to reduce the chance of droplet exposure during breastfeeding; however, the utility of regular surgical masks in preventing transmission of COVID-19 is questionable. (3) The same applies to kangaroo care since exposure is identical. During skin to skin contact, consideration may be given to having the involved parent thoroughly clean the area of contact in addition to routine hygiene. (4) Ideally those entering the room of a COVID-19 infected patient should wear a properly fitted N-95 mask, (5) but the international breakdown of our supply chain has resulted in an acute shortage of PPE; thus surgical masks are being used as a substitute. There is much debate over the utility of these masks to protect caregivers but increasing evidence in their ability to reduce transmission. (6)

The best way to contain an outbreak like this is to test and isolate. (7) China and South Korea have amply demonstrated the efficacy of this approach. However, a combination of reagent supply shortage and a concurrent shortage of swabs (ironically mostly manufactured in Italy) have made this impossible as the pandemic spread to the rest of the world, and the fact that the number of infections outside the epicentre now greatly outnumber those within is a testament to the necessity of testing. Given the possibility of asymptomatic transmission, it would behoove us to assume infection in all until proven otherwise and act accordingly. This is a case of what we don't know can indeed hurt us.

The risks associated with aerosol-generating medical procedures are well known, particularly in the adult population. It stands to reason that a premature infant generates less aerosol than an adult; however current guidelines call for the infant of a confirmed or suspected parent to be treated in the same manner as an adult patient. (8) Compounding this is the unusually high viral titre with COVID-19 infection, potentially making droplets more likely to lead to infection. (9)

“The risks associated with aerosol-generating medical procedures are well known, particularly in the adult population. It stands to reason that a premature infant generates less aerosol than an adult; however current guidelines call for the infant of a confirmed or suspected parent to be treated in the same manner as an adult patient. (8) ”

In the adult population, when mechanical ventilation is required, lower tidal volumes (3-6mls/kg) and higher PEEP has been rec-

ommended, although recent anecdotal reports from the front lines are less clear. (These anecdotal reports are coming from Twitter® posts from ER physicians on the front line and as such do not constitute evidence). A letter to the editor of The American Journal of Respiratory and Critical Care Medicine, March 2020, suggests a different approach. One that is echoed by other anecdotal reports and describes an atypical ARDS picture associated with COVID-19. In this case, it is not a lack of recruitment that is the problem but rather uneven ventilation/perfusion matching. (10) HFO is potentially more prone to aerosol generation, and if used, airborne precautions are advised. (11) (This is an excellent reference for the management of all COVID-19 patients.) A filter on the expiratory limb of any ventilated patient may be considered provided it does not interfere with the normal operation of the machine and are changed in accordance with the manufacturer's recommendations.

"In this case, it is not a lack of recruitment that is the problem but rather uneven ventilation/perfusion matching. (10) HFO is potentially more prone to aerosol generation, and if used, airborne precautions are advised. (11) "

It is perhaps fortunate we have little data regarding neonatal infection with COVID-19. It seems that mechanical ventilation for symptomatic positive infants may only be required for other reasons (i.e., extreme prematurity as the limited number of cases seen thus far have not required intubation) and that neonates exhibit the same relatively mild symptoms of older children.(12) Recent reports of 2 infants succumbing to COVID-19 in the U.S. may be a harbinger of things to come.(13) It is my sincere hope this is not the case.

Perhaps the most significant risk NICU staff face for infection are each other. Given the increasing rate of community-acquired infection and asymptomatic transmission, we are at the same or greater risk than the general population. Fomites are a known source of transmission (particularly plastic and stainless steel). (14) We are all potentially exposed this way, particularly when using public transit as grab bars, and handles are all made of plastic and stainless steel. The importance of meticulous, regular hand

hygiene, and avoidance of touching the face cannot be emphasised enough.

The concept of social distancing is difficult to achieve in the NICU environment due to the necessity of close contact during procedures and the proximity of workstations. Staff are well-advised to wear face masks at all times as a matter of policy to mitigate the risk of infection. Patient assignments should be such that staff can be stationed as far away from each other as is practically possible. COVID-19 doesn't discriminate based on credentials!

This pandemic will affect all of us one way or another. As NICU caregivers, we may be at reduced risk relative to our adult colleagues; however, as the crisis worsens, some of us may be seconded to adult areas. Now would be a good time for those assigned exclusively to the NICU to brush up on adult ventilation protocols. The Toronto Centre for Excellence in Mechanical Ventilation provides an excellent resource.(15)

As evidence is gathered, the guidelines and recommendations we practice under are subject to change. Given limited numbers (although still increasing exponentially), the fact that there is presently no evidence to suggest vertical transmission or risks associated with breastmilk, for example, doesn't necessarily mean risks do not exist. Healthy, younger patients are dying from COVID-19. While the mean age of infection is 45 years, the mortality rate for those <60 is approximately 0.32% compared to 6.4% in those >60 and 13.4% in those >80. (16) 0.32% seems pretty small, but this represents a 3-fold increase over that of seasonal flu in the general population.(17) We're all playing Russian roulette; the only difference is the number of bullets in the gun. I, for one, prefer not to play.

Finally, while high-frequency jet ventilation (HFJV) is commonly used in the NICU setting, there is currently no commercially available adult jet ventilator in North America. There are a few machines available in Toronto cobbled together in labs at the University of Toronto years ago. These have been used as a last-ditch effort when other modes have failed. The Oscillate study of conventional (CV) vs. high-frequency oscillation (HFO) ventilation in adult respiratory distress syndrome (ARDS) found HFO detrimental, but similar research on HFJV has not been performed.(18) The benefits of HFJV in the neonatal population may well apply to the adult population; the high mortality rate from ARDS surely should provide an incentive to its study in this population. Now seems to be a good time.

I have been asked to explore the possibility of using the LifePulse HFJV machine in larger patients. I shall keep readers apprised of any progress in that regard.

We are facing the challenge of our careers and, indeed, our lives. The world is counting on us. Please, everyone, take care of yourselves and each other. While always important, it is now more so than ever.

References:

1. <https://www.frontiersin.org/articles/10.3389/fped.2020.00104/full>
2. <https://www.cdc.gov/coronavirus/2019-ncov/>

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[need-extra-precautions/pregnancy-breastfeeding.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fpregnancy-breastfeeding.html](https://www.cdc.gov/2Fcoronavirus%2F2019-ncov%2Fprepare%2Fpregnancy-breastfeeding.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fpregnancy-breastfeeding.html)
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 Dr. David Graham, Johns Hopkins All Children's Hospital, personal communication
<https://www.atsjournals.org/doi/pdf/10.1164/rccm.202003-0817LE>
<https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>
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<https://www.nytimes.com/article/coronavirus-vs-flu.html>
<https://www.nejm.org/doi/full/10.1056/NEJMoa1215554>
<https://www.obgyn.utoronto.ca/sites/default/files/toronto-region-covid-19-management-of-pregnant-women-and-neonates-with-suspected-or-confirmed-covid-march-17-2020.pdf>. This is an updated version of the above link.

for teaching and training users of the LifePulse HFJV in Canada. He is not involved in sales or marketing of the device nor does he receive more than per diem compensation. Also, while the author practices within Sunnybrook H.S.C. this paper should not be construed as Sunnybrook policy per se. This article contains elements considered "off label" as well as maneuvers, which may sometimes be very effective but come with inherent risks. As with any therapy, the risk-benefit ratio must be carefully considered before they are initiated.

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NATIONAL PERINATAL ASSOCIATION

Update: **CORONAVIRUS**
COVID-19

According to data published in The Lancet

PRESENTATION OF INFECTION:

clinical characteristics reported in pregnant women with confirmed COVID-19 infection are similar to those reported for non-pregnant adults.

cough
fever
shortness of breath

National Perinatal Association

www.nationalperinatal.org

COVID-19 – Recommendations for Management of Pregnant Women and Neonates with Suspected or Confirmed COVID-19

Version Date: March 17, 2020

PURPOSE: This document describes the escalated procedures that all Toronto Region hospitals should implement to prevent in-hospital transmission of COVID-19 when community transmission is evident in Ontario. The document describes guidelines and algorithms for managing pregnant women and neonates with suspected or confirmed COVID-19 infection in labor.

BACKGROUND:

COVID-19 is a novel respiratory pathogen that has emerged and has resulted in a global pandemic. As the extent of the pandemic expands, it is inevitable that Canada will be impacted. There has already been human to human spread of COVID-19 in British Columbia (BC) without any link to high-risk travel as well as a BC nursing home outbreak related to a COVID-19 positive healthcare worker who worked while ill. Hospitals currently have screening processes in place for patients at key entry points (e.g., ED, labour and delivery triage) to identify those potentially ill with COVID-19. However, consistent messaging and guidelines for management of pregnant women and neonates with suspected or confirmed COVID-19 infection are lacking.

CURRENT STATE:

Currently, no guiding recommendations are available for safe caring of pregnant women, neonate and her family. Stricter suggestions from China indicate separation of baby and mother for 2 weeks and discourage breastfeeding. However, CDC does not recommend separation of relatively well mother and baby. Fortunately, all reports regarding newborns have shown that even neonates who had positive surface swabs recovered completely and no mortality is reported.

FOR ACTIVATION OF THESE GUIDELINES:

These guidelines were developed and approved by representatives from obstetric, pediatric and infection prevention and control from Level 3 hospital and level 2 hospitals. **These guidelines may need to be adjusted according to local institution for operationalization; however, the purpose is to have underlying similar principle of management across Toronto Region hospitals.**

PLANNING PRINCIPLES:

- The safety of our patients, volunteers, staff, physicians and learners is paramount
- Safe provision of care to pregnant women, neonates and families
- Family integration in the care to the extent feasible without compromising safety and health of everyone involved
- Seamless transition of mother and infant to home

RECOMMENDATIONS: The first page reports a COVID-19 Active Screening Protocol which most organization have developed in one or other format.

This is followed by four algorithms are attached with in this document for your perusal.

These are suggested guidelines from the Toronto Region Hospital Operations Table and can be adapted for use across Ontario for all hospitals providing maternal newborn care.

1. COVID-19 Active screening protocol according to your hospital policy
2. Obstetrical triage management of pregnant women in labor or requiring emergent/urgent obstetrical assessment
3. Outpatient Assessment and Management for Pregnant Women with Suspected or Confirmed COVID-19
4. Guideline for management and referral of the critically ill COVID-19 positive pregnant patient
5. Management of labour, birth and postpartum care for patient under investigation (PUI) or with confirmed COVID-19 infection
6. Management for neonate with suspected or confirmed COVID-19 exposure – Asymptomatic newborn
7. Management for neonate with suspected or confirmed COVID-19 exposure – Symptomatic newborn
8. Contact with Newborn for Pregnant Women with Suspected or Confirmed COVID-19 Infection
9. Feeding infants born to Mother with Confirmed or Suspected (PUI) COVID-19 Infection

KEY POINTS:

1. If the infant requires admission to the neonatal intensive care unit, parents/caregivers who are exposed to COVID-19 or known to be COVID-19 positive will not be allowed to visit the infant in this unit (including mother and father).
2. Parents will not accompany their child if neonate requires transfer to higher level of care.
3. Public Health will follow up with mothers who were positive for COVID-19 and have been discharged home but their neonate is still in hospital with regard to when she will be non-communicable and can visit her baby in neonatal unit.

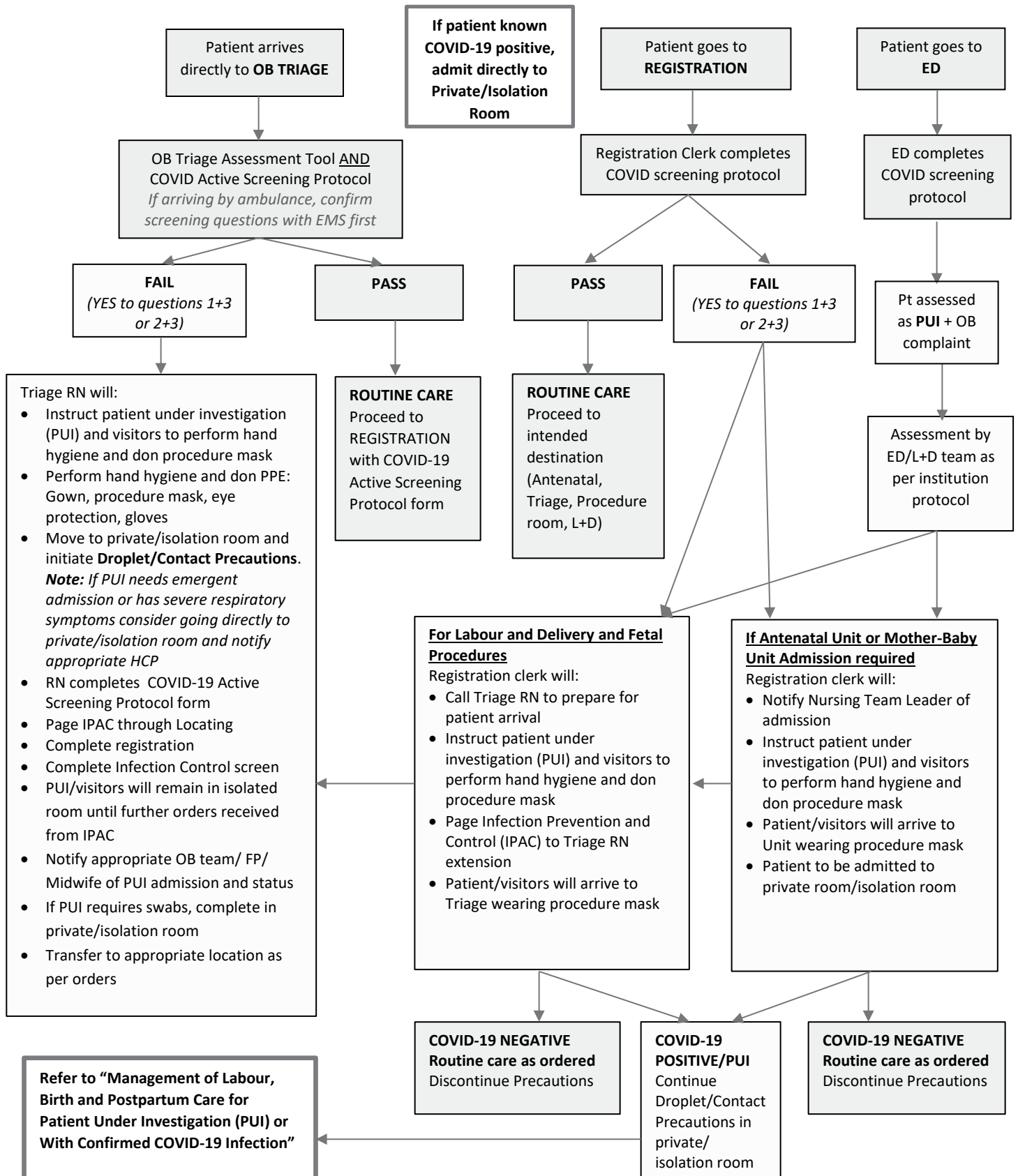
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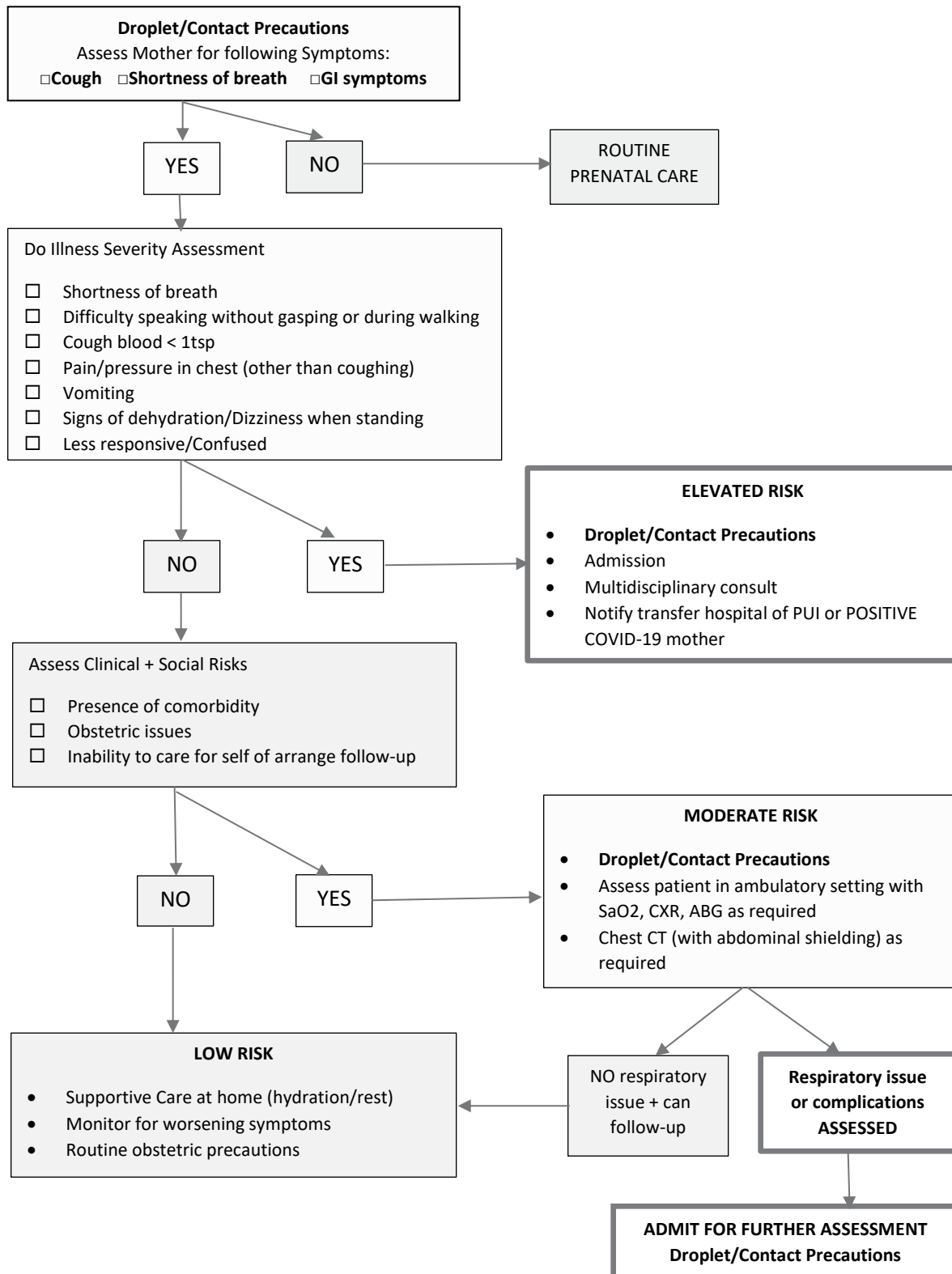
1. COVID -19 Active Screening Protocol

Please use your hospital's screening process to identify suspect (Person Under Investigation) or confirmed patients with COVID-19.

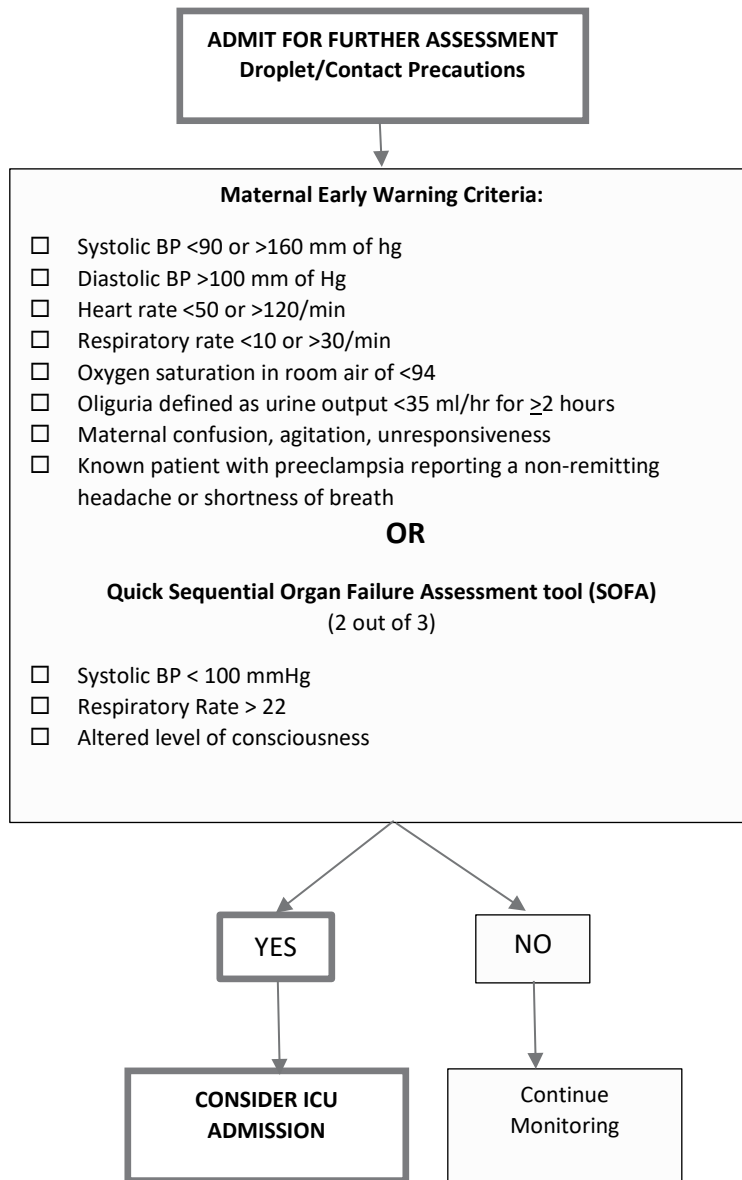
2. Obstetrical Triage Management of Pregnant Women in labor or Requiring Emergent/Urgent Obstetrical Assessment



3. Outpatient Assessment and Management for Pregnant Women with Suspected or Confirmed COVID-19



3a. Outpatient Assessment and Management for Pregnant Women with Suspected or Confirmed COVID-19 (contd.)



Guiding principles for management:

- a. Consider oxygen therapy to keep O2 sat >95%
- b. Encourage oral hydration; limit IV fluid if concern for cardiovascular instability.
- c. Antipyretic therapy (for maternal comfort and to limit the fetus to the risk of maternal increased body temperature).
- d. Screen for other viral infections and/or superimposed bacterial infections; consider empiric antibiotic therapy.
- e. If hospitalized, consider VTE prophylaxis.
- f. Consider fetal monitoring as a tool to detect maternal deterioration.
- g. The diagnosis of COVID 19 itself is not an indication for delivery.
- h. Consideration of the use of empiric antenatal steroids (based on gestation age) given the risk of preterm birth associated with acute maternal illness.

4. Guideline for management and referral of the critically ill COVID-19 positive pregnant patient

The consequences of a COVID -19 infection during pregnancy are uncertain; to date there is no evidence for severe outcomes, however the possibility should be considered. Pregnant patients with COVID-19 infection who are asymptomatic and/or have mild symptoms should be managed at home with self-monitoring and symptom relief. If the pregnant COVID-19 patient is admitted to hospital, there is limited indication from inter-hospital transfer for any patient with COVID-19 infection including those requiring ICU admission. However, given the potential obstetrical consequences of the critically ill pregnant patient admitted to the ICU (non-reassuring fetal status, indicated or spontaneous preterm birth), there may be indication for inter-hospital transfer. The following is a guide to the direct care of the COVID-19 pregnant patient.

1. The “well” COVID19 pregnant patient does not need referral to a tertiary care centre for in patient care and/or ambulatory consultation.
 - a. There is no information to date to suggest COVID-19 is teratogenic or has long- term implication for fetal/neonatal health: referral to Maternal Fetal Medicine and/or Prenatal Genetics and Diagnosis is NOT indicated at this time.
 - b. Following recovery, consider follow up assessment of fetal growth and well-being (q2-4 weeks); refer according to obstetrical indication.
2. The management of the “unwell” COVID 19 pregnant patient is similar to any acute viral respiratory illness: supportive therapy and possible hospitalization. A COVID-19 positive pregnant patient with sign/symptoms of pneumonia should be admitted to hospital. The patient should be managed by a multidisciplinary team in a hospital setting: internal medicine (respirology), infectious disease and obstetrics services should be involved. The intensive care unit (ICU) should be made aware of the admission of any pregnant patient admitted with COVID-19 in the event of acute deterioration.
3. A pregnant COVID-19 patient who does not have pneumonia but is “unwell” may also require hospitalization if they are at risk of acute maternal deterioration. These patients include:
 - a. Any medical co-morbidity of pregnancy: type I DM with end organ involvement, chronic hypertension, renal impairment, cardiovascular disease, immunosuppression, active cancer diagnosis, chronic respiratory disease.
 - b. Any obstetrical co-morbidity: PET/HELLP, acute VTE, preterm premature ruptured membranes (at risk for chorioamnionitis).
4. In-patient surveillance should be in place to ensure the recognition of maternal deterioration and/or indication(s) for admission to the ICU. In general, the most common reason for an ICU admission would be respiratory: clinical respiratory distress, hypoxemia on pulse oximetry or significant chest X-ray infiltrates. Consideration should be given for a low threshold to ICU admission given the potentially difficult airway management of the pregnant patient.
5. If the COVID-19 pregnant patient is admitted to the ICU, there **may be indication for inter-hospital transfer based on gestational age and the availability of the neonatal care facility at the referral institution.**
6. If the patient is < 22 weeks’ gestation (prior to viability); the patient DOES NOT require inter-hospital transfer for obstetrical considerations; may require transfer based on medical indications.
7. If patient is 22 weeks’ and 0 days to 23 weeks and 6 days; the decision will need to be made after discussion with obstetrician on call at referring facility. Woman may require transfer for medical indication for herself.
8. If the patient is 24-32 weeks’ gestation and the referral facility DOES NOT have neonatal facilities to manage the care of a neonatal at this gestational age (level III NICU), CONSIDERATION could be made for transfer to a level III centre given the inherent obstetrical risk of the critically ill pregnant patient.
9. If the patient is >32 weeks’ gestation and the referral facility DOES NOT have neonatal facilities to manage the care of a neonatal at this gestational age (level II NICU), CONSIDERATION could be made for transfer to a level II centre.

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5. Management of Labour, Birth and Postpartum Care for Patient Under Investigation (PUI) or With Confirmed COVID-19 Infection

Patient was assessed in LD Triage/ED and determined to be PUI or patient transfer with confirmed COVID-19 infection:

1. LD RN receives notification of PUI admission.
2. Initiate **Droplet/Contact precautions** in private/isolation room. Ensure proper signage.
3. HCP performs hand hygiene and dons PPE: Gown, procedure mask, eye procedure, gloves.
4. LD RN receives handover from Triage RN.
5. LD RN admits patient and completes local Infection Control form as required.
6. Limit visitors according to current hospital policy.
7. Ensure notification to the appropriate OB/GP/MW team, IPAC and follow orders.
8. Complete swabs as ordered in private/isolation room.
9. Monitor patient for respiratory deterioration – vital signs as ordered.
10. Continuous fetal monitoring per protocol (fetal heart rate changes will occur prior to maternal signs and O2 Sat monitoring).

Obstetrical Assessment or Vaginal Delivery

- **Droplet/Contact Precautions**
- Notify NICU/RT/Anesthesia of PUI
- Mask not required for patient and visitor if admitted to private/isolation room. Mask is required outside of room AND at any transfer points
- Routine contraindications for epidural apply
- Only allow essential staff in room
- Make provision for resuscitation of baby in location of delivery, do not move baby to another location
- Pediatrician to discuss with family re: infant feeding options as soon as possible (*see guidance in "Neonatal Management for COVID-19" section*)
- No deferred cord clamping
- Immediate skin-to-skin: Discuss with family
- Cord blood storage – outside of room if planned

C-section

- **COVID-19 is not an indication for C-Section**
- Preferably use OR with negative pressure option
- **Droplet/Contact Precaution** in most circumstances
- **Airborne/Droplet/Contact Precautions** in case of aerosol generating procedure (i.e. intubation, bronchoscopy)
- Obtain air scrubber if possible
- Notify Pediatrician/respiratory therapist/Anesthesia of PUI
- Essential staff only
- Resuscitation of baby in location of delivery, do not move baby to another location
- NO SWABS to be completed in any Operating Room
- After delivery move to private/isolation room for recovery, swabs can only be completed there
- No deferred cord clamping
- Immediate skin-to-skin: Discuss with family
- Cord blood storage – outside of room if planned

**Mother
COVID-19
NEGATIVE**

Discontinue
Precautions
as per
Infection
Control

**ROUTINE
CARE**

**Mother
COVID-19
POSITIVE
OR PUI**

Baby Born + Mother Well

- Maintain Droplet/Contact Precautions
- Monitor patient for respiratory deterioration – vital signs as ordered
- Patient and visitor to maintain procedure mask, if they are not in room, during breastfeeding, at any transfer points and when on MBU
- Recovery to occur in private/isolation room
- After recovery - transfer mother + partner, wearing procedure masks, to private/isolation room on Mother-Baby unit
- Transfer baby in incubator with mother (*Refer to Neonatal Management Guidelines*)

Baby born + Mother Unwell

- Maintain Droplet/Contact Precautions
- Monitor patient for respiratory deterioration – vital signs as ordered
- Patient and visitor to maintain procedure mask, if they are not in room, during breastfeeding, at any transfer points and when on MBU
- Recovery to occur in private/isolation room
- After recovery - transfer mother and partner, wearing procedure masks to private/isolation room on MBU or ICU
- Transfer baby to neonatal nursery in incubator (*Refer to Neonatal Management Guidelines*)

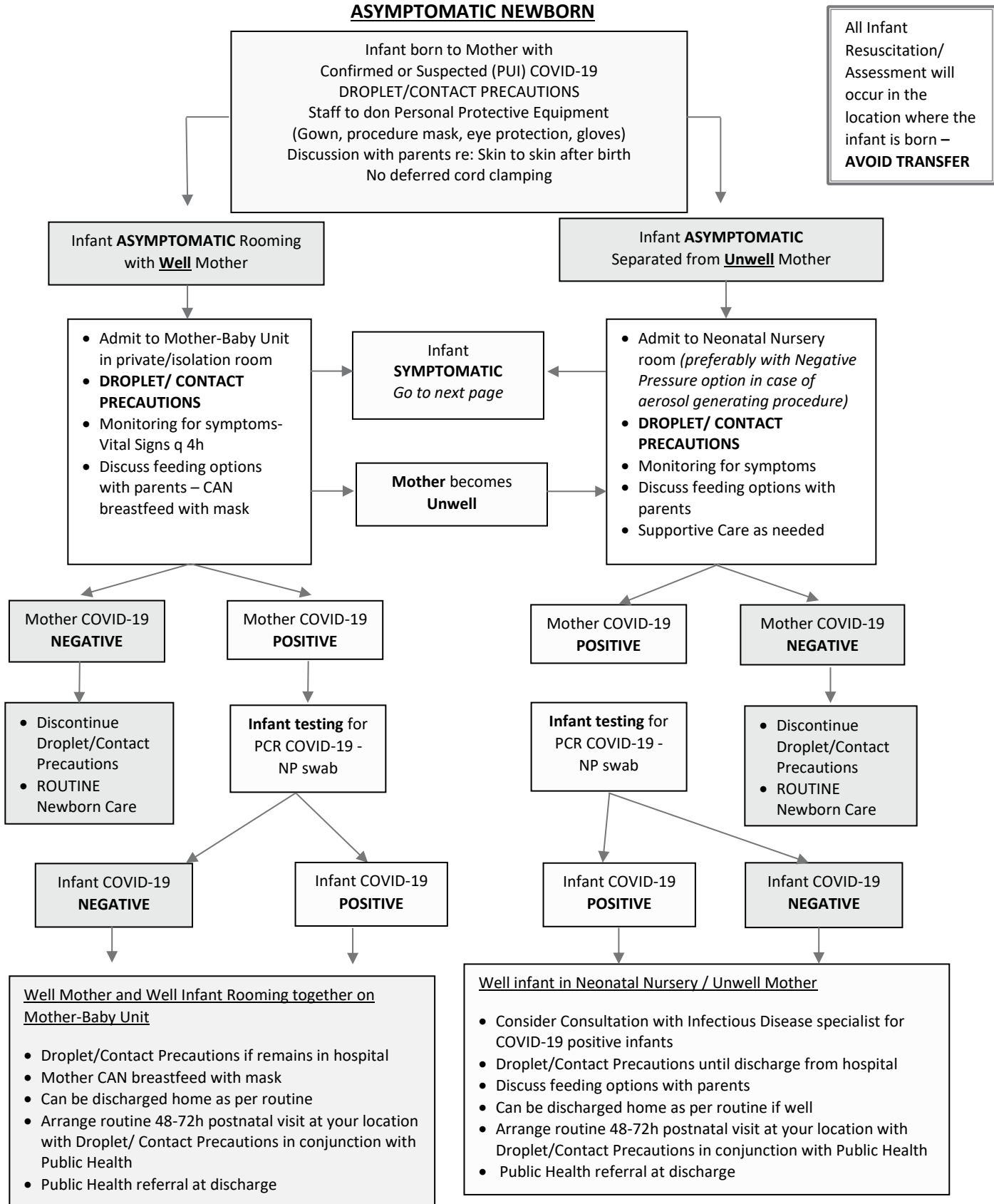
**Mother
COVID-19
NEGATIVE**

Discontinue
Precautions as
per Infection
Control; Patient
can recover in
recovery room

ROUTINE CARE

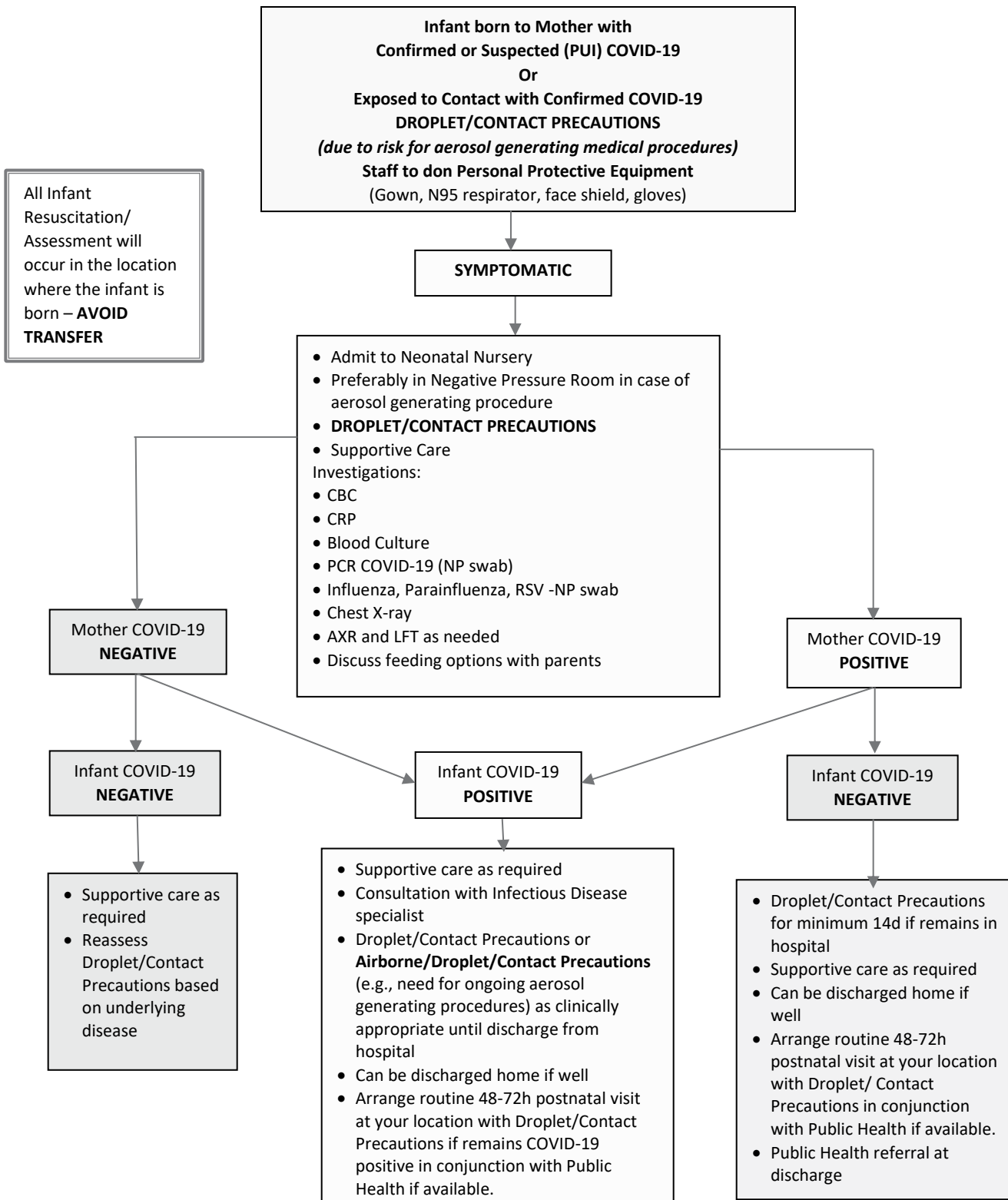
6. Neonatal Management for Neonate with Suspected or Confirmed COVID-19 Exposure

ASYMPTOMATIC NEWBORN



7. Management for Neonate with Suspected or Confirmed COVID-19 Exposure

SYMPTOMATIC NEWBORN



8. Contact with Newborn for Pregnant Women with Suspected or Confirmed COVID-19 Infection

Based on Infection Prevention and Control (IPAC) Considerations for Pregnant Women with Influenza

- Check household contacts that will have contact with the baby (e.g. partner) – consider whether they will be infectious at the time of delivery, and ask them to seek care accordingly
- Individuals with an acute respiratory illness should not visit
- If there are children at home, counsel caregivers re: good hand hygiene and keeping ill children away from the newborn
- Discuss risks and benefits of direct contact with baby and breastfeeding:
 - IPAC recommendation for well neonates not in the NICU:
 1. Rooming in, skin to skin contact and breast feeding as usual.
 2. Mom puts on a clean mask and cleans her hands with alcohol-based hand rub before each contact with baby.
 3. Bassinette is kept more than 6 feet from mom’s face if feasible at other times.
 - IPAC recommendations for neonates in the neonatal nursery:
 1. Decision to be made based on clinical status of neonate (i.e. unwell infant) and parental preference based on particular situation.
 2. No access to infant in neonatal nursery for mothers who are COVID-19 positive and/or at-risk caregiver. This would be re-evaluated as needed in cases where the infant is critically ill.

9. Feeding infants born to Mother with Confirmed or Suspected (PUI) COVID-19 Infection

Breast milk is the best source of nutrition for most infants. There remain however many unknowns about COVID-19. For that reason, families should participate in the decision to use breastmilk for infant feeding with the support of the healthcare providers. Whenever infants must be separated from their mother due to infection control restrictions, hospitals should **make every effort to provide access to a double-electric breast pump for the parent whose long-term plan is to breastfeed.**

- **Well near-Term or term Infants rooming with their mother**

The feeding options are:

1. **Breastfeeding**
 A symptomatic mother with confirmed or suspected infection should take all possible precautions to avoid spreading the virus to her infant, including washing her hands before touching the infant and wearing a face mask, if possible, while feeding at the breast. If a mother and newborn do room-in and the mother wishes to feed at the breast, she should put on a facemask and practice hand hygiene before each feeding.
2. **Feeding expressed breastmilk by bottle**
 If expressing breast milk with a manual or electric breast pump, the mother should wash her hands before touching any pump or bottle parts and follow recommendations for proper pump cleaning after each use. If possible, consider having someone who is well feed the expressed breast milk to the infant.
3. **Feeding infant formula by bottle**
 For mothers who are unwell to breastfeed or to express breastmilk with a breast pump and also for mothers who have chosen formula to feed their infant.

- **Preterm infants, ill or well near-term or term infants separated from their mother**

The feeding options are:

1. **Feeding expressed breastmilk by bottle or OG/NG**
 For near-term and term infants where the mother is well enough to express breast milk with a manual or electric breast pump, the mother should wash her hands before touching any pump or bottle parts and

follow recommendations for proper pump cleaning after each use. If possible, consider having someone who is well feed the expressed breast milk to the infant.

2. Feeding donor breastmilk

For infants who qualify for donor breastmilk as per current NICU feeding guidelines.

3. Feeding infant formula

For mothers who are unwell to breastfeed or to express breastmilk with a breast pump and also for mothers who have chosen formula to feed their infant.

During temporary separation, mothers who intend to breastfeed should be encouraged to express their breast milk to establish and maintain milk supply. Prior to expressing breast milk, mothers should practice hand hygiene. After each pumping session, all parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected per the manufacturer's instructions.

Reference

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html>

Prepared and Approved by:

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N.B. Please note that this document is only providing guidance and/or recommendations to support individual planning for hospitals within the Toronto Region of Ontario Health. This document does not constitute provincial decisions, directions or guidance.

National Perinatal Association's Perinatal Mental Health Workgroup: Collaborative Efforts to Address Perinatal Mental Health

Tiffany Willis, PsyD, Sharon Tan, PsyD, Andrea Werner Insoft, LICSW, ACSW

The National Perinatal Association (NPA) is an interdisciplinary organization that strives to be a leading voice for perinatal care in the United States. Our diverse membership is comprised of healthcare providers, parents & caregivers, educators, and service providers, all driven by their desire to give voice to and support babies and families at risk across the country.

Members of the NPA write a regular peer-reviewed column in Neonatology Today.



Background

The field of perinatal mental health has expanded significantly in recent years. This is in part due to the increasing recognition that Postpartum Mood and Anxiety Disorders (PMADs) are well regarded as the most common complication during the pregnancy and postpartum period. Furthermore, women have been found to develop depression and anxiety more frequently during the first year after childbirth and at any other time (Miller & LaRusso, 2010).

A meta-analytic study found 19% of mothers to have clinically significant depressive symptoms during the first three months postpartum (Gavin et al., 2005). This rate increases significantly in mothers whose infants require a stay in the Neonatal In-

tensive Care Unit (NICU). Segre et al. (2014, p.321) noted between "28% to 67% of NICU mothers reported elevated levels of depressive symptoms." These symptoms are persistent. Miles et al. (2007) found 30% of mothers to continue to report depressive symptoms two months post-birth. The rate of suicidal thoughts of NICU mothers was 33% (Lefkowitz et al., 2010), more than double that of postpartum women with non-hospitalized newborns at 14% (Lindahl, Pearson & Colpe, 2005). One of the hallmark features of PMADs is anxiety, which is often overlooked. It is common for an anxiety disorder to be comorbid with a diagnosis of depression. A report from the Institute for Medicaid Innovation (2018) mentioned research showing that "this comorbidity may result in a longer, more severe course of behavioral health outcomes." A study by Barr (2010) found that 28% of NICU parents reported symptoms that qualified for Acute Stress Disorder. Post-Traumatic Stress Disorder was found in 15% of NICU mothers one month after infant NICU admission (Lefkowitz et al., 2010), and prevalence estimates for generalized anxiety range from 18% to 43% in various studies (Segre et al., 2014). According to Singer et al. (1999), NICU mothers also report more symptoms of obsessive-compulsive disorder than mothers whose babies go home from the nursery.

"NICU mothers also report more symptoms of obsessive-compulsive disorder than mothers whose babies go home from the nursery."

PMADs have garnered more attention in recent years as mothers with social media influence have written books or posted the reality of PMADs on various social media platforms. This has reduced some stigma in talking about PMADs; however, as in-

dicated in the National Perinatal Association Position (NPA) Statement (2018) on PMADs, 50% of mothers with symptoms will not seek mental health treatment. In California, two laws were passed, AB3032 and AB2193, requiring hospitals to develop and implement a standard protocol of care for maternal mental health and for maternal health care providers to screen for PMADs prenatally and postpartum with case management programs to support access to treatment. The higher rates of PMADs among NICU mothers as a subpopulation indicate an even greater need for routine screening for PMADs in the NICU setting, followed by interdisciplinary efforts to follow up and referral to intervention so these mothers can receive treatment. Kartika (2017) found that even when postpartum depression has been diagnosed in low-income women, only 1 in 10 women receives treatment for their condition (Moore et al., 2018). The success of screening, diagnosis, and treatment of PMADs is dependent on larger factors such as cultural views of maternal mental health, implementation of integrated maternal care services in health care systems, and community resources available, with access to health care providers trained in treating PMADs.

The Impact

The effect of untreated PMADs is not only detrimental to the well-being of the mother, but it can also have dire consequences for the attachment between the mother and child, often leading to adverse developmental outcomes for the child through adolescence and adulthood (Stein et al., 2014). Other negative effects of untreated PMADs include relational challenges with family members, long term medical and social costs, and housing stability (Moore et al., 2018). A Mathematica Policy Research brief (2019) indicated that the estimated national economic costs of untreated PMADs following the mother-child pair from pregnancy through five years postpartum is \$14.2 billion, or an average of \$32,000 for every mother-child pair. The estimated total costs for California alone



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is \$2.4 billion yearly. The largest costs associated with untreated mothers are related to productivity losses and maternal health-care expenditures. In contrast, costs related to child outcomes were associated with preterm births, child behavioral and developmental disorders, and child injury. Suicide from PMADs also exerts significant social and societal costs, accounting for nearly 20% of deaths in the postpartum period and is the second leading cause of mortality among postpartum women (Lindahl, Pearson & Colpe, 2005).

Addressing the Epidemic

NPA formed a workgroup in 2018 to address and respond to the perinatal mental health need. This Perinatal Mental Health workgroup is multidisciplinary in nature, comprised of professionals who work with infants and their families. This workgroup recognizes the significance of PMADs on the well-being of parents and their developing infants. The workgroup was first initiated as a result of a need for a position statement on perinatal mental health. As members of NPA, individuals with unique skills and specialized training in the perinatal field met regularly to sift through the existing literature and recommendations from various organizations and disciplines regarding the screening and treatment of perinatal mood and anxiety disorders. After thoroughly reviewing the literature, the workgroup constructed a position statement that eloquently synthesized the data gathered. The position statement gave NPA's recommendations on whom and when to screen, as well as which tools are most appropriate. The recommendations also discussed the importance of screening on parental well-being and child development. This position statement is now used across the country as a standard of care for the screening and identification of perinatal mental health disorders.

Organizational Partnerships

While NPA strives to be a leader in perinatal mental health, its efforts would be in vain without strategic partnership within the organization and collaboration with external entities. Organizational dynamics are complex in the creation of strategic partnerships and can enable organizations to provide better supports, services, and interventions to more people. These partnerships are particularly important for nonprofit organizations to provide advocacy, peer support, and education at both the national and regional levels. Given these significant benefits, NPA has reached out to other leading organizations providing support to children and families experiencing PMADs. Below you will find a description of both within organization development and cross organization partnerships.

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National Network of Neonatal Psychologists (NNNP)

The NPA NNNP began in 2011 when a small group of neonatal psychologists across the country connected and began regular conference calls. These conference calls were led by former NICU parent and psychologist, Michael Hynan Ph.D. These “Hynan Calls” provided information on evidence-based practices, innovative models of care, and opportunities for collaborative problem-solving. Over time, these conference calls expanded, and many participants contributed to NPA's Interdisciplinary Recommendations for Psychosocial Support of NICU Parents (Hynan et al., 2015). A critical recommendation was that every NICU includes a doctoral-level psychologist, as well as a master's level social worker. According to the American Academy of Pediatrics (AAP) (2011), there are well over 1,000 NICUs in the United States alone. The NNNP held its first retreat in Atlanta, Georgia, in March 2017, and annual retreats, multiple workgroups, and an active listserv have subsequently evolved. This group elected its first Executive Council in May 2019. A resulting council of five psychologists, Amy Baughcum, Allison Dempsey, Pamela Geller, Sage Saxton, and Tiffany Willis, were elected via a national vote.

The NNNP continues to integrate with the APA's Society of Pediatric Psychology, Neonatology Special Interest Group (SIG). An NNNP Executive Council member, Dr. Baughcum, serves as the elected Chair of the Neonatology SIG and liaison to the NNNP.

The NNNP continues to refine its procedures and policies and actively reach out to interested parties, and those previously on the “Hynan Calls” to determine ongoing interest and availability for collaborative projects. The NNNP's mission is “to optimize care for all infants and their families and NICU settings through direct family involvement, staff support, research, and education.” The vision is “to be the leading voice and resource for mental health services and NICU settings.”

The NNNP has developed subcommittees to include: Research, Teaching and Continuing Education, Advocacy and Outreach, and Communications. There is an ongoing discussion about the formation of a trainee/student group and formalized mentorship options.

Postpartum Support International (PSI)

Postpartum Support International (PSI) was founded on June 28, 1987, by Jane Honikman in Santa Barbara, California, at the first annual conference Women's Mental Health Following Childbirth. PSI's core mission is to promote awareness, prevention, and treatment of mental health issues related to childbearing. Its vision has been to establish a postpartum parent support network in every community worldwide (<https://www.postpartum.net/about-psi/history-of-psi/>).

Initial telephone discussions between NPA staff and the Executive Director of PSI, Wendy Davis, Ph.D. began in February 2019. These monthly standing calls have led to a strategic partnership agreement, corporate sponsor conference agreement, and reciprocal reduction related to conference fees and membership dues. Additionally, this partnership has increased awareness of the two organizations through the inclusion of descriptive and contact information for each organization as well as a variety of conference presentations, abstracts, and posters.

The need for specialized training has been increasingly recognized, and PSI began to offer a certification in Perinatal Mental Health (PMH-C) in October 2018. As of November 2019, 219 have achieved this specialty certification.

Preemie Parent Alliance (PPA)

NPA maintains a long-standing relationship with the Preemie Parent Alliance (PPA). In conjunction with PPA, NPA has produced a series of 7 webinars that were released in November 2019 to coincide with Prematurity Awareness Month. These webinars facilitate discussion between parents and professionals regarding the previously released NPA Interdisciplinary Recommendations for the Psychosocial Support of NICU Parents.

National Association of Perinatal Social Workers (NAPSW)

The National Association of Perinatal Social Workers, incorporated in May 1980 and officially inaugurated at the Fourth National Conference on Perinatal Social Work in Washington, D.C, is a group of social workers who help individuals, families, and communities respond to psychosocial issues that emerge during the period from pre-pregnancy through an infant's first year of life. The NPA and NAPSW have long been partnered to provide support and education to professionals who work in a variety of perinatal settings, including, but not limited to, the NICU, labor and delivery, outpatient mental health settings, community health programs, and support in the home (<https://www.napsw.org>).

Corporate Member

Sage Therapeutics

Sage Therapeutics is a corporate member with NPA; however, they neither provide or direct any content, nor do they impact the direction of any subgroups of NPA. Sage Therapeutics' role as a corporate member is to provide financial support to NPA and support the education and training of PMADs. Partnerships with Sage Therapeutics began informally at the PSI conference in 2017. A delegate from NPA met with key stakeholders to review the NNNP's structure, objectives, and contributions, including three writing groups (Training and Competencies, Research, and Advocacy). Through ongoing meetings with various regional representatives, Sage Therapeutics has agreed to sponsor a one-day PMAD provider conference to educate physicians, advanced practice nurses, nurses, social workers, and mental health pro-

viders in obstetric, primary care, and pediatric offices on how to screen for PMADs and make appropriate referrals. Sage Therapeutics has also agreed to co-sponsor a community provider training in Kansas City, Missouri to help obstetricians, gynecologists, primary care physicians, advanced practice nurses, nurses, pediatricians and other medical providers working with childbearing women, children, and families to understand, screen and appropriately refer for treatment of PMADs.

“The Perinatal Mental Health Workgroup’s future plans include continuing to explore options for strategic partnerships as well as improve collaboration with smaller nonprofits, specifically family or parent lead organizations that provide support to NICU parents and families. The workgroup will continue to seek out strategic partnerships and disseminate information regarding best practices in the NICU setting.”

The Perinatal Mental Health Workgroup's future plans include continuing to explore options for strategic partnerships as well as improve collaboration with smaller nonprofits, specifically family or parent lead organizations that provide support to NICU parents and families. The workgroup will continue to seek out strategic partnerships and disseminate information regarding best practices in the NICU setting. It is hoped that the Perinatal Mental Health Workgroup's influence will extend internationally to provide best practice guidelines, resources, education to professionals, and support to families to continue to tackle the growing epidemic

National Perinatal Association PERINATAL SUBSTANCE USE

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of perinatal mood and anxiety disorders.

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Disclosure: The National Perinatal Association www.nationalperinatal.org is a 501c3 organization that provides education and advocacy around issues affecting the health of mothers, babies, and families.

NT

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NICU Awareness

Did You Know?

Most NICU babies have special needs that last longer than their NICU stay. Many will have special health and developmental needs that last a lifetime. But support is available.

Learn about the programs in your community. Seek out other families like yours. Then ask for help. Working together we can create a community where our children will grow and thrive.

Special Health Needs

Babies who have had a NICU stay are more likely to need specialized care after they go home. **Timely follow-up care is important.**

NICU babies have a higher risk for re-hospitalization. So every medical appointment is important. Especially during cold and flu season when these babies are especially vulnerable to respiratory infections.

Who Can Help

- pediatricians
- neonatal therapists
- pulmonologists
- neurologists
- gastroenterologists
- cardiologists
- nutritionists
- CSHCN - Programs for Children with Special Health Care Needs

Special Developmental Needs

Any NICU stay can interrupt a baby's growth and development.

Needing specialized medical care often means that they are separated from their parents and from normal nurturing.

While most NICU graduates will meet all their milestones in the expected developmental progression, it is typical for them to be delayed. This is especially true for preterm infants who are still "catching up" and should be understood to be developing at their "adjusted age."

Who Can Help

- IBCLCs and lactation consultants
- Early Childhood Interventionists
- developmental pediatricians
- occupational therapists (OTs)
- physical therapists (PTs)
- speech therapists (SLPs)
- WIC - Special Supplemental Nutrition Program for Women, Infants, and Children
- social workers and case managers

Special Educational Needs

Every child has their own unique developmental needs and **every student has their own unique and special educational needs.**

Take advantage of the services and support that can meet your child where that are and help them reach their future educational goals.

Call your local school district to request a free educational evaluation. Learn about all the available programs and support.

Who Can Help

- Preschool Program for Children with Disabilities (PPCD)
- Special Education programs under the Individuals with Disabilities Education Act (IDEA)
- educational psychologists
- speech therapists (SLPs)
- occupational therapists (OTs)
- reading specialists



My NICU Network



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NICU Parent
Network

Online NICU Staff Education Program

Caring for Babies and their Families: Providing Psychosocial Support in the NICU

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This educational
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Read the study by Hall
et al in *Advances in
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published online in
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CORONAVIRUS

COVID-19

RELIABLE RESOURCES:

- **CDC:** 2019 Novel Coronavirus
- **The Lancet:** COVID-19 and pregnancy
- **MotherToBaby:** Coronaviruses
- **WHO:** Emerging respiratory viruses

STAY INFORMED.



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PROTECT YOUR FAMILY FROM RESPIRATORY VIRUSES

flu

coronavirus

pertussis

RSV



SOAP

WASH YOUR HANDS

often with soap and warm water.

GET VACCINATED

for flu and pertussis. Ask about protective injections for RSV.



COVER COUGHS AND SNEEZES.

Sneeze and cough into your elbow.

USE AN ALCOHOL-BASED HAND SANITIZER.



STAY AWAY FROM SICK PEOPLE

Avoid crowds. Protect vulnerable babies and children.

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THE BRETT TASHMAN FOUNDATION

The Brett Tashman Foundation is a 501(c)(3) public charity. The mission of the Foundation is to find a cure for Desmoplastic Small Cell Round Tumors (DSRCT). DSRCT is an aggressive pediatric cancer for which there is no cure and no standard treatment. 100 percent of your gift will be used for research. There is no paid staff. To make your gift or for more information, go to TheBrettTashmanFoundation.org or phone (909) 981-1530.

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Transform Your NICU

The Gap Baby: An RSV Story



A collaborative of professional, clinical, community health, and family support organizations improving the lives of premature infants and their families through education and advocacy.



The National Coalition for Infant Health advocates for:

- **Access to an exclusive human milk diet** for premature infants
- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
- **Clear, science-based nutrition guidelines** for pregnant and breastfeeding mothers
- **Safe, accurate medical devices** and products designed for the special needs of NICU patients

www.infanthealth.org



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COVID-19 Updates: Rethinking Labor & Delivery; Mothers Revisiting their Birth Plans

Darby O'Donnell, JD and the AfPA Governmental Affairs Team
Alliance for Patient Access (AfPA)

The Alliance for Patient Access (allianceforpatientaccess.org), founded in 2006, is a national network of physicians dedicated to ensuring patient access to approved therapies and appropriate clinical care. AfPA accomplishes this mission by recruiting, training and mobilizing policy-minded physicians to be effective advocates for patient access. AfPA is organized as a non-profit 501(c)(4) corporation and headed by an independent board of directors. Its physician leadership is supported by policy advocacy management and public affairs consultants. In 2012, AfPA established the Institute for Patient Access (IfPA), a related 501(c)(3) non-profit corporation. In keeping with its mission to promote a better understanding of the benefits of the physician-patient relationship in the provision of quality healthcare, IfPA sponsors policy research and educational programming.



The coronavirus pandemic has spread throughout the world and into even the most rural areas of the United States. If you are pregnant and living in the United States, how is your childbirth going to differ from a woman that delivered in 2019?

- What health care protocols and policies help a pregnant mother who tests positive for COVID-19 near her due date?
- How do hospitals treat pregnant women with COVID-19 and keep them separated from the rest of the hospital population, while they recover?
- What happens if your newborn becomes exposed to COVID-19 in the hospital? How long will you be separated from your child?

Expectant parents now have the added stress of coronavirus disease and state & local orders to "shelter in place." However, government agencies, local officials, and hospital leadership are providing guidance to help.

ACOG Guidance

To help parents and their doctors, the American College of Obste-

tricians and Gynecologists (ACOG) has issued [guidance](#), i.e., a "practice advisory" related to pregnancy during the COVID-19. (1)

"Expectant parents now have the added stress of coronavirus disease and state & local orders to "shelter in place." However, government agencies, local officials, and hospital leadership are providing guidance to help.

These recommendations are consistent with [CDC Guidance](#) for healthcare facilities with ongoing obstetric practice. (2)

Taken together, these guidances address, to name a few:

- Notification by COVID-19 positive or symptomatic, pregnant patients to their health care provider before entering a hospital setting or requiring an ambulance to transport them to a health care facility;
- Infection control training and mitigation for providers and other hospital personnel, in and out of the delivery room;
- Mother to infant contact in the hospital to control suspected COVID-19 infection in either mom or baby; maintaining separation upon hospital discharge; and
- Virus transmission and the possibility of infectious virus in the breast milk.

Pregnant Women Testing Positive for Coronavirus-19

In a recent ABC News piece, ["Mom who tested positive for COVID-19 describes giving birth, being isolated from her newborn daughter."](#) a 27-year-old woman in Michigan describes that she was "about ten days away from her March 24 due date with her second child when she started to get a sore throat." Her early symptoms, like shortness of breath, were attributed to being in the third trimester of pregnancy, and therefore not unusual. When her water broke, and she called her doctor about hospital admission, even the doctor asked if her struggle to breathe - evident over the

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phone call - was the result of experiencing a contraction. (3)

Her doctor relayed to the hospital staff the mother's condition and symptoms consistent with coronavirus infection.

“For clarification, she went into labor without a definitive test result for coronavirus, but providers treated her with a presumption of a positive test. She was tested for the virus right before giving birth.”

The woman describes being taken into a delivery room within the hospital designated entirely for expecting mothers with COVID-19 symptoms or positive tests. For clarification, she went into labor without a definitive test result for coronavirus, but providers treated her with a presumption of a positive test. She was tested for the virus right before giving birth.

A healthy baby arrived and was also tested for COVID-19 before being taken to an "isolation nursery." The baby's mom would not see her in person for five days after that. The baby was later discharged from the hospital to an extended family member who had not interacted with the baby's mother or father before birth. The mom remained in the hospital for three days to recover - having tested positive for COVID-19. Luckily, her baby's COVID-19 test was negative.

While these new hospital policies around childbirth are no doubt aimed at the safety and health of the mother, provider, and caregivers, the policies are no less surprising or may be shocking to new parents and those with positive COVID-19 tests entering a health care facility at this time.

The 2020 Epidemic that Made Many Women Revisit their Birth Plan

The story described above highlights some of the emergency plans and policies in place at the Michigan hospital during this epidemic - isolation delivery rooms and nursery; helmet-style personal protective equipment (PPE) worn by the obstetrician and hospital staff; and no visitors, not even family members, for a person in the hospital with COVID-19.

It sounds almost like delivering a baby in the hospital amidst the

Babies are just tiny adults, right? So ... half?

Infants need drugs tested and approved just for them.

Centers for Clinical Trials Assistance NCIH National Coalition for Infant Health

Still a Premie?

Some preemies are born months early, at extremely low birthweights. They fight for each breath and face nearly insurmountable health obstacles.

But that's not every preemie's story.

Born between 34 and 36 weeks' gestation?

STILL A PREMIE

Just like preemies born much earlier, these "late preterm" infants can face:

- Jaundice
- Feeding issues
- Respiratory problems

And their parents, like all parents of preemies, are at risk for postpartum depression and PTSD.

Born preterm at a "normal" weight?

STILL A PREMIE

Though these babies look healthy, they can still have complications and require NICU care.

But because some health plans determine coverage based on a preemie's weight, families of babies that weigh more may face access barriers and unmanageable medical bills.

Born preterm but not admitted to the NICU?

STILL A PREMIE

Even if preterm babies don't require NICU care, they can still face health challenges.

Those challenges can extend through childhood, adolescence and even into adulthood.

Some Premies

- Will spend weeks in the hospital
- Will have lifelong health problems
- Are disadvantaged from birth

All Premies

- Face health risks
- Deserve appropriate health coverage
- Need access to proper health care

NCIh National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

pandemic is something akin to living on another planet - one without oxygen, perhaps.

What is happening to moms that are not experiencing COVID-19 symptoms and not testing positive, but are nearing their due date?

“Upon seeing pictures of hospitals challenged in caring for COVID-19 patients in different media outlets, the hospital setting can be even more scary than usual.”

[Good Morning America](#) reports, "Some pregnant women are also suddenly looking at other birthing options in light of restrictions many hospitals have placed on the number of people allowed in the delivery room and in-hospital visiting areas in light of the coronavirus." Upon seeing pictures of hospitals challenged in caring for COVID-19 patients in different media outlets, the hospital setting can be even more scary than usual. "Searches on Google for information on home births have increased markedly as the novel coronavirus has spread in the United States," the article asserts. (4)

[Also, mothers may be restricted to having only one person or none accompany them to labor and delivery in a hospital.](#) Current stories of hospitalized COVID-19 patients reflect that visitors cannot be entertained while they recover. The impact on other patients and their visitors, in the absence of the infection, are quite similar. So, expecting moms are faced with choosing between a partner or spouse, another relative, or even a doula. They all cannot be together in the room during this once in a lifetime moment. (5)

[In an average year, fewer than 1% of total U.S. births per year occur in the home, according to the American College of Obstetricians and Gynecologists \(ACOG\) - approximately 35,000 births.](#) (4)

Doctors ask mothers considering home birth to assess the following before making the final decision: their medical history, increased risks to their health and baby, level of risk associated with their current pregnancy, and practical considerations like a current shortage of ambulatory or emergency care related to coronavirus (should there be at-home complications in delivery) before making a last-minute change to their birth plan.

In 2020, the emergency policies in place related to childbirth are a lot to consider. If women have been self-quarantined and working from home, leading up to their due date, questions about the unknowns of giving birth in a hospital (whether tomorrow or in the coming months) are reasonable.

Nevertheless, some mothers and providers may be wondering, when do these temporary measures resolve? Will we ever get back to "normal" in the delivery rooms, operating rooms, and maternity wards?

Conclusion

According to the ABC News piece above about the Michigan mother: Experts say it is unlikely that a mom with COVID-19 would

transfer the virus to a fetus during pregnancy.

However, newborns are "susceptible to person-to-person spread," according to the [U.S. Centers for Disease Control and Prevention \(CDC\)](#). (6)

There is still so much to learn about the impact of this global health crisis on everyday healthcare needs, especially the often unpredictable delivery of a human baby.

References:

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Respiratory Syncytial Virus:

How you can advocate for babies this RSV season

Track national data and trends at the CDC's website www.cdc.gov/rsv



Identify babies at greatest risk



including those with CLD, BPD, CF, and heart conditions

Teach families how to protect



their babies from respiratory infections

Advocate for insurance coverage for palivizumab prophylaxis so more babies can be protected *



Use your best clinical judgement



when prescribing RSV prophylaxis

Tell insurers what families need



and provide the supporting evidence



*See the NPA's evidence-based guidelines at www.nationalperinatal.org/rsv

Survey Says: RSV

RESPIRATORY SYNCYTIAL VIRUS, or RSV, is a dangerous virus that can lead to:

- Hospitalization
- Lifelong health complications
- Death

for infants and young children



ACCORDING TO A NATIONAL SURVEY,

Specialty Health Care Providers say:

80% They treat RSV as a priority, "often" or "always" evaluating their patients

77% RSV is the "most serious and dangerous" illness for children under four

77% Barriers to access and denials from insurance companies limit patients' ability to get preventive RSV treatment



But Parents are Unprepared.

18% Only 18% know "a lot" about RSV

22% Only 22% consider themselves "very well" prepared to prevent RSV



RSV EDUCATION & AWARENESS CAN HELP

After parents learned more about RSV, they were:

- 65% "More concerned" about their child contracting the disease
- 67% Likely to ask their doctor about RSV



NCJIH National Coalition for Infant Health
Promoting Access to Proven Care through Age Two

Learn More about RSV at www.infanthealth.org/rsv

Postpartum Revolution

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OPIOIDS and NAS

When reporting on mothers, babies, and substance use

LANGUAGE MATTERS



I am not an addict.

I was exposed to substances in utero. I am not addicted. Addiction is a set of behaviors associated with having a Substance Use Disorder (SUD).



I was exposed to opioids.

While I was in the womb my mother and I shared a blood supply. I was exposed to the medications and substances she used. I may have become physiologically dependent on some of those substances.



NAS is a temporary and treatable condition.

There are evidence-based pharmacological and non-pharmacological treatments for Neonatal Abstinence Syndrome.



My mother may have a SUD.

She might be receiving Medication-Assisted Treatment (MAT). My NAS may be a side effect of her appropriate medical care. It is not evidence of abuse or mistreatment.

My potential is limitless.

I am so much more than my NAS diagnosis. My drug exposure will not determine my long-term outcomes. But how you treat me will. When you invest in my family's health and wellbeing by supporting Medicaid and Early Childhood Education you can expect that I will do as well as any of my peers!



Learn more about
Neonatal Abstinence Syndrome
at www.nationalperinatal.org



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You can help reduce the risk of Sudden Infant Death Syndrome (SIDS), the leading cause of death among infants between 1 month and 1 year of age. Take our **free continuing education (CE) activity** to stay up to date on the latest safe infant sleep recommendations. Approved for 1.5 contact hours.

Learn more about the free online activity at <https://nichd.nih.gov/SafeSleepCE>.

The CE activity explains safe infant sleep recommendations from the American Academy of Pediatrics and is approved by the Maryland Nurses Association, an accredited approver of the American Nurses Credentialing Center's Commission on Accreditation.



Eunice Kennedy Shriver National Institute
of Child Health and Human Development



Compiled and Reviewed by Mitchell Goldstein, MD Editor in Chief

CDC Announces Modifications and Extension of No Sail Order for All Cruise Ships

Implications for travel

Media Statement

For Immediate Release: Thursday, April 9, 2020

Contact: Media Relations

(404) 639-3286

The Centers for Disease Control and Prevention (CDC) announced today the extension of a No Sail Order for all cruise ships.

“We are working with the cruise line industry to address the health and safety of crew at sea as well as communities surrounding U.S. cruise ship points of entry,” said CDC Director Robert Redfield. “The measures we are taking today to stop the spread of COVID-19 are necessary to protect Americans, and we will continue to provide critical public health guidance to the industry to limit the impacts of COVID-19 on its workforce throughout the remainder of this pandemic.”

The No Sail Order reinforces the strong action by President Donald J. Trump and the White House Coronavirus Task Force to combat the spread of COVID-19 in the United States. President Trump acted early and decisively to implement travel restrictions on foreign nationals who had recently been to China and Europe and by issuing the 30 Days to Slow the Spread guidelines. These containment and mitigation strategies have been a critical component of the United States COVID-19 response, but despite these efforts, cruise ship travel markedly increases the risk and impact of the COVID-19 outbreak within the United States.

In recent weeks, at least 10 cruise ships reported crew or passengers that tested positive or experienced respiratory symptoms or influenza-like illness. Currently, there are approximately 100 cruise ships remaining at sea off the East Coast, West Coast, and Gulf Coast, with nearly 80,000 crew onboard. Additionally, CDC is aware of 20 cruise ships at port or anchorage in the United States with known or suspected COVID-19 infection among the crew who remain onboard.

There are several public health concerns when crew members become ill while onboard the cruise ships. As we have seen with the passenger illness response on cruise ships, safely evacuating, triaging, and repatriating cruise ship crew has involved complex logistics, incurs financial costs at all levels of government, and diverts resources away from larger efforts to suppress or mitigate COVID-19. The addition of further COVID-19 cases from cruise ships also places healthcare workers at substantial increased risk.

Some of these ships off the coast of the United States have crew that are not critical to maintain the seaworthiness or basic safe operation of the cruise ships, such as the vessel’s hotel and hospitality staff. The U.S. Government remains committed to humanitarian medevac for individuals in dire need of life-saving support. The CDC, the U.S. Coast Guard, and the Department of Homeland Security have been working with the industry to determine the most appropriate public health strategy to limit the impact of COVID-19 at cruise ship ports of entry in the United States. Cruise Lines International Association (CLIA) voluntarily suspended cruise ship operations in March in conjunction with the earlier No Sail Order issued March 14. The industry has since been working to build an illness response framework to combat COVID-19 on ships with international crew members who remain on board and at sea.

This order ceases operations of cruise ships in waters in which the United States may exert jurisdiction and requires that they develop a comprehensive, detailed operational plan approved by CDC and the USCG to address the COVID-19 pandemic through maritime focused solutions, including a fully implementable response plan with limited reliance on state, local, and federal government support. These plans would help prevent, mitigate, and respond to the spread of COVID-19, by:

- monitoring of passengers and crew medical screenings;
- training crew on COVID-19 prevention;
- managing and responding to an outbreak on board; and
- submitting a plan to USCG and CDC for review

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The National Urea Cycle Disorders Foundation



The NUCDF is a non-profit organization dedicated to the identification, treatment and cure of urea cycle disorders. NUCDF is a nationally-recognized resource of information and education for families and healthcare professionals.

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This Order shall continue in operation until the earliest of three situations. First, the expiration of the Secretary of Health and Human Services' declaration that COVID-19 constitutes a public health emergency. Second, the CDC Director rescinds or modifies the order based on specific public health or other considerations. Or third, 100 days from the date of publication in the Federal Register.

Additional information in the order includes:

- Cruise ship operators are not allowed to disembark travelers (passengers or crew) at ports or stations, except as directed by the USCG, in consultation with HHS/CDC personnel, and as appropriate, as coordinated with federal, state, and local authorities.
- Cruise ship operators should not embark or re-embark any crew member, except as approved by the USCG, in consultation with HHS/CDC personnel, until further notice.
- While in port, cruise ship operators shall observe health precautions directed by HHS/CDC personnel.
- The cruise ship operator should comply with all HHS/CDC, USCG, and other federal agency instructions to follow CDC recommendations and guidance for any public health actions relating to passengers, crew, ship, or any article or thing onboard the ship, as needed, including by making ship's manifests and logs available and collecting any specimens for COVID-19 testing.

For more information about COVID-19 and cruise ships, please visit <https://www.cdc.gov/coronavirus/2019-ncov/travelers/cruise-ship/what-cdc-is-doing.html> and to view the no sail order go to <https://www.cdc.gov/quarantine/cruise/index.html>.
###

CDC works 24/7 protecting America's health, safety and security. Whether disease start at home or abroad, are curable or preventable, chronic or acute, or from human activity or deliberate attack, CDC responds to America's most pressing health threats. CDC is headquartered in Atlanta and has experts located throughout the United States and the world.

NT

American Academy of Pediatrics, Section on Advancement in Therapeutics and Technology

Released: Thursday 12/13/2018 12:32 PM, updated Saturday 3/16/2019 08:38, and Sunday 11/17/2019 1020

The American Academy of Pediatrics' Section on Advances in Therapeutics and Technology (SOATT) invites you to join our ranks! SOATT creates a unique community of pediatric professionals who share a passion for optimizing the discovery, development and approval of high quality, evidence-based medical and surgical breakthroughs that will improve the

health of children. You will receive many important benefits:

- Connect with other AAP members who share your interests in improving effective drug therapies and devices in children.
- Receive the SOATT newsletter containing AAP and Section news.
- Access the Section's Website and Collaboration page – with current happenings and opportunities to get involved.
- Network with other pediatricians, pharmacists, and other health care providers to be stronger advocates for children.
- Invitation for special programming by the Section at the AAP's National Conference.
- Access to and ability to submit research abstracts related to advancing child health through innovations in pediatric drugs, devices, research, clinical trials and information technology; abstracts are published in Pediatrics.

AAP members can join SOATT for free. To activate your SOATT membership as an AAP member, please complete a short application at <http://membership.aap.org/Application/AddSectionChapterCouncil>.

The Section also accepts affiliate members (those holding masters or doctoral degrees or the equivalent in pharmacy or other health science concentrations that contribute toward the discovery and

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advancement of pediatrics and who do not otherwise qualify for membership in the AAP). Membership application for affiliates: <http://shop.aap.org/aap-membership/> then click on "Other Allied Health Providers" at the bottom of the page.

Thank you for all that you do on behalf of children. If you have any questions, please feel free to contact:

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630.626.6759

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Dedicated to the Health of All Children

###

The American Academy of Pediatrics is an organization of 67,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults. For more information, visit www.aap.org. Reporters can access the meeting program and other relevant meeting information through the AAP meeting website at <http://www.aapexperience.org/>

NT

CDC Launches New Weekly COVID-19 Surveillance Report

Weekly Surveillance Report now available

Media Statement

For Immediate Release: Friday, April 3, 2020

Contact: Media Relations
(404) 639-3286

Indicators that track flu-like illness and deaths from pneumonia both elevated at this time

CDC is modifying existing surveillance systems to track COVID-19, and posted the first of what will be a weekly surveillance report called, "COVIDView." The report, updated each Friday, will summarize and interpret key indicators, including information related to COVID-19 outpatient visits, emergency department visits, hospitalizations and deaths, as well as laboratory data.

The first COVIDView shows:

- Visits to outpatient providers and emergency departments for illnesses with symptom presentation similar to COVID-19 are elevated compared to what is normally seen at this time of year. At this time, there is little influenza (flu) virus circulation.
- The overall cumulative COVID-19 associated hospitalization rate is 4.6 per 100,000, with the highest rates in persons 65 years and older (13.8 per 100,000) and 50-64 years (7.4 per 100,000). These rates are similar to what is seen at the beginning of an annual influenza epidemic.
- The percentage of deaths attributed to pneumonia and influenza (P&I) increased to 8.2% and is above the epidemic threshold of 7.2%. The percent of deaths due to pneumonia has increased sharply since the end of February, while those due to influenza increased modestly through early March and declined this week. This could reflect an increase in deaths from pneumonia caused by non-influenza associated infections, including COVID-19.

enza associated infections, including COVID-19.

- The National Center for Health Statistics is monitoring deaths associated with COVID-19. Those data are available beginning today and will be featured in this report next week.

COVIDView specifically reports the following:

- **Virus information:** This includes COVID-19 diagnostic testing data provided by public health and clinical laboratories. For example, COVIDView will include the percentage of respiratory specimens collected from patients that test positive for SARS-COV-2.
- **Outpatient and Emergency Department Visits:** This is syndromic (i.e., not laboratory confirmed disease) data and will be reported as the percentage of outpatient visits for influenza-like illness (ILI) or COVID-19-like illness (CLI) nationally and in each of the 10 Health and Human Services (HHS) surveillance regions across the country. This data is provided through two surveillance systems: the U.S. Outpatient Influenza-like-illness Surveillance Network (ILINet) and the National Syndromic Surveillance Program (NSSP).
- **Severe Disease Information:** This includes information on COVID-



NEONATOLOGY TODAY is interested in publishing manuscripts from Neonatologists, Fellows, NNPs and those involved in caring for neonates on case studies, research results, hospital news, meeting announcements, and other pertinent topics.

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19-associated hospitalizations and deaths. The hospitalization data is provided by COVID-NET, which conducts population-based surveillance for laboratory-confirmed COVID-19-associated hospitalizations among children and adults through a network of over 250 acute care hospitals in 14 states. Mortality data is provided by the National Center for Health Statistics (NCHS), which reports provisional death counts based on death certificate data received and coded by the National Center for Health Statistics. COVID-NET hospitalization data and NCHS mortality data are summarized in COVIDView each week, but they also each have a webpage where this data is posted (links provided below).

Additional surveillance systems and data sources, including expansions of the currently launched systems and sources of data, will be added over time.

Links for additional information:

- [COVIDView](#) (A Weekly Surveillance Summary of U.S. COVID-19 Activity)
- [COVID-NET](#) (U.S. COVID-19 Hospitalization Data)
- [NCHS](#) (U.S. COVID-19 Mortality Data)

###

CDC works 24/7 protecting America's health, safety and security. Whether disease start at home or abroad, are curable or preventable, chronic or acute, or from human activity or deliberate attack, CDC responds to America's most pressing health threats. CDC is headquartered in Atlanta and has experts located throughout the United States and the world.

NT

AAP Statement on Trump Administra-



8th World Congress of Pediatric Cardiology and Cardiac Surgery

SEPTEMBER 19-24, 2021 | WASHINGTON D.C.

tion Decision to Stop U.S. Funding for WHO

The AAP opines on President Trump's decision to withhold funding from WHO

4/16/2020 by: Mark Del Monte, JD, CEO/Executive Vice President, American Academy of Pediatrics

The World Health Organization (WHO) plays a leading role in protecting the health of children and families around the world. From access to life-saving vaccines to promotion of early child development, the agency's impact goes far beyond coordination of the current pandemic response. The Trump Administration's decision to cut the WHO's funding at a time of unprecedented risk will carry grave consequences for children.

"Fighting a worldwide health crisis of this magnitude requires collaboration, support and a unified global response, informed by science and data. The American Academy of Pediatrics urges the President to reverse his

decision and to immediately reinstate vital funding to WHO so the agency can continue to support children, families and countries across the globe."

###

The American Academy of Pediatrics is an organization of 67,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults. For more information, visit www.aap.org and follow us on Twitter @AmerAcadPeds

NT

Leading Health Care Groups Issue Urgent Call for Federal Action to Address Medical Equipment Shortages





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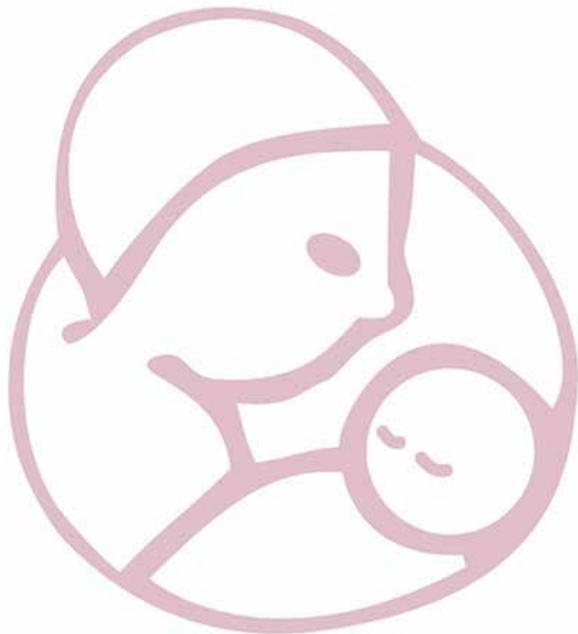
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Multiple professional organizations call for an end to medical equipment shortages,

3/30/2020

As longstanding organizations representing and supporting those on the front lines who are risking their lives caring for the world's most vulnerable patients, we stand united in voicing our concern over the critical shortages of medical equipment, including ventilators, test kits and all types of personal protective equipment (PPE) such as masks, face shields and gowns, to adequately address the COVID-19 public health crisis.

These heroic health care professionals didn't hesitate to step up to help those affected by COVID-19, and it is time for the federal government to similarly step up to take emergency measures at the federal level to increase the supply of PPE and other essential equipment. We also strongly encourage and support efforts to redeploy equipment to the areas in most critical need at a given time, using data from organizations like the Institute for Health Metrics and Evaluation. Promoting the use of telemedicine will reduce the risk to health care professionals and patients, and reduce the strain being placed on critical assets of our health care system -- preventing further spread of infection and saving lives.

This pandemic is having an unprecedented impact on our health care system and the lives of the very health care professionals being asked to combat this insidious virus. We are particularly concerned about the first responders, caregivers and patients in our most vulnerable communities and the tragic health disparities that could result. From first responders and EMTs, to doctors, nurses and all health care professionals, the dedication of these individuals to their patients and to our country demands an equal show of commitment by our federal government to their safety.

PPE is vitally needed to protect the caregivers who are risking their own health and welfare and those of their families in order to care for patients in the most need. The lack of essential medical equipment, especially ventilators and specialized fa-

ilities, is further endangering the lives of the sickest patients.

It is time that we all unite in support of our health care professionals to protect their health and provide them with the resources and equipment they need to continue their lifesaving work. We are equally committed to working with federal, state and local policymakers and public health officials to alleviate obstacles in the supply chain to ensure an urgent and equitable distribution of PPE across the nation.

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Chief Executive Officer/Executive Director
Society of Diagnostic Medical Sonography

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The American Academy of Pediatrics is an organization of 67,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults.

NT

Antiviral Remdesivir Prevents Disease Progression in Monkeys with COVID-19

Study Supports Clinical Testing Under Way Across U.S.

April 17, 2020

Early treatment with the experimental antiviral drug remdesivir significantly reduced clinical disease and damage to the lungs of rhesus macaques infected with SARS-CoV-2, the coronavirus that causes COVID-19, according to National Institutes of Health scientists.

The study was designed to follow dosing and treatment procedures used for hospitalized COVID-19 patients being administered remdesivir in a large, [multi-center, clinical trial](#) led by NIH's National Institute of Allergy and Infectious Diseases (NIAID). The scientists [posted the work on the preprint server](#)

[bioRxiv](#). The findings are not yet peer-reviewed and should not be considered clinical advice, but are being shared to assist the public health response to COVID-19. A study detailing the development of the rhesus macaque model of mild- to-moderate human disease, conducted by the same team of NIAID scientists, was [posted to bioRxiv on March 21](#).

The current study of remdesivir, a drug developed by Gilead Sciences Inc. and NIAID-supported investigators, involved two groups of six rhesus macaques. One group of monkeys received remdesivir and the other animals served as an untreated comparison group. Scientists infected both groups with SARS-CoV-2. Twelve hours later the treatment group received a dose of remdesivir intravenously, and then received a daily intravenous booster dose thereafter for the next six days. The scientists timed the initial treatment to occur shortly before the virus reached its highest level in the animals' lungs.

Twelve hours after the initial treatment, the scientists examined all animals and found the six treated animals in significantly better

health than the untreated group, a trend that continued during the seven-day study. They report that one of the six treated animals showed mild breathing difficulty, whereas all six of the untreated animals showed rapid and difficult breathing. The amount of virus found in the lungs was significantly lower in the treatment group compared to the untreated group, and SARS-CoV-2 caused less damage to the lungs in treated animals than in untreated animals.

The investigators note that the data supports initiating remdesivir treatment in COVID-19 patients as early as possible to achieve maximum treatment effect. The authors, from NIAID's Rocky Mountain Laboratories in Hamilton, Montana, also note that while remdesivir helped prevent pneumonia, it did not reduce virus shedding by the animals. "This finding is of great significance for patient management, where a clinical improvement should not be interpreted as a lack of infectiousness," they write.

ARTICLE:

[B Williamson et al. Clinical benefit of remdesivir in rhesus macaques infected with SARS-CoV-2.](#)

WHO:

Emmie de Wit, Ph.D., and Marshall Bloom, M.D., from NIAID's Laboratory of Virology are available to comment on this study.

Contact

To schedule interviews, contact

Ken Pekoc

(301) 402-1663

NIAIDNews@niaid.nih.gov

###

NT

Investigational

Chimp Adenovirus MERS-CoV Vaccine Protects Monkeys

Vaccine Neutralizes Multiple MERS-CoV

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Strains

April 17, 2020

An investigational vaccine called ChAdOx1 MERS protected two groups of rhesus macaques from disease caused by Middle East respiratory syndrome coronavirus (MERS-CoV). MERS-CoV is a relative of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease 2019 (COVID-19). National Institutes of Health scientists and colleagues are pursuing similar studies with ChAdOx1 SARS2, a vaccine candidate against SARS-CoV-2. They posted their results with ChAdOx1 MERS on a preprint server on April 13. The findings are not yet peer-reviewed but are being shared to assist the public health response to COVID-19.

ChAdOx1 MERS, which uses a replication-deficient chimpanzee adenovirus to deliver a MERS-CoV protein in recipients, also worked against six different strains of MERS-CoV when tested in mice as a single vaccination. Scientists from NIH's National Institute of Allergy and Infectious Diseases (NIAID) at Rocky Mountain Laboratories in Hamilton, Mont., led the project. Collaborators work at the University of Oxford in the United Kingdom; researchers at the University of Oxford Jenner Institute developed the ChAdOx1 vaccine technology.

Human cases of MERS-CoV were first reported in Saudi Arabia in 2012; dromedary camels are also infected with the virus and likely transmit it to people. MERS-CoV causes disease deep in the lungs, leading to pneumonia among infected individuals. Through January 2020, the World Health Organization had received reports of 2,519 MERS-CoV cases and 866 deaths in 27 countries.

In the macaque study, one group of animals was vaccinated 28 days prior to infection; the other group received two vaccinations—a prime-boost strategy—56 and 28 days prior to infection. A third group of monkeys served as controls. The scientists report that none of the animals in the two treatment groups

developed signs of MERS-CoV disease. The prime-boost group clearly had less virus in lung tissue compared to the control group and no evidence of replicating virus, while the prime-only group showed much less virus in tissue than the control group. Both treatment groups showed no lung damage and were protected from disease, unlike the control animals.

The scientists' MERS-CoV macaque study follows earlier studies of the experimental vaccine in mice. They also have successfully tested the vaccine platform against Nipah virus in hamsters and against Lassa virus in guinea pigs; they next plan to expedite testing a vaccine candidate against SARS-CoV-2.

The MERS vaccine is being studied in Phase 1 human clinical trials in the United Kingdom and Saudi Arabia. The same chimpanzee adenovirus vaccine platform also is being assessed for malaria, HIV, influenza, hepatitis C, tuberculosis and Ebola.

ARTICLE:

N van Doremalen et al. [A single dose of ChAdOx1 MERS provides broad protective immunity against a variety of MERS-CoV strains.](#)

WHO:

Vincent Munster, Ph.D., and Marshall Bloom, M.D., of NIAID's Laboratory of Virology, are available to comment on this study.

Contact

To schedule interviews, contact Ken Pekoc (301) 402-1663 NIAIDNews@niaid.nih.gov

NT

during COVID-19: New guidance from WHO

WHO sets guidance for continued immunization services for immunization preventable disease during the Novel COVID 19 pandemic

March 26 2020, GENEVA - Today, the World Health Organization (WHO) released new guidance to help countries protect critical immunization services during the COVID-19 pandemic, so that ground is not lost in the fight against vaccine-preventable diseases. "WHO is working constantly with partners and scientists to accelerate vaccine development for COVID-19, but we must also ensure people are protected against those diseases for which vaccines already exist," said Dr. Katherine O'Brien, Director of the Immunization, Vaccines and Biologicals Programme at WHO. "The message from this guidance is clear. Countries should take what steps they can to sustain immunization programmes and prevent unnecessary loss of life."

Outbreaks of vaccine-preventable diseases could be catastrophic for communities and health systems already battling the impacts of COVID-19, and substantively increase sickness and fatalities. Last year, measles caused more than 6000 deaths in the Democratic Republic of the Congo – a country fighting its largest Ebola outbreak - as the country faced a deadly convergence of diseases.

The guidance calls for countries to prioritize routine immunization of children in essential service delivery, as well as some adult vaccinations such as influenza for groups most at risk. If immunization services must be suspended, it recommends urgent catch-up vaccinations as soon as possible, prioritising those most at risk.

In line with physical distancing measures, the guidance recommends temporarily postponing preventive immunization campaigns where there is no active outbreak of a vaccine-preventable disease. In the event

Protecting lifesaving immunization services



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of an outbreak, however, rapid vaccination campaigns may be essential after a careful risk assessment analysis. Where these are conducted, health workers and the public must be protected from COVID-19 through appropriate hygiene procedures, the guidance states.

All immunization services must consider the importance of both ensuring people are protected against preventable diseases, as well as the safety of communities and health workers. WHO is providing a series of guidance to help countries safely maintain essential health services in the context of the COVID-19 response.

COVID-19 and Immunization Guidance

[Guiding principles for immunization activities during the COVID-19 pandemic](#)

Related documents

[Guidance for health-care workers during COVID-19](#)

[COVID-19: Operational guidance for maintaining essential health services during an outbreak](#)

###

NT

Children's story book released to help children and young people cope with COVID-19

News release of the Inter-Agency Standing Committee

9 April 2020 News release

A new story book that aims to help children understand and come to terms with COVID-19 has been produced by a collaboration of more than 50 organizations working in the humanitarian sector, including the World Health Organization, the United Nations Children's Fund, the United Nations High Commissioner for Refugees, the International Federation of Red Cross and Red Crescent Societies and Save the Children.

With the help of a fantasy creature, Ario,

"My Hero is You, How kids can fight COVID-19!" explains how children can protect themselves, their families and friends from coronavirus and how to manage difficult emotions when confronted with a new and rapidly changing reality.

The book – aimed primarily at children aged 6-11 years old – is a project of the [Inter-Agency Standing Committee Reference Group on Mental Health and Psychosocial Support in Emergency Settings](#), a unique collaboration of United Nations agencies, national and international nongovernmental organizations and international agencies providing mental health and psychosocial support in emergency settings.

During the early stages of the project, more than 1700 children, parents, caregivers and teachers from around the world shared how they were coping with the COVID-19 pandemic. The input was invaluable to script writer and illustrator Helen Patuck and the project team in making sure that the story and its messages resonated with children from different backgrounds and continents. In order to reach as many children as possible, the book will be widely translated, with six language versions released today and more than 30 others in the pipeline. It is being released as both an online product and audio book.

[Download the book here](#)

[My Hero is You: all language versions](#)

Quotes from collaborating partners

World Health Organization

"Previous humanitarian emergencies have shown us how vital it is to address the fears and anxiety of young people when life as they know it gets turned upside down. We hope that this beautifully-illustrated book, which takes children on a journey across time zones and continents, will help them to understand what they can do to stay positive and keep safe during the coronavirus outbreak."

Dr Tedros Adhanom Ghebreyesus, Director-General

UNICEF

"All over the world, children's lives have been completely upended — the majority of them living in countries with some form of

restricted movement or lockdown. This wonderful book helps children understand and navigate this new landscape and learn how they can take small actions to become the heroes in their own stories."

Henrietta Fore, Executive Director

UNHCR

"This is an important resource for children around the world with a strong message of inclusion at its heart — that this pandemic can only be beaten if everyone is included in its prevention and response. Children, including those who are refugees, displaced and stateless, can help too. No-one is protected unless we are all protected"

Filippo Grandi, United Nations High Commissioner for Refugees

UNESCO

"Sharing facts and reliable information is vital to respond to COVID-19, and I wish to commend the creativity and passion of all artists, writers and publishers who find compelling ways to translate and craft stories and artwork so they can reach children and families to comfort and guide them through a distressing situation. UNESCO is proud to support this initiative and we see this as an example of the contribution of the artistic community to the well-being and resilience of all."

Audrey Azoulay, Director General

For requests relating to translations Inter-Agency Standing Committee Reference Group on Mental Health and Psychosocial Support in Emergency Settings, Email: mhps.refgroup@gmail.com

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NT

Breastfeeding Benefits During COVID-19

Breastfeeding should continue during the COVID-19 pandemic

16-Apr-2020 10:45 AM EDT, by University of Pennsylvania School of Nursing

Newswise — PHILADELPHIA (April 15, 2020) – While the current coronavirus pandemic continues to affect all people, families will still give birth and bring new life into the world. During the COVID-19 crisis, breastfeeding and the provision of human milk to infants is recommended by national and international organizations because it is effective against infectious diseases: It strengthens the immune system by directly transferring antibodies from the mother.

In an editorial in the Journal of Obstetric, Gynecologic & Neonatal Nursing, [Diane Lynn Spatz, PhD, RN-BC, FAAN](#), Professor of Perinatal Nursing & The Helen M. Shearer Professor of Nutrition at the [University of Pennsylvania School of Nursing](#) (Penn Nursing), provides guidance regarding breastfeeding and COVID-19 and reaffirms why it is of paramount importance to promote and protect the use of human milk and breastfeeding.

“While it is unknown if COVID-19-positive mothers can transmit the virus through milk, in limited studies the virus has not been detected in human milk,” says Spatz. “We should use this pandemic as a way to increase visibility of the critical role of human milk and breastfeeding for all families at all times and educate the public about the importance of the use of human milk and breastfeeding as lifesaving medical interventions.”

The editorial, [“Using the Coronavirus Pandemic as an Opportunity to Address the Use of Human Milk and Breastfeeding as Lifesaving Medical Interventions”](#) is available now online.

###

About the University of Pennsylvania School of Nursing

[The University of Pennsylvania School of Nursing](#) is one of the world’s leading schools of nursing. For the fifth year in a row, it is ranked the #1 nursing school in the world by QS University and is consistently ranked highly in the U.S. News & World Report

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You may be surprised to see what NICUs are doing right and where their efforts are clearly falling short.

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annual list of best graduate schools. Penn Nursing is currently ranked # 1 in funding from the National Institutes of Health, among other schools of nursing, for the third consecutive year. Penn Nursing prepares nurse scientists and nurse leaders to meet the health needs of a global society through innovation in research, education, and practice. Follow Penn Nursing on:

NT

National Registry Quickly Set Up to Help Doctors Understand Risks COVID-19 Poses to Pregnant Women and Newborns

A National Registry has been set up to understand the risks of COVID-19 and pregnancy

8-Apr-2020 6:10 PM EDT, by University of California, Los Angeles (UCLA), Health Sciences

"It was a call to arms because we have a population of vulnerable folks for whom we have no data." --

Yalda Afshar, MD, PhD, UCLA Biodesign Fellow

Newswise — LOS ANGELES (April 8, 2020) - A new national registry has been launched by specialists in obstetrics, gynecology and reproductive sciences at UCLA Health and the University of California, San Francisco, to determine COVID-19's possible effects on pregnant women and newborns.

The registry is enrolling pregnant women and those who have been pregnant or postpartum within the past six weeks who have a confirmed diagnosis of COVID-19 or are being evaluated for that possibility. UCLA Health's participation is aligned with the goals of UCLA Biodesign, a program that promotes health care innovation and partnerships that develop novel tools and technologies.

Within two weeks of going live, it had received more than 400 patient referrals from around the country.

The novel coronavirus quickly gained a reputation for being particularly dangerous to the elderly and those with preexisting medical conditions, but little is known about its potential impact on the course of pregnancies. The PRIORITY study – Pregnancy CoRoNaviRus Outcomes RegIsTrY – is enrolling pregnant women and those who have been pregnant within the previous six weeks who have a confirmed diagnosis of COVID-19 or are being evaluated for that possibility.

"We expect this registry to provide data that will be critical in helping to improve care for pregnant women during this global pandemic," said Yalda Afshar, MD, PhD, an obstetrician/gynecologist at UCLA Health and a UCLA Biodesign Fellow, who is co-principal investigator of the study.

Although it usually takes many months to develop a national registry, because of the rapidly evolving COVID-19 crisis, the PRIORITY study went from the initial concept to being open for enrollment in two weeks.

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“It was a call to arms because we have a population of vulnerable folks for whom we have no data,” said Afshar.

According to Afshar, most of the available COVID-19 data are based on studies of the general population, but these data do not translate meaningfully to pregnant women and their babies. “Pregnancy in and of itself makes significant changes to the physiology of the body,” Afshar said. “In fact, pregnant women are considered immune-compromised. An infection on top of that results in a potentially very different scenario for both mom and baby. We wanted to have data relevant to women, for women,

so we can take care of them better,” Afshar said.

“With the global reach of this disease, the findings resulting from this work have the potential to impact millions of lives in an entire generation,” said Johnese Spisso, president of UCLA Health, CEO of UCLA Health System, associate vice chancellor of UCLA Health Sciences, and a member of the UCLA Biodesign Program Advisory Board.

History suggests that the virus will make some pregnancies and deliveries more challenging.

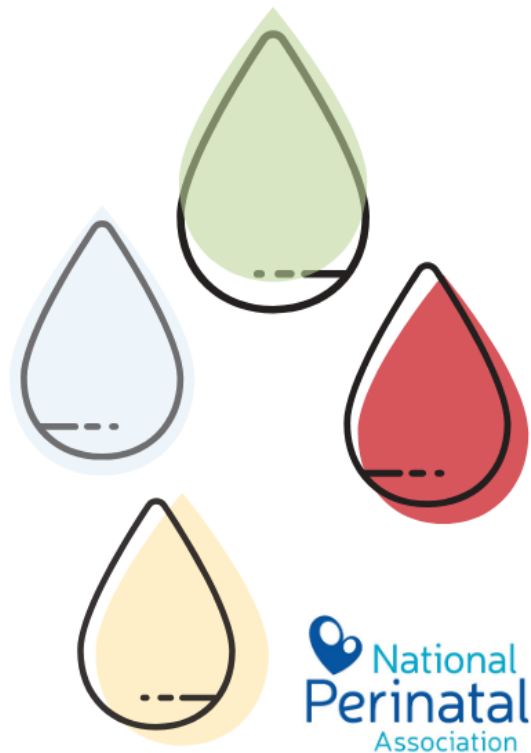
NATIONAL PERINATAL ASSOCIATION

Update: CORONAVIRUS COVID-19

According to the data in The Lancet, even when mothers were infected

No virus was detected in:

- NASOPHARYNGEAL SWABS OF THE BABY
- AMNIOTIC FLUID
- CORD BLOOD
- BREASTMILK



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"We know that in previous outbreaks of the regular flu, for example, there have been more deaths and poorer outcomes among pregnant women compared with nonpregnant women," Afshar said. Infection with influenza also is known to increase risk of miscarriage, preterm delivery, fetal death and certain congenital abnormalities.

Afshar, a physician-scientist whose interests include high-risk pregnancy, prenatal ultrasound, genetic testing and congenital heart disease, is overseeing the study with Drs. Stephanie Gaw, Vanessa Jacoby, and Valerie Flaherman, at UCSF where the registry data will be coordinated.

"In addition to gaining a better understanding of the course of the disease, we will investigate disease transmission to determine if it can be passed from a mother to her baby in utero, and during the postpartum period, such as in breast milk," said Gaw, whose research interest is infectious disease during pregnancy and is leading the bio-specimen core of the study.

"These are questions that we really have no guidance for right now," Afshar added. "We're creating protocols on labor and delivery units throughout the country – throughout the world – without really knowing if this is acquired in utero or not."

Jacoby agreed. "There is an urgent need to address significant gaps in our knowledge about how pregnant women infected with COVID-19 will fare during pregnancy and how the disease may affect outcomes," she said.

Beyond that, there also is a critical need to understand the affect of health disparities during this pandemic and how some pregnant women, particularly Black and Latina women, may be impacted more severely by COVID-19.

"A central part of the UCLA Biodesign mission is to deliver improved outcomes to patients locally and worldwide. This registry is a perfect example of the way we're working with leaders in our state and throughout the nation to improve health care throughout the world," said Jennifer McCaney, co-executive director of the program.

Desert Horse-Grant, senior director of UCLA Health Research and Innovation and co-executive director of UCLA Biodesign, added that UCLA Biodesign is structured to be both transformative and nimble, with the ability to adapt quickly in a rapidly changing world.

"To have a registry up and running in two weeks is a testament to the foresight, professionalism, expertise and dedication of

Dr. Afshar and her colleagues, who recognized the significance of this problem and quickly pivoted to take it on," Horse-Grant said. "Even a healthy pregnancy brings its own unique stressors; imagine adding those to the life-threatening issues the pandemic has created. This important initiative is an opportunity for us to gather valuable health information and learn how best to protect this vulnerable population."

Women 13 and older, recruited through their health care practitioners – family physicians, midwives and obstetricians – throughout the U.S., will be contacted by phone by a study coordinator. Patients also may enroll in the study without a referral by visiting [the website](#).

After enrolling, patients will complete questionnaires online, by phone or email to provide information on their symptoms, clinical course, pregnancy outcomes and neonatal outcomes. Researchers will collect data regularly from the time of enrollment through the second and third trimesters and postpartum, with the goal of following the mothers and babies up to one year. In addition to the questionnaires, the registry will obtain necessary medical records to collect data on key clinical and pregnancy outcomes.

Patients interested in information about the registry may contact the researchers by emailing Afshar at PRIORITYCOVID19@ucsf.edu. She has also created a "COVID-19 in Pregnancy" video with additional information.

###

NT

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first candle

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Neonatology Solutions NICU Directory: Links to Trusted Resources

Scott Snyder, MD



The NICU Directory development took a necessary pause as we, like NICUs around the country, prepared our teams for the COVID-19 pandemic. We are incredibly grateful for the programs and colleagues around the nation and the world who shared experiences, expertise, protocols, guidelines, and best practices as we all learned our way through numerous unanticipated challenges.

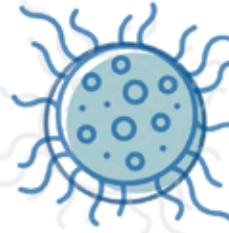
“In that same spirit of information sharing, we pivoted from our work on the Directory to develop a page on the Neonatology Solutions website with links to trusted resources that we found helpful during our preparations, as well as for sharing the guidelines and pathways that we developed locally in the hopes that they might help others who are still designing their own.”

NATIONAL PERINATAL ASSOCIATION

Update: CORONAVIRUS
COVID-19

According to data published in The Lancet

Because of the risk of developing severe pneumonia, pregnant women and newborn babies should be considered key at-risk populations.



National Perinatal Association

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In that same spirit of information sharing, we pivoted from our work on the Directory to develop a page on the Neonatology Solutions website with links to trusted resources that we found helpful during our preparations, as well as for sharing the guidelines and pathways that we developed locally in the hopes that they might help others who are still designing their own.

<https://neonatologysolutions.com/covid-19-resources/>

We have also updated the Neonatology Conference page with the latest information regarding the numerous conferences that have had to be canceled, rescheduled, or postponed. Several have adapted their conference content to a distance-based webinar format, and we have included that information, including links to the individual conference sites.

<https://neonatologysolutions.com/upcoming-neonatology-conferences/>

“In the coming weeks, we will also endeavor to provide information and resources for our Neonatology fellow trainee colleagues; the global pandemic has significantly disrupted job searches and relocations.”

With those preparations now in place, we have resumed Directory completion. NICU data for more than 1,250 NICUs has now been populated. We are continuing the final entry of units throughout CA and TX, and we anticipate having these completed by May. Once the final NICUs are entered, the remaining state summaries will be completed, and we will then enter into a regular cadence of routine updating and accuracy validation of the Directory content. As always, we appreciate your help by notifying us of any inaccurate or missing information via the easy-to-use links on the website or email me directly at Scott@NeonatologySolutions.com.

<https://neonatologysolutions.com/explore-nicus-and-programs/>

In the coming weeks, we will also endeavor to provide information and resources for our Neonatology fellow trainee colleagues; the global pandemic has significantly disrupted job searches and relocations. If there are specific questions, ideas, concerns, or guidance that we can attempt to address, please reach out via the email address above.

Stay healthy!

References:

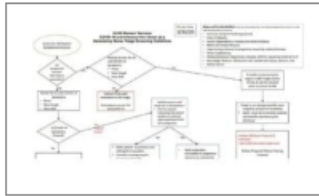
1. <https://neonatologysolutions.com/explore-nicus-and-programs/>

The author is a principal of Neonatology Solutions, LLC.

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COVID-19 Obstetric, Neonatal, and NICU Guidelines

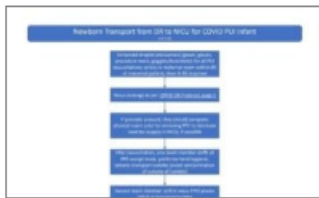


COVID-19 OB Protocol

updated 4/1/20

Provides guidelines, protocols, and pathways for:

- Ambulatory Nurse Triage Screening Guidelines
- Inpatient and Outpatient Testing Protocols
- Inta/Postpartum and Antepartum Guidelines
- Neonatal Stabilization for Infants Born to + Patient
- Management of Asymptomatic Newborns



COVID-19 Newborn Transport from DR to NICU

updated 4/1/20

Provides a pathway with PPE guidance for transporting a newborn from the delivery room to the NICU for COVID PUI infants.



COVID-19 NICU Visitation, Isolation, and DC

updated 3/30/20

Provides guidelines for NICU visitation, isolation, and discharge for an infants born to a mother with confirmed COVID-19 disease or PUI.



COVID-19 Breast Milk Handling

updated 4/3/20

Provides guidelines for breast milk handling for infants born to a mother with confirmed COVID-19 disease or PUI.



COVID-19 NICU Code Blue Response

updated 3/27/20

Provides a process for responding to a code blue within the NICU for PUI or COVID-19 positive patients.

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- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
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to an **EXCLUSIVE HUMAN MILK DIET**

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VERY LOW BIRTHWEIGHT BABIES are at risk for Necrotizing Enterocolitis (NEC), which:

- Damages intestinal tissue
- Causes distended abdomen, infection, low blood pressure and shock
- Threatens infants' lives

NEC occurrence increases when a preemie consumes non-human milk products.

When that happens:

17%	Very low birthweight babies requiring surgery to treat NEC
12%	Very low birthweight babies requiring surgery to treat NEC
5%	Very low birthweight babies requiring surgery to treat NEC
1%	Very low birthweight babies requiring surgery to treat NEC

30% of very low birthweight babies requiring surgery will die from NEC.

HOW TO HELP PREVENT NEC: EXCLUSIVE HUMAN MILK DIET

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- NO cow's milk
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- NO formula

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An Exclusive Human Milk Diet gives vulnerable infants the best chance to be healthy and reduces the risk of NEC and other complications.

When a very low birthweight baby can access an EXCLUSIVE HUMAN MILK DIET:

- Mortality is reduced by **36%**
- Feeding intolerance decreases
- Chances of NEC are reduced by **37%**

HUMAN MILK = MEDICINE

NEC is a life-threatening condition that can be deadly. If the digestive tract becomes inflamed, it's a sign of human milk deficiency. Talk to your baby's doctor to be confident. Talk to your care team about your baby's specific human milk needs and support resources to find your healthy path.

LEARN MORE

NCfIH National Coalition for Infant Health

The Genetics Corner: Perisylvian Polymicrogyria and Seizures in One of Monochorionic Diamniotic Twins Following Twin-Twin-Transfusion Syndrome and *in utero* Laser Ablation Therapy

Robin Clark, MD, Subhadra (Subha) Ramanathan, M.Sc., M.S.

A Case History:

I was asked to evaluate a 6-month old female, Twin B, one of a 31-week gestation monochorionic diamniotic twin pair, with recent onset of myoclonic jerks. Seizures had begun the previous week with staring episodes, during which her eyes rolled back, and she lost tone. She became more irritable with reduced appetite. Hypsarrhythmia was present on video EEG. Brain MRI showed bilateral perisylvian cortical dysplasia and periventricular leukomalacia. Chromosome microarray analysis was normal.

“Brain MRI showed bilateral perisylvian cortical dysplasia and periventricular leukomalacia. Chromosome microarray analysis was normal.”

Prenatal History:

The mother denied prenatal exposure to drugs, alcohol, or tobacco. A maternal-fetal medicine specialist had followed her because she was carrying monozygotic monochorionic diamniotic (MCDA) twins. At 19 weeks and two days gestation, she was referred for fetoscopic laser surgery because of twin-twin transfusion syndrome (TTTS) and selective IUGR in Twin B, the donor twin. The placental cord insertion site was marginal for Twin B and eccentric for Twin A. The intertwin weight discordance at that time was 22%. Twin B had intermittent absent end-diastolic flow. In reviewing the options for therapy, the mother was given a risk of 4% for cerebral palsy or other neurodevelopmental impairment following selective laser photocoagulation of communicating vessels. The mother elected to proceed with laser surgery, and all aberrant vessels were coagulated at 20 weeks' gestation, approximately three months prior to delivery. Following the procedure, fetal US monitoring every two weeks documented normal interval growth and normal amniotic fluid volumes in both twins. By one month after the procedure, Twin B's estimated weight was greater than Twin A's. No fetal anomalies were appreciated in either twin.

Birth History:

The twins were delivered at 31 weeks 0 days gestation despite tocolytic therapy. Spontaneous rupture of membranes occurred 3 hours prior to delivery. The patient, Twin B, was born by vertex vaginal delivery through brown amniotic fluid to a 28-year old G6 P3 Ab3 SAb1 mother. Birth weight was 1690 grams (73rd %ile), BL 42.5 cm (85th %ile), HC 27.9 cm (50th %ile). Apgar scores were 91 and 95.

Newborn Course:

The baby was initially NPO. She started enteral feeds on DOL#2 and advanced to full feeds over a week. She received total parenteral nutrition for seven days. She started nipping at 19 days of age and tolerated all feeds by mouth with adequate weight gain by discharge. She was on high flow nasal cannula for five days, gradually weaning from 2L to room air. She did not require central lines. Hg and Hct were normal at birth. She received 48 hours of empiric antibiotics (IV Ampicillin and Gentamicin) with no clinical sign of infection except a purulent eye discharge (E.coli) on DOL#2, treated with five days of Tobrex. She required phototherapy for indirect hyperbilirubinemia. Her highest bilirubin levels were 8.2/0.3 on DOL#7.

Importantly, there were no focal deficits on the neurological exam in the newborn period. Initial head US on DOL#7 was read as negative; however, the repeat head US at six weeks of age showed distorted brain parenchyma on the right that was also noted, in retrospect, on the initial head US. A brain MRI was suggested, but it was not done as she was discharged two days later at 47 days of life.

“Initial head US on DOL#7 was read as negative; however, the repeat head US at six weeks of age showed distorted brain parenchyma on the right that was also noted, in retrospect, on the initial head US.”

Imaging Studies:

In Figure 1, the head US image from 6 weeks of age shows the distortion of the right lateral ventricle, with a sulcus coursing through it, which was interpreted as secondary to a sulcal variant or possible developmental anomaly. An MRI of the brain was recommended.

In Figure 2, images from the brain MRI with and without contrast at six months of age show congenital bilateral perisylvian syndrome with polymicrogyria/cortical dysplasia of the bilateral frontoparietal lobes and mild periventricular leukomalacia, compatible with prematurity. The radiologist's interpretation noted “cortical thickening and loss of normal sulcation in the bilateral frontoparietal lobes, with superiorly elongated sylvian fissures. The right sylvian fissure extends deep into the high right frontoparietal region, with overlying cortical thickening and focal indentation of the lateral margin of the right lateral ventricle. There is periventricular white matter volume loss, adjacent to both lateral ventricle bodies, with mildly dysmorphic lateral ventricular margins, and thinning of the corpus callosum. There is mild prominence of the lateral third, and fourth ventricles, and mildly prominent subarachnoid spaces over both cerebral hemispheres.”

Family History:

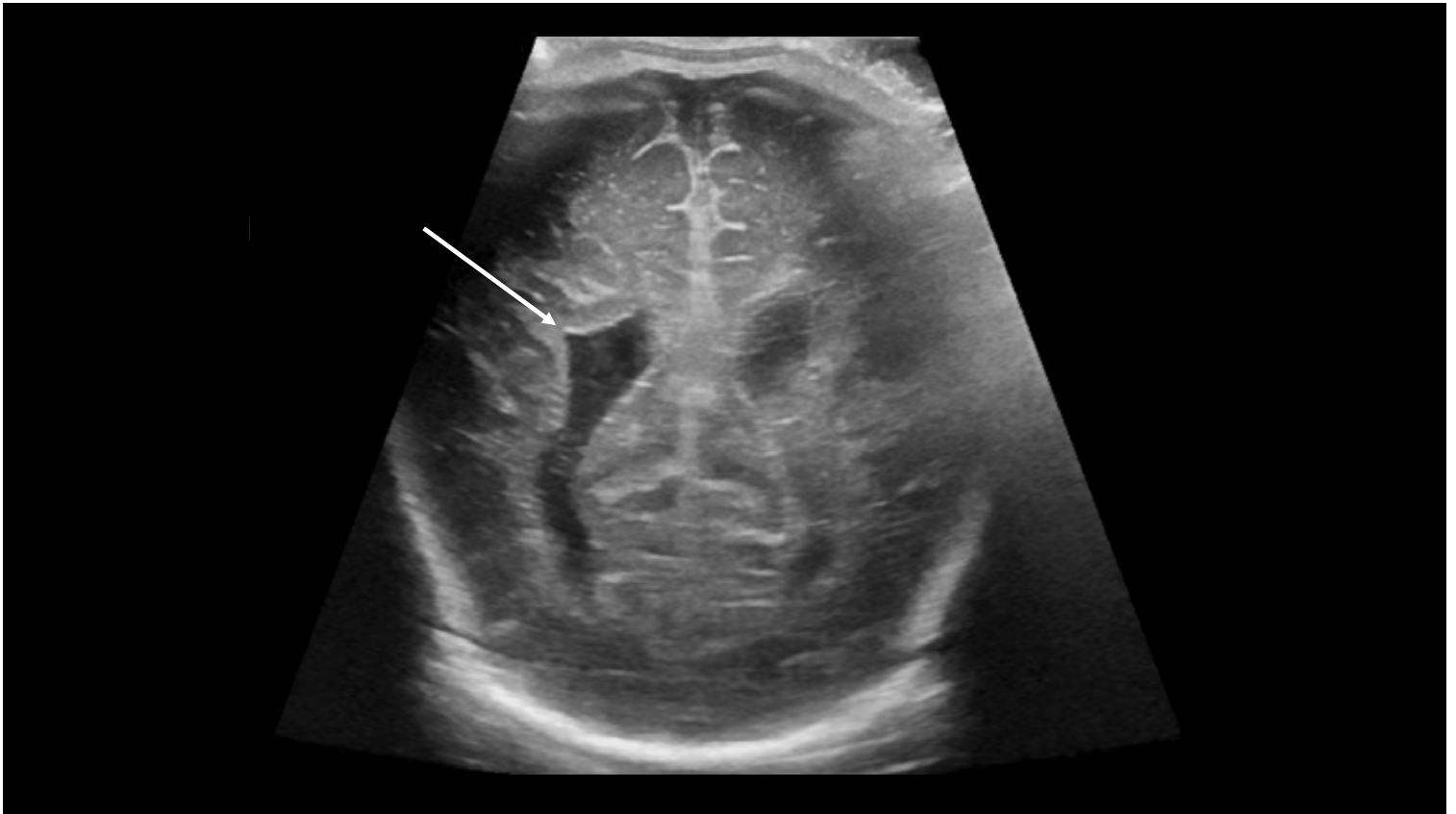


Figure 1: Coronal ultrasound at six weeks of age demonstrates irregularity of the right ventricular margin (white arrow).

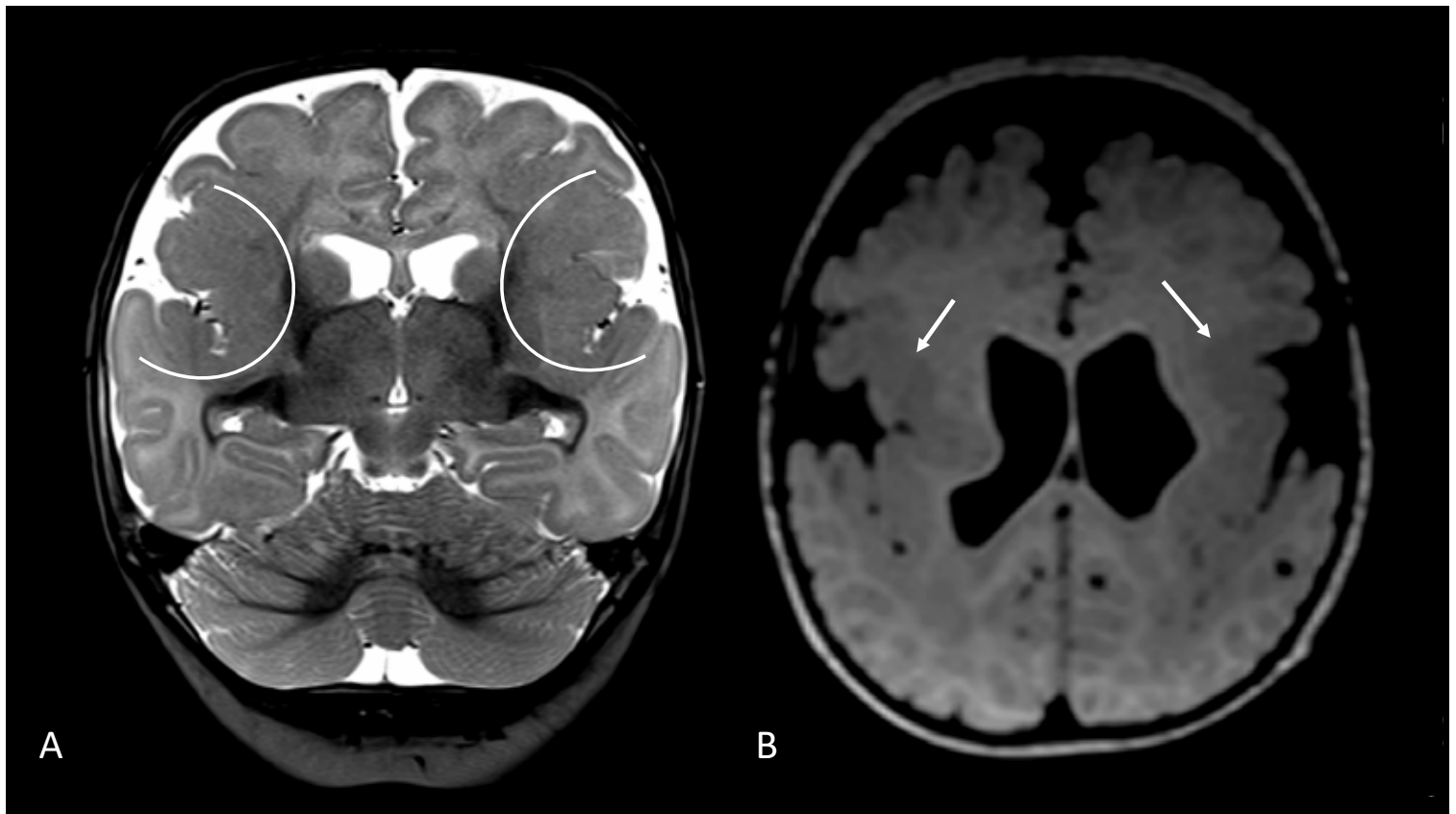


Figure 2: Coronal T2 weighted image at six months of age (A) demonstrates bilateral perisylvian cortical dysplasia (white curves). Axial FLAIR image (B) demonstrates perisylvian cortical dysplasia (white arrows). Also noted is periventricular white matter volume loss with scalloping of the ventricular margins, consistent with periventricular leukomalacia.

This patient's identical twin sister is in good health and is on target developmentally. Parents are 29 (mother) and 20 (father) years old. There is no other family history of birth defects, developmental delay, intellectual disability, early infant deaths, or multiple miscarriages. Parents are of Hispanic ancestry from Mexico. Parents denied consanguinity.

Physical Exam:

The exam was pertinent for microcephaly. The head circumference was 41 cm, <1st %ile, Z-score -2.79. For comparison, her co-twin's HC was 45 cm. Her features were not dysmorphic. She had adducted thumbs and clenched hands and toes. The neuro exam was abnormal with poor visual attention, generalized hyper-tonia, and hyperreflexia.

Assessment and Counseling:

Twin-twin transfusion syndrome (TTTS) occurs in 10-15% of all monochorionic multiple pregnancies with high perinatal mortality and morbidity (D'Antonio, et al. 2020). In the severe forms, diagnosed at 16-26 weeks gestation, fetoscopic laser selective coagulation of placental anastomoses is an established first-line treatment. This therapy offers the hope of survival to twins at grave risk of intrauterine death, but it is not without significant risks. Intact survival after laser ablation for TTTS varies from 47 to 68%. Many case series have established that neurodevelopmental outcome is adversely affected. In the series reported by Gray (2011), 12% of survivors of TTTS laser ablation surgery had a neurodevelopmental impairment, 4% had cerebral palsy, and 8% had an intellectual disability. Other authors have reported higher rates of disability with cerebral palsy in 6-13% and developmental disability in 13-18%.

In general, an overall survival rate of 50-70% can be expected after laser therapy, while the risk of abnormal neurodevelopmental outcome ranges between 4 and 18% (van Klink et al. 2016). Both donor and recipient twins are at increased risk for brain damage following laser ablation. Laser ablation for TTTS caused structural brain damage that was evident on fetal MRI at 30-32 weeks in 2% of 113 long-term survivors (Stirnemann et al. 2018). These authors found that certain structural CNS anomalies occur more commonly among fetuses with TTTS, especially those with a vascular etiology such as leukomalacia, ischemia, infarct, ventriculomegaly, porencephaly, schizencephaly, and polymicrogyria. Banek (2003) reported hemiparesis, spastic quadriplegia, infantile spasms, infarction of the middle cerebral artery, nystagmus, and cerebral palsy among a group of survivors with more severe neurological sequelae. Schou (2019) reported severe neurodevelopmental impairment in 9/86 children with TTTS who were treated with fetoscopic selective laser coagulation when they were examined at 25 months, compared to 3.1% in a control group of monochorionic twins from uncomplicated pregnancies.

TTTS also poses risks to the fetal brain on its own. Cerebral ventricular dilation, presumed to be due to white matter injury and intraventricular hemorrhage, has been documented on fetal brain imaging for TTTS before laser ablation. Postnatal factors such as low gestational age at birth also contribute to neurodevelopmental impairment. Disability is significantly higher for twins born prior to 32 weeks gestation. In this patient, the head US suggested an asymmetric lesion at one month of age, but a brain MRI was not performed until the infant presented several months later with infantile spasms.

The parents were counseled that their daughter's seizure disorder

was due to her brain anomalies, especially the bilateral perisylvian polymicrogyria, that were caused by vascular insufficiency during gestation secondary to TTTS and laser ablation. This explains the discordance between this patient and her unaffected identical twin sister, who does not have seizures or developmental delays. If her neurological and developmental problems were due to a genetic etiology that she shared with her MZ twin sister, we would expect both twins to be concordant for the phenotype. However, discordance is more common and even expected among surviving twins who were treated for twin-twin-transfusion syndrome with laser ablation. Dr. Bill Dobyns, an expert at the University of Washington, has seen 25 such discordant twin pairs with TTTS after laser ablation that have similar structural CNS anomalies, including schizencephalic brain clefts and polymicrogyria without a genetic etiology (personal communication).

In this scenario, when MZ twins are discordant for a CNS anomaly, and when the brain anomalies themselves are asymmetric, a genetic etiology is unlikely, and attention should shift to other causes, especially vascular insufficiency. The recurrence risk for a similarly affected (singleton) offspring born to these parents is low. When confronted with a CNS anomaly, these factors should raise suspicion for a vascular etiology:

“In this scenario, when MZ twins are discordant for a CNS anomaly, and when the brain anomalies themselves are asymmetric, a genetic etiology is unlikely, and attention should shift to other causes, especially vascular insufficiency.”

1. One of a set of Monoamniotic-Dichorionic MZ twins with shared vascular anastomoses
2. Twin gestation with a history of TTTS
3. History of in utero laser therapy
4. Premature delivery at 31-weeks gestation
5. Asymmetric brain anomaly

Practical Applications:

1. Consider a vascular etiology whenever MZ twins are discordant for CNS anomalies
2. Understand the limits of head US imaging.
 - a. Do not rely on the head US to identify all CNS anomalies, such as polymicrogyria.
 - b. Follow up an abnormal head US with brain MRI prior to discharge whenever possible.
3. Consider routine brain MRI on all survivors of TTTS regardless of neuro status or history of laser ablation therapy.
4. Monitor both twins when there is a history of TTTS, with or without laser ablation.
 - a. Anticipate an increased risk for adverse neurological and developmental outcomes such as seizures, spasticity,

and developmental delay

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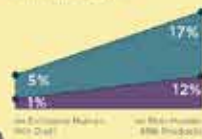


VERY LOW BIRTHWEIGHT BABIES are at risk for Necrotizing Enterocolitis (NEC), which:

- Damages intestinal tissue
- Causes distended abdomen, infection, low blood pressure and shock
- Threatens infants' lives

NEC occurrence increases when a preemie consumes non-human milk products.

When that happens:



Very low birthweight babies who get NEC

Very low birthweight babies requiring surgery to treat NEC

30% of very low birthweight babies requiring surgery will die from NEC



HOW TO HELP PREVENT NEC: EXCLUSIVE HUMAN MILK DIET

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- ✓ human donor milk
- ✓ human milk-based fortifier

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Feeding intolerance decreases



Chances of NEC are reduced by **77%**

HUMAN MILK = MEDICINE

NEC is more often a fatal diagnosis, and the symptoms that develop are a sign of a very serious illness. If you are a parent of a premature baby, you should know your baby's specific nutrition needs and discuss them with your doctor to help you achieve your goals.

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NCJH National Coalition for Infant Health

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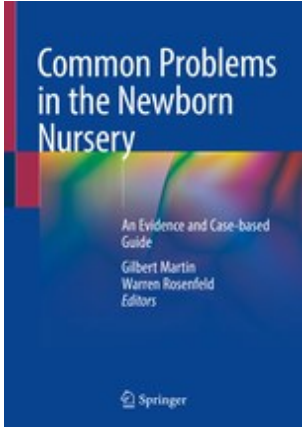
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For Premie Parents, COVID-19 Anxiety Feels Familiar

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The National Coalition for Infant Health is a collaborative of more than 180 professional, clinical, community health, and family support organizations focused on improving the lives of premature infants through age two and their families. NCfIH's mission is to promote lifelong clinical, health, education, and supportive services needed by premature infants and their families. NCfIH prioritizes safety of this vulnerable population and access to approved therapies.

A bottle of Purell sits on a table inside my front door. If I had guests, I would ask them to use it.

The only difference between my house and the countless others now washing, sanitizing, and social distancing to ward off COVID-19 is that I first did all this 16 years ago. That's when I brought

my premature daughter, Becky, home from the neonatal intensive care unit.

I find myself thinking back on those days a lot recently. Today parents flinch at the sound of the slightest cough, they eye even the mail carrier as a potential carrier of germs and repeatedly wash their hands until they sting with dryness. For some parents, this is all new. But I've been here before.

“Just earlier this year, a separate study demonstrated that the ENFit tubing connector 'significantly increases the opportunity for inaccurate dosing.’”

There's the paranoia, the sense of helplessness, the thirst for information that can help protect your family. And, of course, the obsessive drive to keep every surface, every blanket, every door-knob and light switch so clean that your child can't get sick.

I empathize with these parents, and in many ways, I am one of them yet again. My daughter is now a teenager, but she, like many other preemies, carries lingering reminders of her prematurity. Becky has asthma, making her high-risk for the coronavirus. I worry about her safety.



I also think of parents who are in the NICU today with a premature baby. How much more intense, more terrifying must their anxiety be? They face the uncertainty, the powerlessness of prematurity compounded with the reality of a pandemic that's quickly overtaking the country.

All parents, be they new or seasoned, parents of preemies or parents of term babies, could benefit from three things right now.

First, parents need clear and coherent information about what's happening and what they can do. Mixed messages heighten parents' insecurities and stir uncertainty about what's fact, what's hysteria, and what's political posturing. Straightforward advice about handwashing and social distancing has been helpful. Parents need more of where that came from.

Second, parents need health policies that allow families to get what they need. If your family has the misfortune to be struck with coronavirus, now is no time for red tape, insurance denials, or surprise medical bills. Meanwhile, families should be able to access routine care without interruption, making it easier for people with critical needs to have the dedicated attention of first responders, hospital staff, and health care providers.

Third, parents need good, old-fashioned kindness. I recall arriving at the NICU one morning, 16 years ago, to find my Becky napping in her hospital crib with a white crocheted blanket on her chest. A woman from a local church group, someone I'd never even met, had handmade and delivered blankets for the NICU babies. The sight of my tiny daughter, wrapped in the warmth of a stranger's kindness, brought me to tears.

None of us can control coronavirus. But we can offer a smile, a text, a prayer, a wave – an encouraging word. We can follow the guidance from the CDC. We can get through this together.

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1. <https://instituteforpatientaccess.org/for-preemie-parents-covid-19-anxiety-feels-familiar/>

Disclosures: The author does not have any relevant disclosures.

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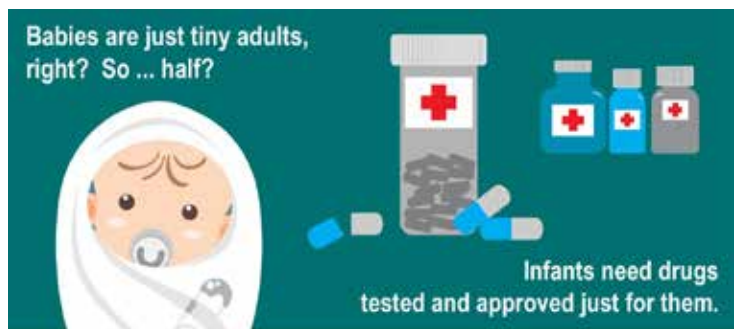
National Coalition for Infant Health Values (SANE)

Safety. Premature infants are born vulnerable. Products, treatments and related public policies should prioritize these fragile infants' safety.

Access. Budget-driven health care policies should not preclude premature infants' access to preventative or necessary therapies.

Nutrition. Proper nutrition and full access to health care keep premature infants healthy after discharge from the NICU.

Equality. Prematurity and related vulnerabilities disproportionately impact minority and economically disadvantaged families. Restrictions on care and treatment should not worsen inherent disparities.



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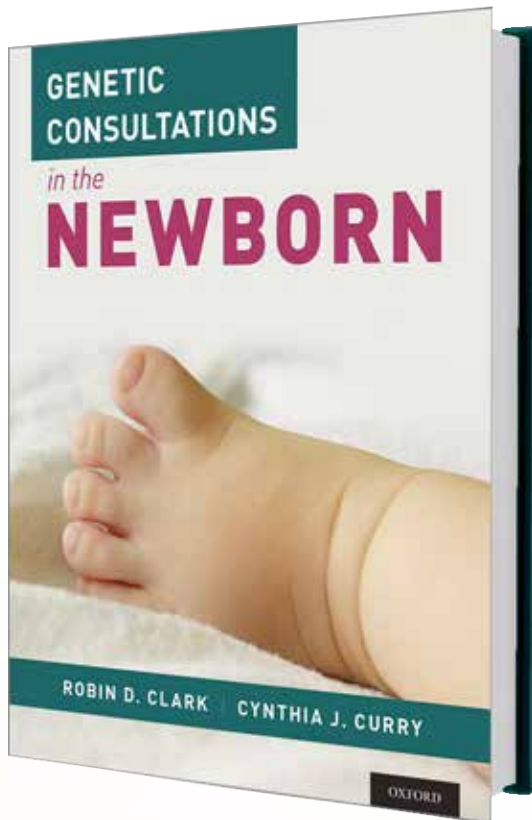
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OXFORD

RSV AWARENESS:

A National Poll of Parents & Health Care Providers

Respiratory syncytial virus, or RSV, is far from the common cold. It can lead to hospitalization, lifelong health complications or even death for infants and young children. **In fact, it is the leading cause of hospitalization in children younger than one.**

Yet a national poll of parents and specialty health care providers reveals a startling divide in attitudes toward the virus. While both groups acknowledge RSV as a significant concern, the two populations vary widely in their reported ability to meet RSV's threat head-on. Health care providers vigilantly

monitor for the virus, which they report seeing regularly in their practices. Parents, however, feel unequipped to protect their young children.

Meanwhile, specialty health care providers overwhelmingly report that health plan rules and insurance denials block vulnerable infants' access to preventive RSV treatment. Such barriers can put unprepared parents at a double disadvantage. The survey does suggest, however, that education can embolden parents to seek more information about RSV and take steps to protect their children.

KEY FINDINGS

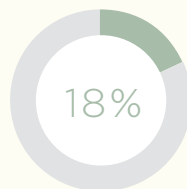
Preparedness

Parents of children age four and under report that understanding of RSV is lacking. That leaves them less than fully prepared to prevent their young children from catching the virus.

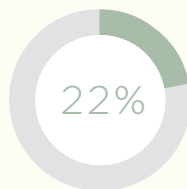
Specialty health care providers reiterated these concerns; 70% agreed that parents of their patients have a low awareness of RSV. Meanwhile, specialty health care providers themselves actively monitor for RSV. They reported that:

PARENTS

Only 18% said parents know “a lot” about RSV, reflecting an awareness level that’s roughly half that of the flu

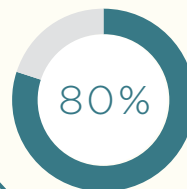


Only 22% of parents consider themselves “very well prepared” to prevent RSV.

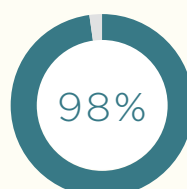


SPECIALTY HEALTH CARE PROVIDERS

They treat RSV as a priority, “often” or “always” evaluating their patients (80% doctors; 78% nurses)



During RSV season, they are especially vigilant about monitoring patients for symptoms or risk factors for RSV (98%).



Clinical Pearl: The Low Prevalence of Targeted Clinical Decision Support Imperils Nutritional Calculations

Gustave H. Falciglia, MD, MSCI, MSHQ, Daniel T. Robinson, MD, MSCI

In the first few weeks, preterm infants in the neonatal intensive care unit (NICU) accumulate a deficit in calories and protein contributing to infant malnutrition. (1) There are pathophysiologic reasons for this deficit, including early intolerance to fluid and macronutrients. (2) Variation in nutrition delivery across neonatal intensive care units (NICU), however, also exists and is associated with poor postnatal growth even after adjusting for co-morbid conditions. (3) This variation suggests that the structure of the healthcare system also contributes to these deficits. One source of structural variation includes the data available to clinicians to monitor nutrition delivery in infants.

There is a low prevalence of clinical decision support (CDS), or clinical support tools, to calculate nutrition intake for critically ill infants across the Children's Hospital Neonatal Consortium, a collection of 34 US and Canadian children's hospital NICUs. (4) Clinicians still rely on manual calculations to retrospectively determine the quantity of calories and macronutrients (e.g., protein) that an infant received in the past. Of the NICUs that had CDS to calculate these values, few were automated and most required additional work from the clinician. In some cases, clinicians transcribed data from the intake and output report of the electronic health record (EHR) into another section of the EHR.

“Of the NICUs that had CDS to calculate these values, few were automated and most required additional work from the clinician. In some cases, clinicians transcribed data from the intake and output report of the electronic health record (EHR) into another section of the EHR.”

Clinicians also lacked comprehensive CDS to prospectively determine the nutrition intake that an infant would be projected to receive in the future based on current orders. Though many NICUs had reports to summarize projected caloric and macronutrient intake from parenteral nutrition orders, there were few examples of CDS to calculate these values from enteral feeding orders. (4) This may be because feeding orders rely on logic that is not discretely captured by the EHR. For example, in situations where an infant is permitted to receive either breast milk or formula, clinicians would order both “30mL of breast milk every three hours” and “30mL of formula every three hours.” Logically, this is interpreted by clinicians as “OR” though may appear to the EHR as “AND.”

Though the calculations for caloric and macronutrient intake do

not require calculus, they are error-prone. In a study of pediatric burn patients, clinicians produced fewer errors when electronic methods were used to calculate the volume of fluid resuscitation compared to manual calculations. (5) Calculation by hand resulted in small and large errors in a half and a fifth of the calculations, respectively. In addition, such determinations suffer from a lack of standardization in clinical practice regarding approaches to using variables critical to these calculations. In the survey of 34 NICUs, dosing weight was used to calculate fluid intake in 40% of NICUs versus daily weight in the other 60% of NICUs.(4)

Another risk of relying on manual calculations in a busy NICU is that the calculations may not be performed, leaving clinicians to focus on data that are readily available, above all fluid. It is not surprising that there are more CDS to retrospectively calculate fluid intake because these calculations are simpler than calculating caloric or macronutrient intake. (4) Therefore, clinicians may heuristically use fluid intake to approximate nutrition intake. This strategy may work well for infants exclusively receiving enteral nutrition; however, it may result in inadequate nutrition delivery in two scenarios. During the transition phase of nutrition, when enteral feeds are increased, and parenteral nutrition is decreased, the relationship between the intake of fluid and nutrition is not constant. Advancing enteral feeds while keeping total fluids constant may result in inconsistent nutrition delivery. A decline in protein intake has been demonstrated in infants during this transition phase. (6) Furthermore, when clinicians employ fluid restriction in critically ill infants without immediate feedback of implications on nutrition, they may be susceptible to availability bias. (7) The risk-benefit ratio of fluid restriction may appear more favorable if there is no readily available data on nutrition. Therefore, a fluid restriction may inadvertently result in nutrient restriction.

“Furthermore, when clinicians employ fluid restriction in critically ill infants without immediate feedback of implications on nutrition, they may be susceptible to availability bias. (7) The risk-benefit ratio of fluid restriction may appear more favorable if there is no readily available data on nutrition. Therefore, a fluid restriction may inadvertently result in nutrient restriction.”

Whether the absence of nutrition data contributes to the decline in protein delivery during the transition phase or clinicians in the NICU are susceptible to availability bias with fluid restriction

remains to be proven. Regardless, clinicians' time would be better spent assessing how various orders balance adequate nutrition while minimizing central line days or addressing a fluid-sensitive cardiopulmonary status. Comprehensive, automated, and real-time CDS to prospectively summarize projected nutrition intake would support clinicians in managing this balance by providing an opportunity to revise orders that would otherwise deliver inadequate nutrition.

The immediate and tangible benefits of increased and enhanced CDS for nutrition intake may be realized through its support of quality improvement initiatives directed at growth and nutrition in the NICU. Initiatives may be directed at improving the nutrient content of orders and ensuring that orders are executed effectively. The benefits of the EHR should include assisting the clinician with the management of patient data; however, current CDS that require recopying data are an example of the clinician working for the EHR rather than the EHR working for the clinician. Delivering adequate nutrition and optimizing the growth of critically ill infants is a goal for every clinician in the NICU. Therefore, the data should exist to support these goals. We should measure what we value rather than value what we measure.

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 1250 word limit not including references or title page.
 May begin with a brief case summary or example.
 Summarize the pearl for emphasis.
 No more than 7 references.
 Please send your submissions to:

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NATIONAL PERINATAL ASSOCIATION

Update: **CORONAVIRUS COVID-19**

According to data published in The Lancet

Pregnant women with COVID-19 infection had fewer complications and adverse outcomes than would be anticipated for those with SARS-CoV-1 infection.

www.nationalperinatal.org

Which Infants are More Vulnerable to Respiratory Syncytial Virus?

RSV is a respiratory virus with cold-like symptoms that causes 90,000 hospitalizations and 4,500 deaths per year in children 5 and younger. It's 10 times more deadly than the flu. For premature babies with fragile immune systems and underdeveloped lungs, RSV proves especially dangerous.

But risk factors associated with RSV don't touch all infants equally.*

*Source: Respirator Syncytial Virus and African Americans

Caucasian Babies	Risk Factor	African American Babies
11.6%	Prematurity	18.3%
58.1%	Breastfeeding	50.2%
7.3%	Low Birth Weight	11.8%
60.1%	Siblings	71.6%
1%	Crowded Living Conditions	3%



AFRICAN AMERICAN BABIES bear the brunt of RSV. Yet the American Academy of Pediatrics' restrictive new guidelines limit their access to RSV preventative treatment, increasing these babies' risk.



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Will your **PRETERM INFANT** need
EARLY INTERVENTION services?

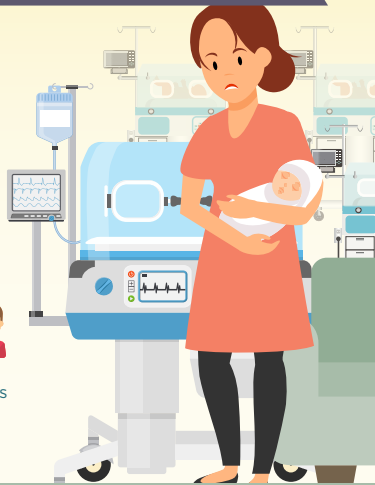
Preterm infants are:

2x more likely to have developmental delays

5x more likely to have learning challenges



1 in 3 preterm infants will require support services at school



Early intervention can help preterm infants:



Enhance language and communication skills



Build more effective learning techniques



Process social and emotional situations



Address physical challenges



Prevent mild difficulties from developing into major problems

Early diagnosis could qualify babies for their state's **early intervention services**...

...but many parents are **unaware**.



NICU staff, nurses, pediatricians and social workers should talk with NICU families about the challenges their baby may face.

Awareness, referral & timely enrollment in early intervention programs can help **infants thrive** and grow.



NCJFH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

Visit CDC.gov to find contact information for your state's early intervention program.

Survey Says: **RSV**

RESPIRATORY SYNCYTIAL VIRUS, or RSV, is a dangerous virus that can lead to:

- Hospitalization
- Lifelong health complications
- Death

for infants and young children.



ACCORDING TO A NATIONAL SURVEY, *Specialty Health Care Providers say:*

80% They treat RSV as a priority, "often" or "always" evaluating their patients

77% RSV is the "most serious and dangerous" illness for children under four

77% Barriers to access and denials from insurance companies **limit** patients' ability to get preventive RSV treatment



But Parents are Unprepared.

18% Only 18% know "a lot" about RSV

22% Only 22% consider themselves "very well" prepared to prevent RSV



RSV EDUCATION & AWARENESS CAN HELP

After parents learned more about RSV, they were:

- 65%** "More concerned" about their child contracting the disease
- 67%** Likely to ask their doctor about RSV



NCJFH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two

Learn More about RSV at www.infanthealth.org/RSV

Medical Legal Forum: Caring for Adults in a Pandemic or Other Emergency Conditions

Robert Turbow, MD, JD and Jonathan Fanaroff MD, JD

Introduction/Background: Most pediatricians have not cared for an adult patient in years, and for the authors of this article, it's been decades. Fortunately, it currently appears that most children with COVID-19 have a relatively mild course. In areas with a high incidence of severe infections (such as New York City), some pediatricians have been asked to provide medical care for adult patients. If asked to do so, should a pediatrician agree to manage the medical care of a geriatric patient with multiple comorbidities? What specific preparation should one consider prior to providing medical care in such a clinical situation?

“ If asked to do so, should a pediatrician agree to manage the medical care of a geriatric patient with multiple comorbidities? What specific preparation should one consider prior to providing medical care in such a clinical situation?”

Precedent:

Many physicians in the U.S. military are asked to serve as general medical officers regardless of their respective specialty or subspecialty. A high level of care is generally provided because all of the physicians have received adequate training, and infrastructure exists to support the physicians. Additionally, many U.S. physicians have performed international aid work that involved caring for patients that were outside of their routine, daily practice in the U.S. In both of these situations (military and international aid work), physicians may find themselves providing medical care outside of their usual patient population

General Principles:

As in all potential liability situations, the best defense is to provide good care

Since liability laws are generally State-specific, pediatricians are encouraged to review recent statements by their respective State's Governor and Attorney General. Many States, such as New York, are changing liability standards (e.g., requiring gross negligence to sustain a claim of malpractice).

Good Samaritan Laws generally do NOT apply in situations like

the current pandemic. Good Samaritan Laws are intended to provide protection for those providing emergency care. If a pediatrician agrees to care for an adult, there may be substantial liability protection because of rapid changes in State law. However, the pediatrician will likely not be able to rely upon Good Samaritan Laws for liability protection.

“ If a pediatrician agrees to care for an adult, there may be substantial liability protection because of rapid changes in State law. However, the pediatrician will likely not be able to rely upon Good Samaritan Laws for liability protection.”

Considerations/Preparations:

Pediatricians may want to review Harrison's (or other) internal medicine textbook and ensure access to reliable online sources. One can ask their adult colleagues for advice on the best online content.

As is generally the case, the best clinical practice requires the support and partnership of strong nurses and other practitioners that are experienced in that clinical setting.

If at all possible, insist on immediate telemedicine support from appropriate medical staff (adult ICU, ED, endocrinologist, etc...)

Take Home Points:

The best defense in any clinical situation is to provide competent care.

Contact your medical malpractice carrier (insurer) to ensure coverage prior to agreeing to treat adult patients

During medical school, all pediatricians completed the required background science and core clinical rotations (internal medicine, surgery, OB/Gyn, psychiatry, and pediatrics). Pediatricians that agree to treat adult patients are doing so for the good of the patient and assisting colleagues that care for adults.

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The authors have no conflicts of interests to disclose.

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Disclaimer:

This column does not give specific legal advice, but rather is intended to provide general information on medicolegal issues. As always, it is important to recognize that laws vary state-to-state and legal decisions are dependent on the particular facts at hand. It is important to consult a qualified attorney for legal issues affecting your practice.

Corresponding Author:



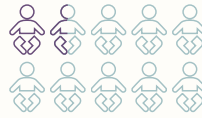
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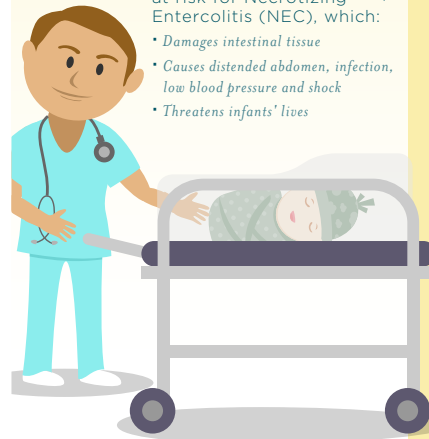
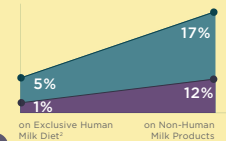


MICRO PREMIES are at risk for Necrotizing Enterocolitis (NEC), which:

- Damages intestinal tissue
- Causes distended abdomen, infection, low blood pressure and shock
- Threatens infants' lives

NEC occurrence increases when a preemie consumes non-human milk products.

When that happens:



30% of micro preemies needing surgery will die from NEC†

HOW TO HELP PREVENT NEC: EXCLUSIVE HUMAN MILK DIET

What is an Exclusive Human Milk Diet?



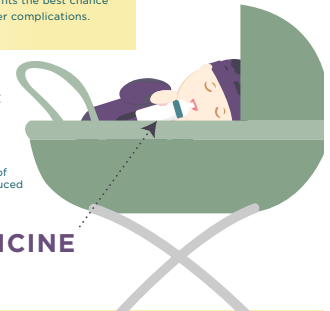
- ✓ mother's milk
- ✓ human donor milk
- ✓ human milk-based fortifier

Why Is An Exclusive Human Milk Diet Important?

An Exclusive Human Milk Diet gives vulnerable infants the best chance to be healthy and reduces the risk of NEC and other complications.

When a micro preemie can access an EXCLUSIVE HUMAN MILK DIET:

- Mortality is reduced by **75%***
- Feeding intolerance decreases*
- Chances of NEC are reduced by **77%**‡



HUMAN MILK = MEDICINE

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From The National Perinatal Information Center: Caring for Patients and Care Teams during COVID-19

Elizabeth Rochin, PhD, RN, NE-BC

The National Perinatal Information Center (NPIC) is driven by data, collaboration and research to strengthen, connect and empower our shared purpose of improving patient care.

For over 30 years, NPIC has worked with hospitals, public and private entities, patient safety organizations, insurers and researchers to collect and interpret the data that drives better outcomes for mothers and newborns.



National Perinatal Information Center

On January 23, 2020, the first reported laboratory-confirmed case of COVID-19 was described in Illinois (Ghinai et al., 2020). From that moment, life in the United States changed virtually overnight. By the end of March 2020, schools were closed across the nation, stay-at-home orders covered most of the country, and social media became the lifeline for clinicians and providers alike.

On the social media platform Twitter, the hashtag #MedTwitter has been utilized by healthcare teams across the nation in their quest for COVID-19 information. An overview of the Twitter analytics for #MedTwitter reveals the following during the time period March 22 – April 8, 2020 (Symplur Health Analytics, 2020):

- 376,753,000 Impressions
- 107,210 Tweets
- 71,785 Participants
- 272 Average Tweets per hour

In addition to #MedTwitter utilization, there has also been the utilization of #COVIDNeo to detail conversations surrounding COVID-19 and neonatology care. During the following time-frame of March 10 – April 9, 2020, the following analytics are provided (Symplur Health Analytics, 2020):

- 1,550,000 impressions
- 1,135 Tweets
- 578 Participants

- 2 Average Tweets per hour

Many of these Tweets have sought to connect clinicians and providers to one another as they care for patients on the front line of COVID-19. Most recently, these conversations have included the care of pregnant women with COVID-19, women who have COVID-19 and admitted for delivery, and women who are positive for COVID-19 and have a baby admitted to the NICU.

What are some of the overarching themes of these conversations?

1. Access to just-in-time and real-time information related to pregnancy, newborn, care of patients in the ICU (adult and neonatal)
2. Moral distress of the care teams when separating mother and newborn

As noted above for #MedTwitter and #COVIDNeo, providers and clinicians alike have detailed “Pre COVID-19” and “Post COVID-19.” And to what are these clinicians referring? They are referring to the thousands of clinical pearls that have been available through Twitter and Instagram platforms during this pandemic. There are prolific posts that include lamenting the return to “normal,” when publications no longer offer so many open access publications and papers that are requisite for treating a novel coronavirus. Data is free-flowing, and even the smallest inklings of data have meaning, and outcomes are described in virtually real-time. This analysis is an area that data scientists and those who utilize larger databases that take time to mobilize will need to think through carefully. The need for real-time data and outcome comparison in this pandemic environment has become a requisite approach, one that can be augmented by larger data lakes, platforms, and databases to further detail disparities and outcomes.

Dr. Yale Tung Chen (@yaletung) from Madrid, Spain, became a #MedTwitter celebrity as he journaled his chronicles with COVID-19, with daily signs, symptoms, and point of care ultrasound (POCUS) findings (he used his iPhone and personal portable ultrasound equipment) that helped to illustrate real-time the impact of the virus on the human body. Various clinicians have shared CT scans, MRI's, blood gases, and the like, and Twitter has become a “living laboratory” for COVID-19 response and treatment.

AAP, SMFM, and ACOG began to rapidly develop guidelines and standards that could provide obstetric and neonatal teams with the information that they could use, knowing full well that information could change in a day, an hour, or a minute. Cynthia Gyamfi, MD, Maternal-Fetal Medicine, and colleagues at

NEONATOLOGY TODAY is interested in publishing manuscripts from Neonatologists, Fellows, NNPs and those involved in caring for neonates on case studies, research results, hospital news, meeting announcements, and other pertinent topics.

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Columbia and New York-Presbyterian published a case report of 43 women in New York City, which revealed that many women are asymptomatic at admission, and all neonates were negative for infection (Gyamfi et al., 2020).

However, the care of women and newborns has taken and will take a toll on providers and clinicians throughout perinatal care, including Labor and Delivery, Postpartum, and Neonatal Intensive Care. At press time of this publication, separation of mother and baby is recommended for women who are COVID-19 positive and delivering a newborn (American Academy of Pediatrics, Centers for Disease Control). While the development of these recommendations has been laborious, it also presents a conundrum for care teams, who have worked tirelessly to assure that mother and newborn can be connected immediately after birth. Separating mother and newborn is antithetical to care teams. Being a part of that separation can not only have an impact on the family cared for, but those also caring for the family. There have been those who are vocal opponents of this strategy but also vocal supporters, which creates additional stressors for care teams in applying the latest recommendations and emerging evidence surrounding COVID-19, pregnancy, childbirth, and neonatal care.

It is incumbent upon hospitals, professional associations, and others connected to healthcare that the mental health of providers and frontline staff is supported and maximized. A few items to note as you consider your facilities and resources available to your teams:

- How is your unit/organization assessing the needs of your frontline teams during COVID-19? How often do Executive level team members round on the frontline? Daily? Weekly? And how does that compare to “pre-COVID-19” rounding schedules?
- Is your organization assessing and measuring caregiver moral distress symptoms in your units? Are chaplains/support personnel available to your providers and clinicians?
- How often are your units performing debriefs at the end of shifts? Where are these occurring? Lounges? Units? And who is running these debriefs?
- Are mental health resources available to the families of providers and clinicians? Both providers and those at home can have very intense needs from a safety, stress, and mental health perspective
- Are your Employee Assistance Programs (EAP) staffed and able to handle a potentially higher volume of traffic? Have these resources been tested and affirmed for your teams?

Of course, caring for our vulnerable women and newborns is a priority for our healthcare system. The care and commitment to our frontline healthcare workers must be a priority as well. On behalf of NPIC, we are grateful to those caring for women, newborns, and their families and grateful to the families of frontline caregivers. You are our heroes.

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401-274-0650
inquiry@npic.org



Did you know that
PMAD
related suicides
account for
20%
of Postpartum
Maternal Deaths?

Join  NPA

nationalperinatal.org/mental_health

**Support the
Open Letter**



**Breastfeeding
Innovations
Team**

OPIOIDS and NAS

When reporting on mothers, babies, and substance use

LANGUAGE MATTERS



I am not an addict.

I was exposed to substances in utero. I am not addicted. Addiction is a set of behaviors associated with having a Substance Use Disorder (SUD).



I was exposed to opioids.

While I was in the womb my mother and I shared a blood supply. I was exposed to the medications and substances she used. I may have become physiologically dependent on some of those substances.



NAS is a temporary and treatable condition.

There are evidence-based pharmacological and non-pharmacological treatments for Neonatal Abstinence Syndrome.



My mother may have a SUD.

She might be receiving Medication-Assisted Treatment (MAT). My NAS may be a side effect of her appropriate medical care. It is not evidence of abuse or mistreatment.

My potential is limitless.

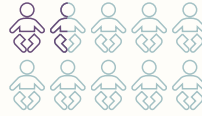
I am so much more than my NAS diagnosis. My drug exposure will not determine my long-term outcomes. But how you treat me will. When you invest in my family's health and wellbeing by supporting Medicaid and Early Childhood Education you can expect that I will do as well as any of my peers!



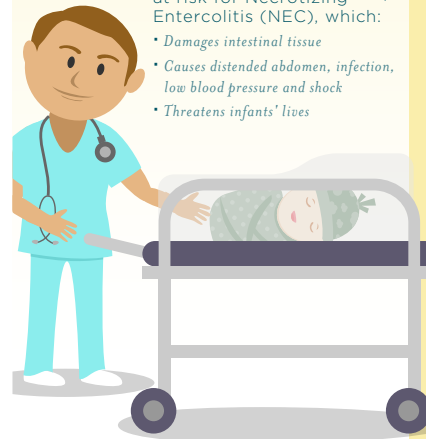
Learn more about Neonatal Abstinence Syndrome at www.nationalperinatal.org



Why PREMATURE INFANTS Need Access to an EXCLUSIVE HUMAN MILK DIET



In the United States, more than **1 IN 10 BABIES ARE BORN PREMATURE.** Micro preemies are born severely premature, weighing less than 1,250 grams.

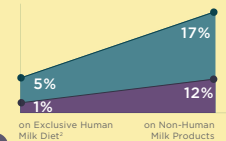


MICRO PREMIES are at risk for Necrotizing Enterocolitis (NEC), which:

- Damages intestinal tissue
- Causes distended abdomen, infection, low blood pressure and shock
- Threatens infants' lives

NEC occurrence increases when a preemie consumes non-human milk products.

When that happens:



30% of micro preemies needing surgery will die from NEC†

HOW TO HELP PREVENT NEC: EXCLUSIVE HUMAN MILK DIET

What is an Exclusive Human Milk Diet?



NO cow's milk



NO sheep's milk



NO goat's milk



NO formula



- ✓ mother's milk
- ✓ human donor milk
- ✓ human milk-based fortifier

Why Is An Exclusive Human Milk Diet Important?

An Exclusive Human Milk Diet gives vulnerable infants the best chance to be healthy and reduces the risk of NEC and other complications.

When a micro preemie can access an EXCLUSIVE HUMAN MILK DIET:



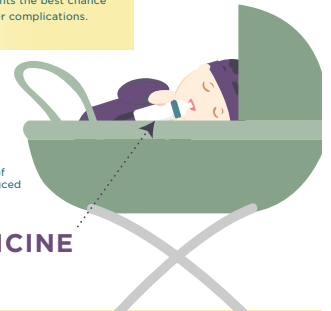
Mortality is reduced by **75%***



Feeding intolerance decreases*



Chances of NEC are reduced by **77%***



HUMAN MILK = MEDICINE

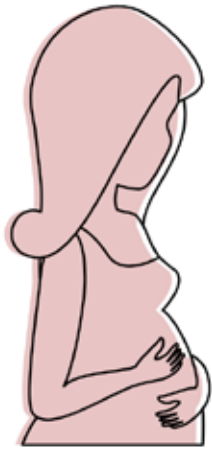
LEARN MORE >

NCFIH National Coalition for Infant Health
Promoting the Best for Preterm Infants Through Age 100

* Hair AB, et al. "Beyond Necrotizing Enterocolitis Prevention: Improving Outcomes with an Exclusive Human Milk-Based Diet." *Breastfeeding Medicine* 2015; 10:108-116. DOI: 10.1089/bfm.2015.0124
 † Abrams SA, et al. "Greater Mortality and Morbidity in Extremely Preterm Infants Fed a Diet Containing Cow Milk Protein Products." *Breastfeeding Medicine* July/August 2014; 9(6): 281-285
 * Hall SK, et al. "Mortality and management of surgical necrotizing enterocolitis in very low birth weight neonates: a prospective cohort study." *J Am Coll Surg*. 2014 Jun;218(6):1148-55.
 † Assad M, Elliott MJ and Abraham JK. "Decreased cost and improved feeding tolerance in VLBW infants fed an exclusive human milk diet." *Journal of Perinatology* advance online publication 12 November 2015; DOI: 10.1098/jp.2015.168

NATIONAL PERINATAL ASSOCIATION

Update: **CORONAVIRUS**
COVID-19



According to data published in The Lancet

Pregnancy and the risk of
VERTICAL TRANSMISSION

LOW



www.nationalperinatal.org

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DID YOU KNOW?

Postpartum depression affects

10%

of fathers

Join  **NPA**

www.nationalperinatal.org/mental_health

Time is precious, just like your patients.



SAVE YOUR LIFE:

Get Care for These POST-BIRTH Warning Signs

Most women who give birth recover without problems. But any woman can have complications after the birth of a baby. Learning to recognize these POST-BIRTH warning signs and knowing what to do can save your life.



<p>Call 911 if you have:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Pain in chest <input type="checkbox"/> Obstructed breathing or shortness of breath <input type="checkbox"/> Seizures <input type="checkbox"/> Thoughts of hurting yourself or your baby
<p>Call your healthcare provider if you have:</p> <p>(If you can't reach your healthcare provider, call 911 or go to an emergency room)</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Bleeding, soaking through one pad/hour, or blood clots, the size of an egg or bigger <input type="checkbox"/> Incision that is not healing <input type="checkbox"/> Red or swollen leg, that is painful or warm to touch <input type="checkbox"/> Temperature of 100.4°F or higher <input type="checkbox"/> Headache that does not get better, even after taking medicine, or bad headache with vision changes



Tell 911 or your healthcare provider:

"I had a baby on _____ and
(Date)
 I am having _____."
(Specific warning signs)

These post-birth warning signs can become life-threatening if you don't receive medical care right away because:

- Pain in chest, obstructed breathing or shortness of breath (trouble catching your breath) may mean you have a blood clot in your lung or a heart problem
- Seizures may mean you have a condition called eclampsia
- Thoughts or feelings of wanting to hurt yourself or your baby may mean you have postpartum depression
- Bleeding (heavy), soaking more than one pad in an hour or passing an egg-sized clot or bigger may mean you have an obstetric hemorrhage
- Incision that is not healing, increased redness or any pus from episiotomy or C-section site may mean you have an infection
- Redness, swelling, warmth, or pain in the calf area of your leg may mean you have a blood clot
- Temperature of 100.4°F or higher, bad smelling vaginal blood or discharge may mean you have an infection
- Headache (very painful), vision changes, or pain in the upper right area of your belly may mean you have high blood pressure or post birth preeclampsia

GET HELP My Healthcare Provider/Clinic: _____ Phone Number: _____
 Hospital Closest To Me: _____



This program is supported by funding from Merck, through Merck for Mothers, the company's 10-year, \$500 million initiative to help create a world where no woman dies giving life. Merck for Mothers is known as MSD for Mothers outside the United States and Canada.

16003
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20%

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Maternal Deaths?

Join  **NPA**

nationalperinatal.org/mental_health

Why Pregnant and Nursing Women Need Clear Guidance on THE NET BENEFITS OF EATING FISH

2 to 3 servings per
week of properly cooked
fish can provide health
benefits for pregnant
women and babies alike:



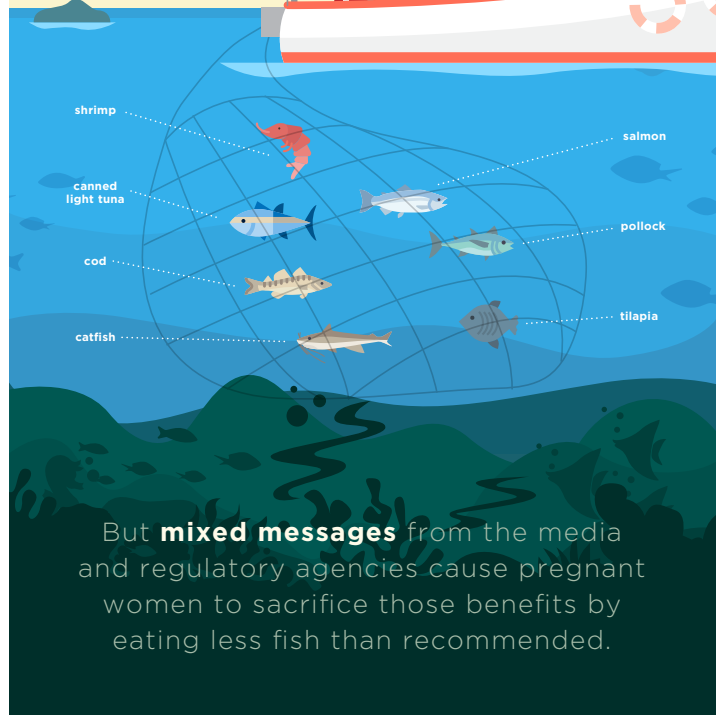
Iron



Omega 3 fatty acids



Earlier Milestones
for Babies

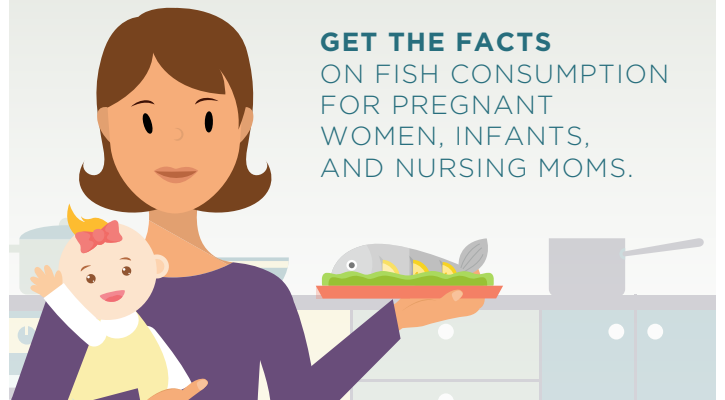


But **mixed messages** from the media
and regulatory agencies cause pregnant
women to sacrifice those benefits by
eating less fish than recommended.

**Support the
Open Letter**



**Breastfeeding
Innovations
Team**



GET THE FACTS
ON FISH CONSUMPTION
FOR PREGNANT
WOMEN, INFANTS,
AND NURSING MOMS.

NCfIH National Coalition
for Infant Health

Protecting Access for Premature Infants through Age Two

LEARN MORE ▶

Letters to the Editor

From: ta merritt [allenmerritt.md@gmail.com]
Sent: Monday, April 13, 2020 19:06
To: Goldstein, Mitchell
Subject: [EXTERNAL] Letter to the Editor for NT

Dear Dr. Goldstein,

A recent report from New York City found that when women were tested for COVID-19 when they were admitted to Labor and Delivery at Columbia University hospital found that 13.9% were COVID 19 positive and that 89% were without specific symptoms, while 1.9% had symptoms. Although the specific COVID-19 testing procedure is not described it was obtained using nasopharyngeal swabs-presumably using PCR amplification techniques. Given the important implications for the pregnant or post-partum mother, health care providers, and the newborn with maternal infant separation after birth when positive, should ALL women presenting to Labor and Delivery units be tested for COVID-19 in all regions of the US and especially in COVID-19 "hotspots" identified presently?

TA Merritt, M.D., MHA, FAAP

Dear Dr. Merritt,

This question is one that is being asked increasingly all over the world. There are vast implications in taking care of COVID-19 positive patients. Notwithstanding providing the appropriate level of care, there are implications for the protection of the health care personnel in the various functions involved in delivery of a baby. (1-3)

Most are unaware that the labor process itself can be a source of aerosolization of viral particles. Even asymptomatic individuals can cause the spread of viral particles by deep breathing and panting respirations that are part of the labor and delivery process. Moreover, the fever and headache experienced by a woman in labor can mimic certain symptoms of COVID-19 infection. (4-5)

Following delivery, appropriate cohorting is equally important. Although most data suggest that there is not significant vertical transmission, horizontal transmission of the virus from mother to baby or from mother or baby to a health care worker is a defined risk. CDC recommendations are clear about social distancing requirements for mothers and babies for pregnancies were there is

a known or suspected COVID-19 infection. However, many hospital rooms are not set up for placing the mother and baby six feet apart. A mother who desires to breastfeed creates additional concerns. Data suggest that COVID-19 is not transferred through mother's milk. The CDC recommends careful technique or the presence of an appropriately protected individual who can help mother hand express or pump her milk for the baby. (6-7)

Even the discharge can be challenging. Considerations of the mother infant dyad can complicate the usual discharge instructions. In this issue of Neonatology Today, the A/PA column discusses the issues involved in a situation where the mother had been found to have COVID-19. Ultimately, the baby had to be discharged to a relative who had not been involved with the mother during her pregnancy.

With the increasing availability of point of care testing and real time or near real time results, it would seem justified to screen on a large scale. especially in light of new data that suggests that certain antiviral agents may greatly mitigate the course of the disease. Consider the implications for reduced horizontal spread especially as it pertains to the newborn and the reduced risk for potential separation from the mother if she should go on to develop severe complications from the disease. (8-9)

Moreover timely diagnosis may be important in avoidance of late complications of the disease if the mother already has significant viremia. "Late" therapy with IL-6 inhibitors and other modulators of cytokine activity can help prevent the occurrence of the cytokine storm responsible for the development of ARDS and multi organ dysfunction or failure that has been responsible for the more severe morbidities and mortality. (10-11)

Since most mothers are under age 40, the risk to them and their babies may be low, but there is an additional concern. As the birth of a new baby is the cause for excitement and celebration, grandparents and other elderly relatives welcoming the new baby home may inadvertently place themselves at risk. (12-13)

Although strong measures have reduced the risk and there is evidence that the "curve is starting to flatten" in multiple locations, we cannot let our guard down. As Aldous Huxley paraphrased in his spoken introduction to his novel Brave New World, "the price of liberty, and even of common humanity, is eternal vigilance." (14)

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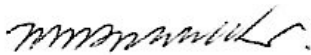
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Sincerely,



Mitchell Goldstein, MD

Editor in Chief

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c/o Mitchell Goldstein, MD

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NT



Mitchell Goldstein, MD
Professor of Pediatrics
Loma Linda University School of Medicine
Division of Neonatology
Department of Pediatrics
mgoldstein@llu.edu

Neonatology Today welcomes your editorial commentary on previously published manuscripts, news items, and other academic material relevant to the fields of Neonatology and Perinatology.

Please address your response in the form of a letter. For further formatting questions and submissions, please contact Mitchell Goldstein, MD at LomaLindaPublishingCompany@gmail.com.

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Erratum (Neonatology Today March, 2020)

Neonatology Today has identified erratum affecting the March, 2020 edition. Nivedita Rajakumar should have been listed as an author instead of Subha Ramanathan in the March, 2020 Genetics Corner.

Corrections can be sent directly to LomaLindaPublishingCompany@gmail.com. The most recent edition of *Neonatology Today* including any previously identified erratum may be downloaded from www.neonatologytoday.net.

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NEONATOLOGY TODAY is interested in publishing manuscripts from Neonatologists, Fellows, NNPs and those involved in caring for neonates on case studies, research results, hospital news, meeting announcements, and other pertinent topics.

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OPIOIDS and NAS

When reporting on mothers, babies, and substance use

LANGUAGE MATTERS



I am not an addict.

I was exposed to substances in utero. I am not addicted. Addiction is a set of behaviors associated with having a Substance Use Disorder (SUD).



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Learn more about Neonatal Abstinence Syndrome at www.nationalperinatal.org



NATIONAL PERINATAL ASSOCIATION

CORONAVIRUS

COVID-19

RELIABLE RESOURCES:

- **CDC:** 2019 Novel Coronavirus
- **The Lancet:** COVID-19 and pregnancy
- **MotherToBaby:** Coronaviruses
- **WHO:** Emerging respiratory viruses

STAY INFORMED.



www.nationalperinatal.org

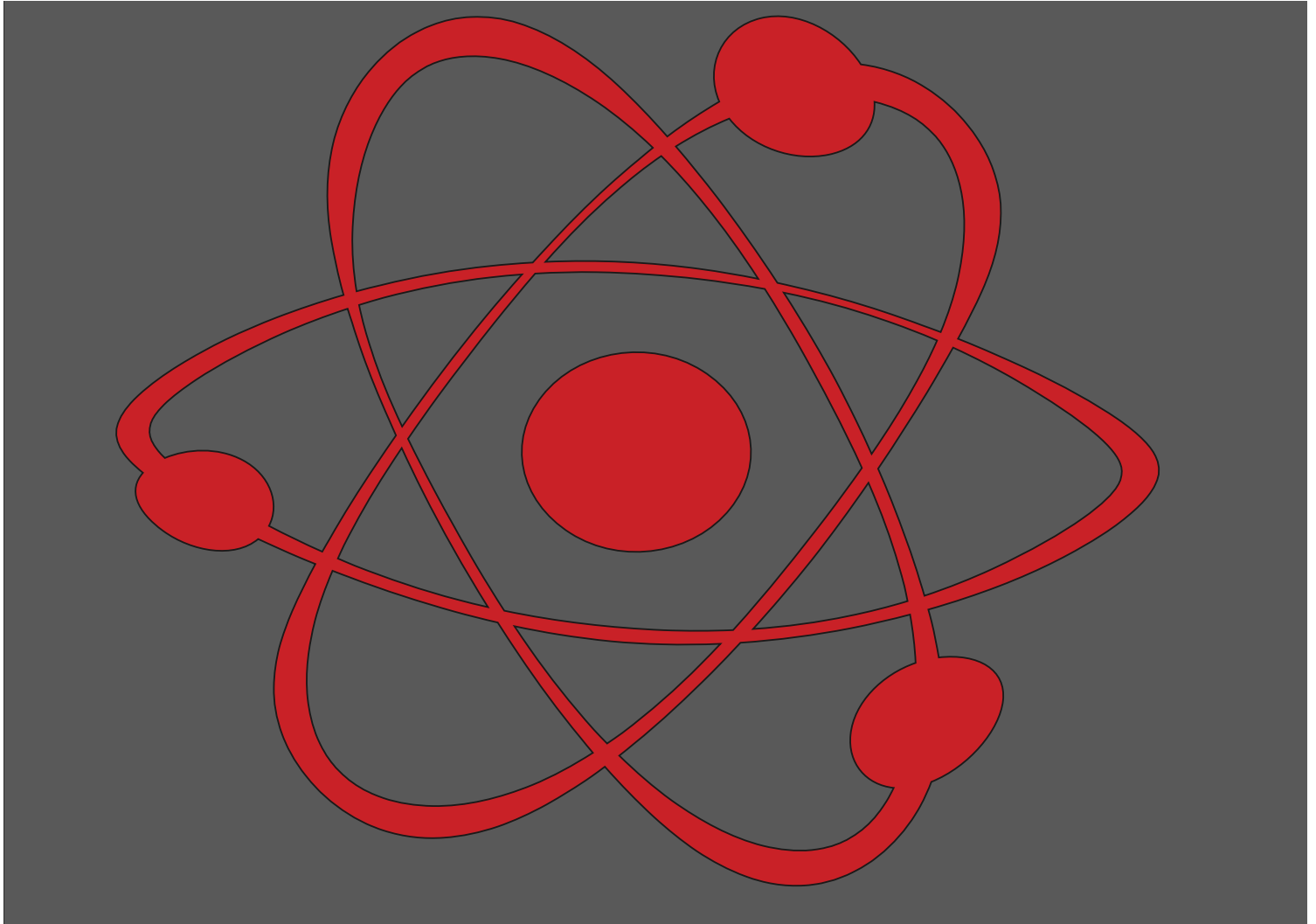
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Will your **PRETERM INFANT** need **EARLY INTERVENTION** services?

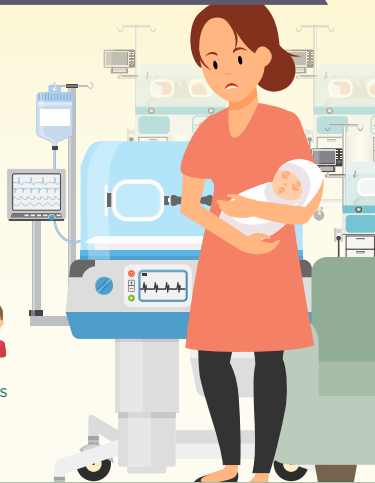
Preterm infants are:

2x more likely to have developmental delays

5x more likely to have learning challenges



1 in 3 preterm infants will require support services at school



Early intervention can help preterm infants:



Enhance language and communication skills



Build more effective learning techniques



Process social and emotional situations



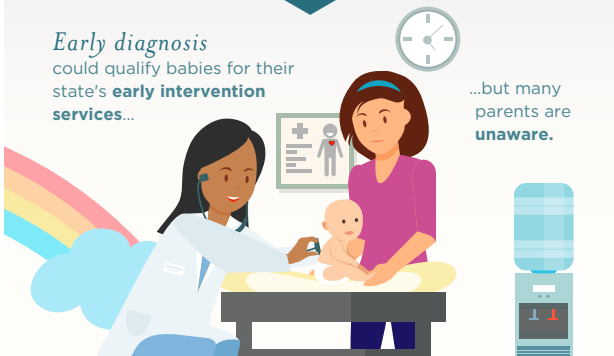
Address physical challenges



Prevent mild difficulties from developing into major problems

Early diagnosis could qualify babies for their state's **early intervention services**...

...but many parents are **unaware**.



NICU staff, nurses, pediatricians and social workers should talk with NICU families about the challenges their baby may face.

Awareness, referral & timely enrollment in early intervention programs can help **infants thrive** and grow.



NCFIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

Visit CDC.gov to find contact information for your state's early intervention program.

Las nuevas mamás necesitan acceso a la detección y tratamiento para **LA DEPRESIÓN POSTPARTO**



1 DE CADA 7 MADRES AFRONTA LA DEPRESIÓN POSTPARTO, *experimentando*



Sin embargo, sólo el **15%** recibe tratamiento¹

LA DEPRESIÓN POSTPARTO **NO TRATADA PUEDE AFECTAR:**

El sueño, la alimentación y el comportamiento del bebé a medida que crece²



La salud de la madre

La capacidad para cuidar de un bebé y sus hermanos

PARA AYUDAR A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSTPARTO



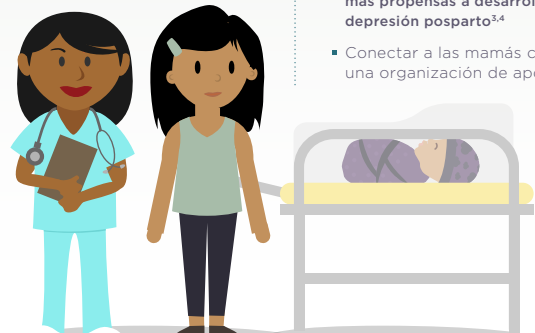
LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnóstico
- Proteger el acceso al tratamiento



LOS HOSPITALES PUEDEN:

- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión postparto**^{3,4}
- Conectar a las mamás con una organización de apoyo



NCFIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

¹ American Psychological Association. Accessed on: <http://www.apa.org/women/resources/reports/postpartum-depression.aspx>

² National Institute of Mental Health. Accessed on: <http://www.nimh.nih.gov/health/publications/postpartum-depression-facts/index.shtml>

³ Journal of Perinatology (2015) 35, 529–536. doi:10.1097/JP.0000000000000147

⁴ Prevalence and risk factors for postpartum depression among women with problem and low-birth-weight infants: a systematic review. Vigod SN, Villages L, Dennis CL. *PLoS ONE* 2010 Apr; 11(7):540-50.

Upcoming Medical Meetings

Meetings that have been delayed or cancelled.

The 37th Annual Advances in Therapeutics and Technologies Conference

March 24-28, 2020
Snowbird, UT

<http://paclac.org/advances-in-care-conference/>

Perinatal Care and the 4th Trimester: Redefining Prenatal, Postpartum, and Neonatal Care for a New Generation

March 25 - 27, 2020
Aurora, Colorado

<http://www.nationalperinatal.org/2020conference>

4th Future of Neonatal Care Conference

AKA the #99nicuMeetup!
15-19 April 2020
Vienna, Austria

<https://99nicu.org/meetup/>

1st Annual Innovations in Maternal, Fetal, and Neonatal Medicine

March 27 - 29, 2020

Johns Hopkins All Children's Hospital

St. Petersburg, Florida

<http://www.cvent.com/events/the-annual-innovations-in-maternal-fetal-and-neonatal-medicine-the-continuum-of-care-conference/event-summary-772b578c0e5348d3bba8a80915ffcac8.aspx>

Pediatric Academic Societies 2020 Meeting

April 29 – May 6, 2020
Philadelphia, PA

<https://2020.pas-meeting.org/>

Meetings that are still planned.

Innovations in Neonatal Care August 10 - 12, 2020

Mednax
Austin, Texas

<http://www.innovationsconference.com/>

AAP National Conference & Exhibition

October 18 - 20, 2020

American Academy of Pediatrics
San Diego, California

<https://aapexperience.org/>

For up to date Meeting Information, visit NeonatologyToday.net and click on the events tab.

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Academic Neonatologist Opportunity in Southern California

Loma Linda University Faculty Medical Group, Department of Pediatrics, Division of Neonatology, is seeking board certified or board eligible Neonatologists to join their team.

The Neonatal Intensive Care Unit (NICU) at Loma Linda University Children's Hospital is committed to providing the highest quality of family-centered medical care with our skilled, multi-disciplinary neonatal team. Our unit has 84 licensed beds for the most critically ill babies. As one of the few level 4 tertiary centers in Southern California, we are equipped to provide the highest level of care for newborns with the most complex disorders. Our facility has the largest Level IV NICU in California, serving approximately 25 percent of the state.

We have subspecialists in all medical and surgical areas that are available at all times and are supported by hospital staff with technical, laboratory, and service expertise. Pediatric neurologists work together with us in our NeuroNICU to diagnose, treat and monitor babies with neurologic injury or illness and we focus on providing neuroprotective, developmentally appropriate care for all babies in the NICU. Very specialized care is given in our Small Baby Unit to babies born at less than 30 weeks gestation. Babies at risk for developmental delay are followed up to 3 years in our High-Risk Infant Follow-up Clinic. Genetics specialists are available for evaluation and consultation.

Our Children's Hospital is designated as a Baby Friendly Hospital that supports breastmilk feeding for both term and preterm babies. Neonatal Social Workers and Child Life Specialists are important members of our team. It is our goal to support babies and families in culturally sensitive ways as our patients come from many different ethnic and religious backgrounds.

Loma Linda is located in the center of Southern California. A sunny climate augments the cultural benefits of Los Angeles and Palm Springs and the year-round recreational opportunities of nearby mountains, deserts and beaches.

This opportunity is not eligible for a J1 Waiver.



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Group

For more information please contact:

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Who We Are

With over 900 beds in four hospitals, we operate some of the largest clinical programs in the nation. We also offer the only Level I Regional Trauma Center and Children's Hospital in the Inland Empire servicing the largest county in the US. We lead in many areas of excellence; pediatrics, cardiac services, cancer treatment and research, mental health, chemical dependency, and other essential clinical disciplines. All this adds up to endless possibilities for our patients and for you.

The Neonatal Intensive Care Unit (NICU) at Loma Linda University Children's Hospital is committed to providing high-quality, family-centered care with our highly skilled, multi-disciplinary neonatal team. Our unit has 84 licensed beds for the most critically ill infants and a new Tiny Baby Program focusing on improving survival and outcomes of extremely low birth weight infants (<1000g at birth). As one of the only level 3 tertiary centers in Southern California, we are equipped to provide the highest level of care for the most complex disorders. We have subspecialists in all medical and surgical areas that are available at all times and are supported by hospital staff with technical, laboratory, and service expertise.

At Loma Linda University Health, we combine the healing power of faith with the practices of modern medicine. We consist of a University, a Medical Center with four hospitals, and a Physicians Group. These resources have helped us become one of the best health systems in the nation.

Contact Us

Please visit our website <http://careers.llu.edu> or contact Jeannine Sharkey, Director of Advanced Practice Services at jsharkey@llu.edu or (909) 558-4486.

If you are an individual who understands and embraces the mission and purpose of Loma Linda University and its entities as premier Seventh-day Adventist Christian institutions, please visit our website or call 1-800-722-2770. EOE/AA/M/F/D/V



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Peer Reviewed Research, News and Information in Neonatal and Perinatal Medicine

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Neonatology and the Arts

This section focuses on artistic work which is by those with an interest in Neonatology and Perinatology. The topics may be varied, but preference will be given to those works that focus on topics that are related to the fields of Neonatology, Pediatrics, and Perinatology. Contributions may include drawings, paintings, sketches, and other digital renderings. Photographs and video shorts may also be submitted. In order for the work to be considered, you must have the consent of any person whose photograph appears in the submission.

Works that have been published in another format are eligible for consideration as long as the contributor either owns the copyright or has secured copyright release prior to submission.

Logos and trademarks will usually not qualify for publication.

Dr. Mita Shah graces us with another fine bird this week. This golden eagle appears quite poised on the fence post somewhere in the Patagonia region of Chile.



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Manuscript Submission: Instructions to Authors

1. Manuscripts are solicited by members of the Editorial Board or may be submitted by readers or other interested parties. Neonatology Today welcomes the submission of all academic manuscripts including randomized control trials, case reports, guidelines, best practice analysis, QI/QA, conference abstracts, and other important works. All content is subject to peer review.

2. All material should be emailed to: LomaLindaPublishingCompany@gmail.com in a Microsoft Word, Open Office, or XML format for the textual material and separate files (tif, eps, jpg, gif, ai, psd, or pdf) for each figure. Preferred formats are ai, psd, or pdf. tif and jpg images should have sufficient resolution so as not to have visible pixilation for the intended dimension. In general, if acceptable for publication, submissions will be published within 3 months.

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4. The title page should contain a brief title and full names of all authors, their professional degrees, their institutional affiliations, and any conflict of interest relevant to the manuscript. The principal author should be identified as the first author. Contact information for the principal author including phone number, fax number, e-mail address, and mailing address should be included.

5. A brief biographical sketch (very short paragraph) of the principal author including current position and academic titles as well as fellowship status in professional societies should be included. A picture of the principal (corresponding) author and supporting authors should be submitted if available.

6. An abstract may be submitted.

7. The main text of the article should be written in formal style using correct English. The length may be up to 10,000 words. Abbreviations which are commonplace in neonatology or in the lay literature may be used.

8. References should be included in standard "Vancouver" format (APA may also be used). Bibliography Software should be used to facilitate formatting and to ensure that the correct formatting and abbreviations are used for references.

9. Figures should be submitted separately as individual separate electronic files. Numbered figure captions should be included in the main file after the references. Captions should be brief.

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