Return to the Newsletter

Managing a Pediatric Tripledemic: Lessons Learned from 2022

During the winter months in 2022-2023, hospitals in the state of Washington were overwhelmed by pediatric patients suffering from influenza, COVID-19, and respiratory syncytial virus (RSV). In this article, the following subject matter experts (SMEs, listed alphabetically) provide an overview of the health care coalition, the state's pediatric capabilities, and how they used their Medical Operations Coordination Center (MOCC) and health care coalitions to balance patient loads throughout the state during this "tripledemic:"

- Steve Mitchell, MD, Medical Director, WA Medical Coordination Center
- Mary King, MD, MPH, Medical Director, Pediatric Critical Care, Harborview Medical Center
- Vicki Sakata, MD, Senior Medical Advisor, Northwest Healthcare Response Network

This is followed by a question-and-answer session that focuses on collaboration, advantages of having a MOCC in place, and challenges encountered during the response (e.g., admitting sick infants, providing care in place, and working with emergency medical services [EMS]).

OVERVIEW

The Northwest Healthcare Response Network (NWHRN) is a health care coalition established in 2005 and has been an independent nonprofit corporation (501c3) since 2013. We serve 15 counties and 25 Tribal Nations in western Washington and focus on collaboration and cooperation; we bring health care together to get patients the care they need. While western Washington is a geographically smaller portion of the state, the majority of the state's population and critical medical specialties are concentrated in this region. On the flipside, there are several areas in our coalition footprint that are more rural. This adds to the challenge of managing any type of medical surge.

The map in Figure 1 and Table 1 illustrates the breakdown of pediatric intensive care unit (PICU) beds in the state of WA.

Related Resources

A PICU in the MICU: How Adult ICUs Can Support Pediatric Care in Public Health Emergencies

WRAP-EM Pediatric Surge Playbook

Using Two Statewide Medical Operations Coordination Centers to Load Balance in Pediatric Hospitals During a Severe Respiratory Surge in the United States

Related ASPR TRACIE Resources

<u>MOCC Adaptations during a Pediatric</u> <u>Surge</u> (Speaker Series Recording)

Medical Operations Coordination Cells Toolkit (Second Edition; MOCC 2.0)

<u>COVID-19 Patient Surge and Scarce</u> <u>Resource Allocation</u> (Resource Page)



Figure 1. Map of PICU Capacity in Washington

Across the state, we have 115 beds per 1.64 million children less than 18 years of age. This translates to 7 beds per 100,000 children (for comparison, the U.S. averages 35 intensive care unit (ICU) beds per 100,000 adults). It is important to note that there is a mountain range and many transport challenges between western and eastern WA, especially in the winter. In the northern region, there are a fair number of children without access to any pediatric ICU beds.



 Table 1. PICU Beds by District and Hospital

2

| District | Number of PICU Beds |
|------------------------|---------------------|
| Central WA | 96 |
| Seattle Children's | 64 |
| Mary Bridge | 16 |
| Swedish | 6 |
| Madigan | 4 |
| Harborview | 6 (trauma only) |
| Eastern WA | 19 |
| Sacred Heart (Spokane) | 19 |
| Northern WA | 0 |

Harborview, the state's only Level 1 Trauma Center, has always had a role in surge coordination, primarily short-term coordination related to mass casualty incidents (MCI). During COVID, we knew we had to adapt, and in developing the adult MOCC, we formalized agreements across the state to ensure we would be able to distribute patients to hospitals despite everyone experiencing surge. There are key relationships that must be developed when developing a MOCC. In WA, the HCCs and state department of health were key partners, followed closely by our state hospital association who brought in hospital executives. These leaders facilitated buy-in and coordination from the top down and across health care systems. Transparency is key. So, we created an operational framework to outline our goals and processes. This was widely distributed and helped everyone using the MOCC have realistic expectations. The Washington Medical Coordination Center (WMCC) is based at Harborview and became a statewide hospital load balancing resource and served as the MOCC for the state.

One key component to the success of level-loading, especially when all facilities are equally stretched, is the availability of reliable, transparent statewide situational awareness. This should include not only basic bed availability data, but more specific details on subspecialty availability, critical patient loads, and ED boarding. In Washington this information is available on the state's "WATrac" (a web-based tracking system). But a valuable addition to this was weekly, and



sometime twice weekly, regional "huddles" held via Zoom so every system could report out to every other system and to the WMCC their current status. This situational awareness is key in promoting a more global understanding of healthcare capacity especially when trying to place a critically ill patient. A final stop-gap measure, termed the "guaranteed acceptance policy," was developed and part of the WMCC procedures. This policy was approved by all major hospital systems and was only enacted when the WMCC was unable to place critical patients in a timely manner. This policy has only been enacted twice in the three years of the WMCC's existence due in part to well established regional relationships and transparency in



situational awareness. This policy was modified to include pediatric cases at the beginning of what we commonly refer to as the "tripledemic."

RESPONDING TO CHALLENGES ASSOCIATED WITH THE "TRIPLEDEMIC"

On October 18, 2022, NWHRN initiated a series of pediatric leadership meetings to address the surge and we stood up our MOCC. On November 11, we held a SME meeting with PICU attendings, who were agreeable to providing triage and related expertise, then we launched our pediatric-focused MOCC the next day. This was followed by an unprecedented surge; between November 1, 2022-December 14, 2022, all pediatric acute and critical care beds in the region were between 135 and 150% over capacity. During this time, WMCC managed:

- 171 pediatric requests, disproportionately for the very young
 - » 16% for \leq 3 months old
 - » 37% <1 one year old
 - » 17% from rural and critical access hospitals
 - » 58% were critically ill children
 - » 100% "accepted" with mean time of acceptance three hours of initial call in WA

There were three primary pediatric challenges associated with the viral respiratory surge:

- 1. We had to rapidly expand a pediatric health system that was already under stress and constraints before the surge.
- 2. We had to provide pediatric triage support and training to the WMCC staff answering calls as they were adult critical care registered nurses (RNs) who had little experience managing pediatric cases. Through a combination of RN training and real-time pediatric SME support from our on-call PICU Attendings, we helped them decide whether pediatric patients should:
 - Stay in place at their current hospital with pediatric support;
 - Be moved to an acute care bed at a hospital with no PICU; or
 - Be moved to a tertiary hospital with a PICU.
- 3. We also had to provide pediatric clinical support to the hospitals requesting assistance while they were waiting for transfer.

To address these challenges and expand pediatric beds and expertise, we:

Rapidly expanded acute care pediatric beds and capabilities in community hospitals. We had key community
hospital partners with existing in-patient pediatric capabilities. Through huge efforts between community hospitals and
pediatric specialty facilities, community hospitals were able to expand and stretch their capabilities to accept and care



for higher acuity cases than they would normally manage (e.g., by stretching staff ratios and expanding into parts of their hospital that were not traditionally used for pediatric patient care).

- Encouraged hospitals to admit some teenagers to adult ICUs (such as referenced in <u>PICU in the MICU: How</u> <u>Adult ICUs Can Support Pediatric Care in Public Health Emergencies</u>). Here, Adult ICUs were able to specifically assist teens with overdoses even though space in adult care areas was at a premium.
- Expanded neonatal care. This effort was not without challenges; some NICU providers were rightfully concerned about potentially compromising care of their neonatal cases. We worked with chief medical officers, neonatal ICU (NICU) doctors and RNs to 1) raise NICU awareness about the scale of critical infant RSV disease in our community and 2) identify isolation and cohort strategies for those NICUs willing to readmit sick infants. This effort faced similar challenges but was accepted more widely by academic centers.
- **Provided support in place.** With the support of pediatric SMEs at what was initially called the "tertiary pediatric referral center," we were able to provide care for many young patients without having to move them from their community hospital. For instance, children on lower or moderate level high flow nasal canula treatment were maintained at community hospitals cared for by pediatric hospitalists with ongoing consultation by pediatric emergency or ICU physicians from the pediatric center. Typically, this input was provided by phone but in some instances, telehealth relationships were already established and were utilized.
- Used on-call PICU attendings as SMEs. Pediatric trauma ICUs were less affected by the tripledemic and had more capacity, so on-call Harborview pediatric trauma faculty served as the WMCC pediatric SMEs 24/7. They provided WMCC triage RNs support in decision making and helped determine fit between a given patient and potential bed resource. They became trusted resources for the WMCC triage RNs, for both referring and receiving hospitals and on occasion provided clinical support for referring emergency departments (if they could not reach providers from the pediatric center).

QUESTION AND ANSWER SESSION

Rachel Lehman, ASPR TRACIE's Acting Director, asked the SMEs questions about using MOCCs to transfer pediatric patients.

Rachel Lehman (RL)

Developing a MOCC takes a great amount of coordination and agreement. How did you facilitate that collaboration?

Vicki Sakata (VS)

Our job as an HCC is to facilitate collaboration and planning work that happens before the moment of crisis. NWHRN has an established pediatric work group that has been meeting for seven years. This workgroup consists of primarily in-patient pediatric clinicians including both community-based facilities as well as large pediatric specific institutions. We had a small and unusual burst of RSV in July of 2023, and it was then that we started to discuss and plan for pediatric patient surge. The October 2022 formal meetings focused specifically on establishing pediatric expertise and processes within the existing adult MOCC concept.

Mary King (MK)

Another benefit of having those longstanding relationships and collaborative work with the HCC is that we already knew each other and had experience collaborating during the COVID-19 pandemic. We were able to work as a group to collect data and situational awareness specific to kids in our region. We could monitor trends in the data and see what was happening before the surge happened. Both relationships and data collection played a key role in my reaching out to Dr. Mitchell to ask about working with WMCC to manage the pediatric patient surge.

Steve Mitchell (SM)

4

We are very privileged in our state to have a fully functional MOCC that operates daily and was working during this event. The people answering the telephone already understood the strengths and barriers of the various medical facilities in the state and when the pediatric surge hit, we were able to respond immediately.

TRACIE

RL

What were the advantages of developing a pediatric capability within an already established MOCC?

SM

It wasn't difficult to fold the pediatric function into the already established MOCC, where trust had been built over the years. Our team understood the operational nature of the MOCC and what could and couldn't be done. The disadvantage was the lack of pediatric expertise and challenges associated with transporting young patients.

MK

During the surge our pediatric centers were stressed beyond a level I have ever experienced. There was no bandwidth for further patient placement because they were doing everything in their power to surge within their walls. The MOCC removed some pressure so they could optimize higher levels of care for the patients who needed it most, and we could remove some of the burden and move those children who were less ill.

VS

The frontline nurses answering the phones at the WMCC had existing experience and relationships with many of the facilities experiencing pediatric surge, and this was incredibly helpful to developing that capability.

RL

When a pediatric patient could not be immediately transferred how did you assist with providing care?

MK

The challenge with these patients awaiting transfer is that their status could change, and they could quickly become more ill. We needed the ability to move them to a higher level of care if they started to decompensate. Given our resources, we chose to keep ongoing clinical care consultation in the hands of the initial pediatric referral center that was called by that hospital for two reasons. First, if that child became sicker, the hospital that already built a relationship with them could identify that they had worsened and accept the patient into their center. Second, multiple pediatric hospitals had pediatric emergency or critical care providers on duty who could continue to deliver consultative care, so this was a way to distribute the clinical burden across the entire state. In contrast, WMCC Pediatric SMEs (PICU attendings who were also on trauma call at Harborview) could not simultaneously provide continuous support for all children placed by the WMCC (up to 20 children per night). We did not have the clinical capacity to have this magnitude of ongoing clinical care consultations, nor could this care model scale appropriately for an unknown amount of demand; dividing that duty among four primary pediatric centers that have PICUs was our solution. Also, some hospitals provided telehealth consultations, but many did not have that capacity in place; it continues to be a challenge due to the need for reciprocal credentialing.

VS

When you get a sick pediatric patient in a primarily adult facility, the first thing you want to do is stabilize them and transfer them as quickly as possible. If that is not possible—and we saw this during the tripledemic—just having pediatric SMEs reassure you and your staff via telehealth or phone consult that your treatment plan is a good one is incredibly helpful.

MK

As a pediatric SME supporting the WMCC, we generally helped the triage nurses determine the appropriate potential fit of a patient for a given potentially available resource. On occasion, we did not have enough information to make that decision, so we would actually call the provider to get more information.

RL

How did you overcome challenges associated with admitting sick infants into NICUs?

SM

5

Frankly, this was an unexpected challenge. There was fear around admitting sick young children to the NICU who had been previously discharged home and needed readmission, as the NICUs worried about cross-contamination. We brought in infectious disease experts who had expertise in partitioning areas off and isolating patients; they also helped

TRACIE

us communicate with providers and patients' loved ones to reassure them. The HCC did a great job bringing these providers together.

MK

27 of our 171 patient transfer requests were for children less than three months old. Trying to fold all of those children into the existing PICU structure—which was already completely overwhelmed—was a major challenge. Without statewide situational awareness thanks to the WMCC, we wouldn't have known how many sick infants were stuck in EDs across the state, some on CPAP machines in rural hospitals. We were able to raise the flag and work with our HCC to facilitate the conversation with the hospitals with NICUs, and once they understood the math, the help was there.

VS

It strikes fear in any pediatrician's heart to admit a baby infected with RSV into a NICU. A lot of NICUs are designed to be open wards without individual rooms which is a big infection risk when you are considering re-admission to the NICU It was great to see staff thinking innovatively about creating and using space in NICUs. Some constructed a pod for RSV patients. One community hospital created a special section in the ED to house sick infants. These creative solutions helped to provide additional resources to care for the youngest and most vulnerable patients.

RL

What operational challenges did you face during the surge?

VS

Ensuring the data driving these decisions was accurate and maintaining situational awareness was challenging. NWHRN was collecting and feeding data to the WMCC. Any errors in that data would directly affect decisions. Our HCC met with pediatric representatives from all inpatient pediatric and NICU facilities in the state twice weekly during the peak of the surge, where we would share and double check the data to ensure it was accurate. This was also an opportunity for us to share emerging concerns and maintain situational awareness.

SM

It is important to remember that when your team is made up of health care providers, you are all experiencing surge simultaneously. One challenge at our WMCC MOCC was managing the incredible volume of requests. We had one nurse staffing the phone line, but we had to double and sometimes triple staffing to provide adequate backup. At one point, we reached an all-time high in adult patient surge concurrent with the unprecedented pediatric surge. Thankfully we had teammates willing to step up and meet the need.

Another operational challenge we faced was with the actual transport of patients. We traditionally have significant limitations on ground transport across the state due to geography, weather, and other variables, and we have relied heavily on air transport. One area we are currently focusing on is improving staging with our EMS partners.

MK

There are two specific challenges I would mention. First, we found that pediatric capacity in our community hospitals was severely limited because we had multiple pediatric community hospital wards—where we traditionally placed children who are not critically ill—close during COVID. We simply did not have the pediatric nurses or hospitalists in place in many community hospitals that we would have had a couple of years prior.

The second challenge refers to pediatric centers not fully understanding the level of strain on their hospitals. Tracking beds does not tell the whole story. The number of kids boarding in the ED, the number of critically ill in your PACU, and many other factors contribute to strain. It is so important for pediatric centers to understand the strain they are each under so they can adjust admissions. We all have some learning to do here.

RL

What recommendations would you give to those wanting to develop a pediatric capability within a MOCC?

MK

6

Understand your existing pediatric system and connect primarily through your HCC, pediatric centers, and community hospitals that take care of kids. This can help develop relationships and understand capabilities. Next, determine what fits

TRACIE

your geography and system. For us, it made sense to partner with adult colleagues, since they had already developed a MOCC. Learn more about the approaches taken in your area and what can fit your system.

VS

Refer to the general resources on creating a MOCC (there are very few dedicated to pediatric-specific MOCCs). Understanding and refining pediatric data is also key to developing this capability. During COVID, we were very focused on getting the adult data correct, but the tripledemic forced us to see that the pediatric data was equally important. Empowering staff is also key. Some of our community facilities feel so much more capable now when caring for younger children, high-flow oxygen patients, providing and receiving telehealth consultations, and the like. That is a capability that will be beneficial all around.

SM

We all know the number of surge events and disasters is increasing; this is happening at a time when our health care systems, especially our tertiary systems, are at capacity. Washington State is not the only place that has limited pediatric resources. The care plan has to take into account patient load balancing across the continuum of your health care system. These strategies are necessary and will only be more so in the future.



