
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Journal of Pediatric Nursing 56 (2021) 60–63

Contents lists available at ScienceDirect

Journal of Pediatric Nursing

journal homepage: www.pediatricnursing.org

# Evidence in Hand: Optimizing the Unique Skill Set of a Hospital-Based Center for Nursing Research and Evidence-Based Practice

Elizabeth B. Froh [a,b,*], Eloise L. Flood [a], Julia G. Lavenberg [a], Ruth Lebet [a,b], Amy Jo Lisanti [a], Diane L. Spatz [b,a], Margaret A. McCabe [a,b]

[a] Children's Hospital of Philadelphia, Department of Nursing & Clinical Care Services, PA 19104, United States of America
[b] University of Pennsylvania, School of Nursing. PA 19104, United States of America

ARTICLE INFO

*Article history:*
Received 21 July 2020
Revised 15 September 2020
Accepted 15 September 2020

*Keywords:*
Nursing research
Nursing inquiry
Evidence-based practice
COVID-19
Pandemic

ABSTRACT

This paper describes how, as the COVID-19 pandemic emerged, one hospital-based center for nursing research and evidence-based practice capitalized on its unique skill mix to quickly pivot to provide hospital administrators and staff with timely, relevant evidence regarding the care of patients and families, as well as the protection of direct care providers and all support staff. The products produced by this center, both proactive and in direct response, contributed to clinical operations decision-making and thus, tangibly impacted practice. The positive outcomes described speak not only to the clinical environment, but also to the presence and specialized contributions of a multiprofessional center for nursing research and evidence-based practice in such a way that was not possible prior to COVID-19.



## Introduction

Although there have long been general forecasts of a world-wide pandemic, no one was prepared for COVID-19: a pandemic caused by a novel, rapidly spreading virus known as SARS-coV-2 with dire consequences. To date, more than 29 million people have contracted the virus and nearly 1 million people have died (Center for Systems Science, 2020). The United States has had the greatest number of reported cases of any nation and the distribution of those affected has been uneven by geography, race and ethnicity.

Within hospitals, the relatively unknown characteristics of the virus, its rapidly spreading nature, the lack of proven treatment, and the need to protect patients and health care providers, triggered an unprecedented rush to identify published evidence and clinical guidance. The Chief Nursing Officer and senior leaders of Children's Hospital of Philadelphia's (CHOP) Department of Nursing & Clinical Care Services (NCCS) recognized this need and called upon those with expertise to lead in their efforts to drive decisions with evidence in hand. This paper describes how, as the COVID-19 pandemic emerged, one hospital-based center for nursing research and evidence-based practice capitalized on its unique skill mix to pivot quickly to provide administrators and staff with timely, relevant evidence that informed decision-making regarding the care of patients and families, as well as the protection of direct care providers and all support staff.

## Center for pediatric nursing research & evidence-based practice

Established in 2006, CHOP's Center for Pediatric Nursing-Research & Evidence-Based Practice, hereafter "the Center," is a multi-professional center directed by a PhD-prepared nurse scientist, managed by a full-time senior resource coordinator, and staffed by six PhD-prepared nurse scientists (4.5 FTE), two evidence-based practice specialists (1.5 FTE), two medical librarians (2 FTE), and one data coordinator (0.8 FTE). Two members of the Center, one nurse scientist and one EBP practice specialist, continue to support the clinical environment as clinical nurse specialists in a fifty-fifty split. The Center also purchases services from an internal biostatician and analyst with the hospital's Clinical Research Unit. The Center's mission is to ensure children and families receive nursing care that reflects [hospital name] leadership in inquiry, innovation and the implementation of best practices.

## Supporting operations with evidence

### *Proactive preparations*

In response to the highly contagious nature of the virus, clinical operations changed almost overnight, and continued to evolve over the next few weeks. The need for strong evidence to identify key practice and procedural changes became apparent in the first few

* Corresponding author at: 3500 Civic Center Blvd; Buerger Building, P1, Suite 1182, Philadelphia, PA 19104, United States of America.
*E-mail address:* frohe@email.chop.edu (E.B. Froh).

https://doi.org/10.1016/j.pedn.2020.09.011
0882-5963/

days after the Centers for Disease Control and Prevention (CDC) and federal and state agencies issued general, and sometimes confusing, guidance.

The first proactive searches for literature were broad and intended to identify what was known/unknown about the etiology, transmission, treatment, and management of patients diagnosed with COVID-19. In addition to traditional searches for literature, the librarians and evidence-based practice specialists capitalized on personal professional networks to identify as many potential sources of information as possible. Literature included international governmental documents, multidisciplinary national and international clinical practice guidelines, and society consensus statements, as well as publications indexed in more traditional databases such as PubMed and CINAHL. Anticipating local clinical inquiry needs of leaders and staff in the nursing department related to COVID-19, the Center team immediately set out to gather evidence related to broad questions about personal protective equipment (PPE). Together, we brainstormed what areas of uncertainty our colleagues were likely to encounter and how we could deliver evidence to best inform decision making. The librarians, nurse scientists, and evidence-based practice specialists then worked in small teams to complete targeted literature searches and create tables of evidence in four main areas: (1) PPE pandemic planning logistics and costs, (2) PPE alternatives and reuse, (3) PPE maintenance and storage, and (4) human factors affecting PPE effectiveness. In addition to each table of evidence, the assigned lead wrote a brief summary of the key findings to serve as high-level guidance. The Center did similar work to pull and synthesize available evidence related to nursing staffing models in pandemic or emergency circumstances. In particular, knowing the impact of COVID-19 on adult patients, the Center team anticipated there might be questions of how to mobilize a staff of pediatric clinicians to best care for adult patients, in the event that general hospitals became overwhelmed.

*Response to staff questions: "Fast Facts"*

Just days into the response to COVID-19, Center team members were directly hearing from nursing staff about their concerns, in particular related to the adequacy of various types of PPE, as well as questions about pregnancy and breastfeeding. As the Center team had already proactively pulled some of the literature in this area, the idea to provide that evidence to nursing staff in a format that was both transparent and easily digestible was actualized in the creation of "Fast Facts"–brief documents summarizing available evidence most important to clinicians, with links to the underlying studies. To address any emerging evidence, the Fast Facts documents were updated weekly (March through May), and continue to now be updated bi-weekly. "Fast Facts COVID-19 & PPE, Evidence for Staff Providing Direct Patient Care" is a collaboration between one of the Center librarians and two nurse scientists. The document initially summarized best evidence to date in three areas of particular interest to staff at the bedside: types of PPE needed, reuse of PPE, and human factors impacting PPE use. As a body of literature emerged identifying the incidence of skin injury in healthcare workers using PPE, a fourth area was added: skin injury prevalence and management. The document references published literature, information from the CDC and guidance from the local Health Department. To address concerns about COVID-19 and pregnancy, one of the nurse scientists created and continues to update "Fast Facts COVID-19 & Pregnancy, Evidence for Staff Providing Direct Patient Care." The document includes not only a summary of recently published literature, but also guidance from the Centers for Disease Control and Prevention, the American College of Obstetricians and Gynecologists, the Royal College of Obstetricians & Gynaecologists, the National Perinatal Association, and the United States Breastfeeding Committee (See Fig. 1).

*Response to leadership requests: tables of evidence and executive summaries*

The proactive work of the Center team to compile tables of evidence related to PPE not only bolstered our ability to directly respond to staff questions, it also benefited the organization's leaders. Our hospital, like many others, was faced with shortages of certain PPE. CHOP's Leaders had specific questions about how the hospital could best support PPE reprocessing and redistribution. The Center formed a small team of three nurse scientists, one librarian and one evidence-based practice specialist to respond to this need. The Center's director and senior resource coordinator managed communications between the small team and the hospital's leaders. As questions emerged during leadership meetings, the Center team worked with an "all hands on deck" strategy to quickly and effectively search the literature, complete tables of evidence, and provide executive summaries of the evidence surrounding methods of reprocessing, as well as best practices for supply management and redistribution. The rapid and dynamic needs of the clinical environment challenged the Center's team to work at the fastest pace possible to deliver these–often within a matter of hours–so that those making decisions would have the evidence they needed at hand, in a form that was both succinct and comprehensive.

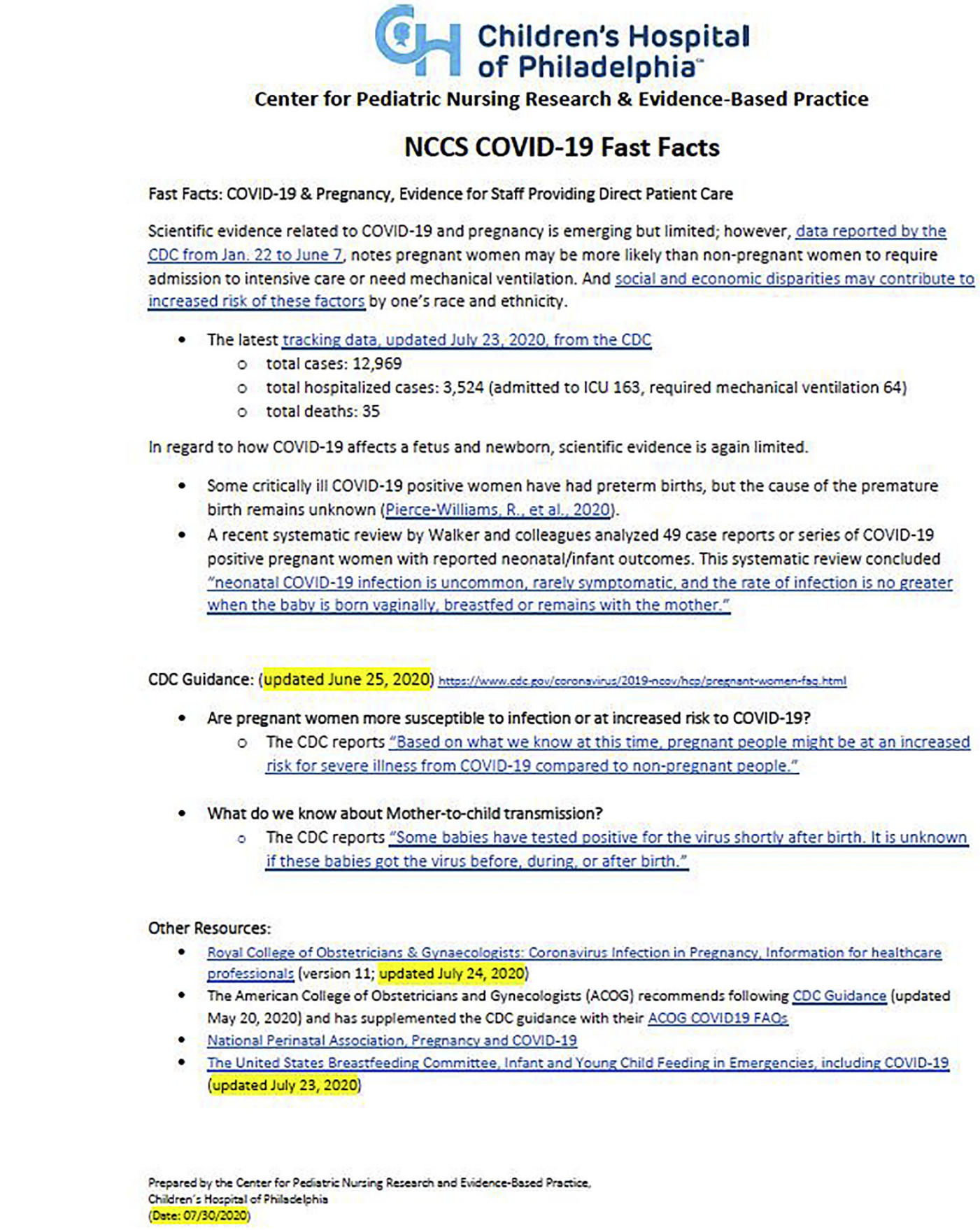
As the weeks progressed and the possibility of the hospital taking on adult patients to help relieve the surge on our neighboring adult hospitals solidified, nursing department leaders asked specifically for evidence to support their decision-making. And again, the Center formed a small team to build upon our initial searches of the literature and refine the tables of evidence. Though the anticipated surge has not materialized as of this writing, should it again become a possibility, the evidence base has already been constructed and would simply need to be augmented with the latest studies.

## Discussion

An established center for nursing research and evidence-based practice within a health system offers support and guidance during normal operational times. In times of uncertainty and rapid change, the staff of such a center can pivot quickly, capitalize on the unique skill set and professional networks of each member, methodically identify and retrieve the most relevant literature and collaboratively produce evidence summaries.

As policies and procedures for staff nurses changed on a day-to-day basis in response to COVID-19, staff raised many appropriate questions as they struggled to understand why certain care practices that were once not permitted were now being required. For example, historically, nurses caring for patients requiring droplet precautions would don a surgical mask prior to entering the room, dispose of the mask prior to exiting the room, and then perform hand hygiene. Once the COVID-19 response began and PPE supply became a serious concern, the hospital instituted universal masking and mask reuse, with guidance sometimes changing over the course of a single shift. Initially, nurses were given one mask and required to wear that same mask throughout the entire shift. Staff raised concerns about the risk of cross-contamination from wearing the same mask in multiple patient rooms. One of the Nurse Scientist-Clinical Nurse Specialists from the Center, working within the inpatient units to support clinical practice, was able to leverage the Center's tables of evidence and Fast Facts and readily access them at the point of care to facilitate just-in-time education with staff. This provided opportunities for robust discussion and question-and-answer rounding with staff to ease their concerns about the new policies and enhance their confidence in the rapidly changing policies, which they could see were based on the best available current evidence.

A second example of this translation of evidence to practice is demonstrated by the dissemination of literature related to COVID-19 and breastfeeding and lactation. Nurses in the hospital's ambulatory locations were concerned about the lactation needs of new mothers and



Children's Hospital of Philadelphia

Center for Pediatric Nursing Research & Evidence-Based Practice

# NCCS COVID-19 Fast Facts

Fast Facts: COVID-19 & Pregnancy, Evidence for Staff Providing Direct Patient Care

Scientific evidence related to COVID-19 and pregnancy is emerging but limited; however, data reported by the CDC from Jan. 22 to June 7, notes pregnant women may be more likely than non-pregnant women to require admission to intensive care or need mechanical ventilation. And social and economic disparities may contribute to increased risk of these factors by one's race and ethnicity.

- The latest tracking data, updated July 23, 2020, from the CDC
  - total cases: 12,969
  - total hospitalized cases: 3,524 (admitted to ICU 163, required mechanical ventilation 64)
  - total deaths: 35

In regard to how COVID-19 affects a fetus and newborn, scientific evidence is again limited.

- Some critically ill COVID-19 positive women have had preterm births, but the cause of the premature birth remains unknown (Pierce-Williams, R., et al., 2020).
- A recent systematic review by Walker and colleagues analyzed 49 case reports or series of COVID-19 positive pregnant women with reported neonatal/infant outcomes. This systematic review concluded "neonatal COVID-19 infection is uncommon, rarely symptomatic, and the rate of infection is no greater when the baby is born vaginally, breastfed or remains with the mother."

CDC Guidance: (updated June 25, 2020) https://www.cdc.gov/coronavirus/2019-ncov/hcp/pregnant-women-faq.html

- Are pregnant women more susceptible to infection or at increased risk to COVID-19?
  - The CDC reports "Based on what we know at this time, pregnant people might be at an increased risk for severe illness from COVID-19 compared to non-pregnant people."

- What do we know about Mother-to-child transmission?
  - The CDC reports "Some babies have tested positive for the virus shortly after birth. It is unknown if these babies got the virus before, during, or after birth."

Other Resources:

- Royal College of Obstetricians & Gynaecologists: Coronavirus Infection in Pregnancy, Information for healthcare professionals (version 11; updated July 24, 2020)
- The American College of Obstetricians and Gynecologists (ACOG) recommends following CDC Guidance (updated May 20, 2020) and has supplemented the CDC guidance with their ACOG COVID19 FAQs
- National Perinatal Association, Pregnancy and COVID-19
- The United States Breastfeeding Committee, Infant and Young Child Feeding in Emergencies, including COVID-19 (updated July 23, 2020)

Prepared by the Center for Pediatric Nursing Research and Evidence-Based Practice,
Children's Hospital of Philadelphia
(Date: 07/30/2020)

**Fig. 1.** Evidence in hand: Optimizing the unique skill set of a hospital-based center for nursing research and evidence-based practice.

families, but the nurses were unclear as to how to best educate, support and care for these families given the conflicting recommendations from various professional organizations. Drawing from the Center's preliminary work and the Fast Facts, one of the Center's nurse scientists combined her expertise and the emerging evidence to create a just-in-time webinar for the hospital's ambulatory nurses. Grounded in the evidence, the webinar incorporated best practices to emphasize the research in this area and to further stress the importance of the critical window of time to effectively establish milk supply. The webinar, attended live by more than 150 clinicians (and also recorded and posted on the hospital's learning platform), enabled participants to directly translate the evidence into their practice in ambulatory care.

Leveraging the Center's skill sets and stepping up early in the organization's evolving COVID-19 response led to a number of “wins” for the Center, the organization and the clinical staff. The partnership of the Center across departments was key to understanding the needs of the clinical environment and matching those needs to the skills of the Center team. Our colleagues in safety, quality, infection control and prevention, executive administration, and supply chain provided essential communications and details that enabled the Center to refine the searches of the literature and update summaries to reflect the constant changes in the clinical environment. This collaboration has continued to sustain open lines of communication and enabled other departments to feel comfortable reaching out to the Center team with any needs or questions. One example of the success of our approach was that as new cases began to decline and the organization started to make the move to reopen for elective surgeries, a shortage in surgical caps became an issue. The organization's supply chain management team immediately turned to the Center, requesting a summary of any available evidence regarding reprocessing.

This level of transparency of evidence and access to emerging research is essential to those working in the clinical setting. With the Center's partnership and leadership, questions from staff, leaders, patients and families are answered with a foundation in evidence, and not opinion. The tables of evidence, Fast Facts, and executive summaries are shared and posted to the hospital's internal web pages for continuous access. Leaders use these products in real time for direct referencing as needed. In addition, elements of these products have been incorporated into the hospital's daily and weekly all-staff communications in efforts to share the evidence with employees across the enterprise and to illustrate how evidence is driving decision-making across the hospital. The value of the Center's work has been noted in several administrative meetings. Front-line staff, too, particularly through Shared Governance forums, recognize and promote the Fast Facts sheets. Overall, this work and engagement has raised the Center's profile across the organization. Importantly, the COVID-19 pandemic has provided a key opportunity for the Center to demonstrate the quality of their work and show how a multiprofessional center for nursing research and evidence-based practice directly supports hospital-based clinical operations.

## Conclusions

Supporting an evidence base for departmental and organizational best practice and decision-making during a time of crisis provided a unique opportunity for the distinct set of qualifications embodied by Center staff.CHOP's Chief Nursing Officer and senior leadership within the nursing department demonstrated their commitment to EBP in the way that they directed and empowered the Center to mount a nimble response and provide in-the-moment, up-to-date evidence to all employees. Hospital-based centers for nursing research are a precious resource, even though the value of their contributions may seem obscure ‘when viewed through the practical lens of clinical operations The Center was able to flex to support clinical operations in a time of crisis by deploying their unique skills and practicing to the top of their expertise. This resulted in essential and tangible contributions to the organization and underscores the value of hospital-based centers for nursing research and evidence-based practice.

## Author Statement

All authors have contributed to this paper according to standards of authorship as presented by the National Institutes of Health and the Institutional Standards of Children's Hospital of Philadelphia (Philadelphia, PA, USA).

## Declaration of Competing Interest

No conflicts of interest to disclose.

## References

Center for Systems Science and Engineering at Johns Hopkins University (September 15, 2020). COVID-19 Dashboard. https://coronavirus.jhu.edu/map.html.