Ontario Critical Care Clinical Practice Rounds (OC3PR): COVID-19

Oct 7 2021

Planning for Paediatric COVID-19 Surge, Leveraging Paediatric and Adult ICUs

Chaired by Dr. Dave Neilipovitz

Presented by Dr. Sonny Dhanani and Dr. Elaine Gilfoyle

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- Attendees can submit questions to Q&A in the chat function in the Zoom menu.
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Planning for Paediatric COVID-19 Surge, Leveraging Paediatric and Adult ICUs

Speakers:

- **Dr. Sonny Dhanani**, Chief of Paediatric Critical Care, Children's Hospital of Eastern Ontario
- **Dr. Elaine Gilfoyle**, Division Head of PICU, Department of Critical Care Medicine, Sickkids

1.Outline current paediatric critical care capacity and management of minor and moderate surges in paediatric critical care.

2.Describe paediatric critical care capacity pressures related to COVID-19 and processes to mitigate increased demand.

3.Identify paediatric specific issues that might impact surge.


WHY?


HOW


WHAT?

Respiratory Syncytial Virus

Seasonal Surge

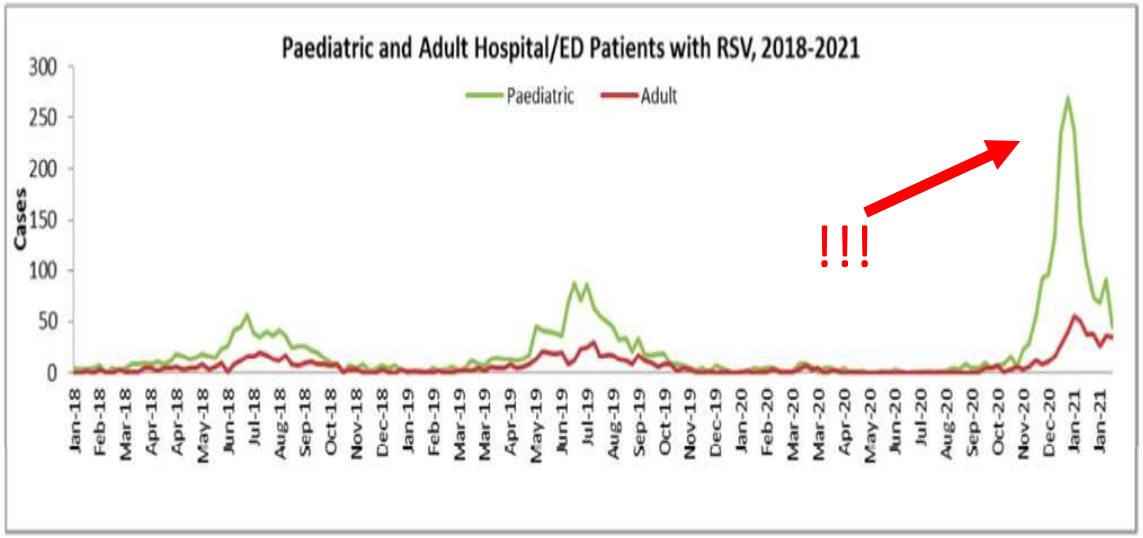
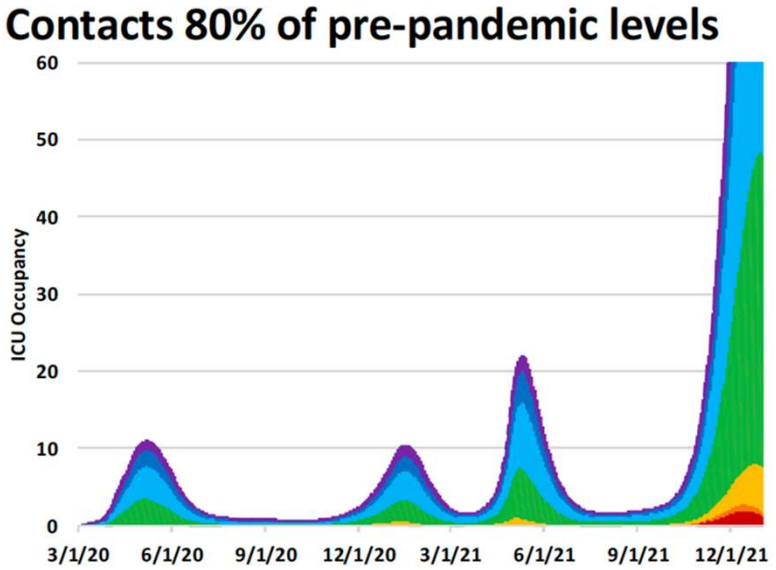


Figure 3: Paediatric and adult hospitalised patients with RSV, 2017-2020.

Immunity Debt

VS

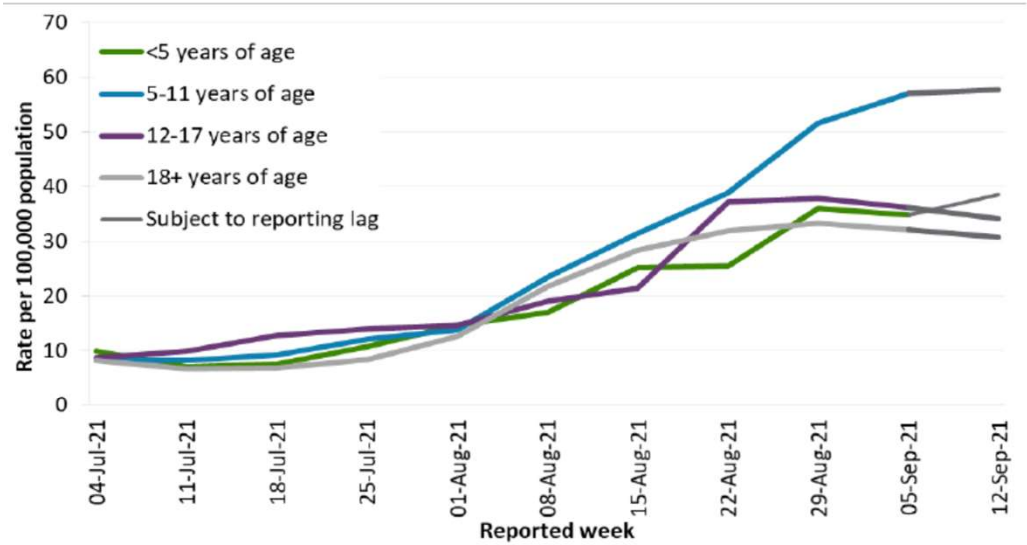
Potential for significant pressure on pediatric ICU beds with COVID



Extrapolation of peak PICU CRCI occupancy to Ontario

- **42** (75% pre-pandemic contacts)
- **87** (80% of pre-pandemic contacts)

Our 4th wave has flattened due to continued public health measures and vaccination but cases in children are increasing



tariat of the Science Advisory Table (https://covid19-sciencetable.ca/ontario-dashboard/) **Data:** https://ourworldindata.org/explorers/coronavirus-data-explorer **CASES BY AGE** - **Analysis:** PHO, **Data:** CCM

Surge Capacity that Can be Created in Ontario PICUs

Location	L3 Baseline Beds*	Surge Beds
West - South West	12	6
West – HNHB	12 (L3)	5
East - South East	4 (L2)	6
East – Champlain	10	10
Toronto	40 (L3)	10
TOTAL	**74 (L3) 93 (total)**	**37**

- Ontario PICUs may have the potential to open **37 additional surge beds**
- Hospitals also have plans to create additional **non-critical care capacity** to facilitate flow out of PICUs
- Some regional non-tertiary hospital capacity to surge

*Data Source: CCIS as of August 11, 2021

PICU census high for this time of year

Critical Care Services Ontario (CCSO) Bed Availability Dash
Ontario Paediatric Critical Care Centres
Source: Critical Care Information System (CCIS)/ excerpted from CCSO daily
30th September 2021

LHIN Code	Hospital	Unit Level	Baseline Critical Care Beds	Baseline Vented Beds	Critical Care Census	Bed Occupancy Rate	CRCI	CRCI Vented	PUI Census	Census PUI Vented	Not Available Beds	Available Beds
12: SW	LHSC - Children's Hospital	L3	12	12	10	83%	0	0	0	0	0	2
		L2	4	0	4	100%	0	0	0	0	0	0
14: HNHB	HHSC - McMaster	L3	11	11	10	91%	0	0	3	1	0	1
		L2	12	0	12	100%	0	0	0	0	0	0
17: TC	SickKids	L3	40	40	25	63%	0	0	3	3	0	15
10: SE	KHSC - Children's Hospital	L2	4	4	3	75%	0	0	0	0	0	1
11: Champlain	CHEO	L3	10	10	9	90%	0	0	3	3	1	0

CCSO Critical Care Services Ontario

Ontario Critical Care COVID-19 Command Centre

Pediatric Critical Care Advisory Committee

Ontario Health

CRITICALL ONTARIO

ornge

Provincial Council for Maternal and Child Health

building a brighter future

PHASED approach – Support for PICU patients

- Learning from wave 3: Treat critical care capacity as a single system resource
- Preserve capacity for tertiary/quaternary and unique services especially related to pediatric specialization
- Utilize all existing critical care capacity to maximize resources (adult, paediatric, NICU)

PHASE approach – Support for PICU patients

- All critical care sites should be prepared to implement innovative staffing models to support capacity building across health human resources

- If needed, utilize existing regional IMS structures to escalate patient transfer decision (adult and paediatric) with an aim to stabilize hospitals with capacity challenges

- This is a short-term pandemic related initiative, but may have merit in longer term surge capacity planning

Phase 1

PICU inter-regional distribution

triggered by regional capacity challenges

currently enacted

Phase 2a

Adult ICU with hospital pediatric beds

triggered by inability to admit to any existing tertiary care PICU centre

Phase 2b

Adult ICU without hospital pediatric beds

triggered by capacity challenges at pediatric and adult ICU

Phase 3

Satellite PICU in select adult ICU

triggered by overwhelming pediatric capacity challenges

PHASE 1 – Internal and Inter-regional management (Current state since Aug)

- HHR – Human Health Resource
- Surgical OR deferrals
- Prioritizing internal ward beds for PICU transfers
- Inter-regional transfers / load sharing
- Regional pediatric centres resuming in-patient services

PHASE 2 - Triggers

- PICU capacity overwhelmed
- Mitigating strategies employed especially for HHR
- Provincial and regional discussion before formal implementation

PHASE 2 - Process

a) PICU patients don’t get transferred to tertiary PICU centre

b) PICU patients are decanted out of level III centres

PHASE 2 – Things that are not happening

- You will not be treating a 5 year old with congenital heart disease
- You will not be becoming a pediatric intensivist/nurse/RT/Rx/SW
- You will not be managing patients that you haven't before
- You will not be managing pediatric patients forever

- You will not be alone

PHASE 2 - Process

a. Local/regional pediatric services will be appropriately restricted, including but not limited to deferrable surgeries and hospital admissions.

b. Admitting pediatric patients to adult ICU will only occur if specialized paediatric services are not anticipated to be required

c. Admission to adult ICUs with existing general pediatric support is preferred

d. Patients receiving active management from a pediatric medical or surgical subspecialist for an issue that directly impacts critical care management (e.g., oncology) should be prioritized for care at a paediatric institution, preferably where they are already known

PHASE 2 - Process

- 15 years and up
- 50 kg and up

a. Ideal patients would have single system disease or diseases that are not unique to children as the basis for their acute problems. This could include multi-organ complications of this single system disease.
b. Patients with typical illnesses might include but are not limited to
    - COVID and Non-COVID pneumonia/ARDS
    - Trauma
    - Burns
    - Ingestion/intoxication
    - Diabetic Ketoacidosis
    - Asthma
    - Refractory anaphylaxis
    - Status epilepticus
    - Acute non-congenital metabolic/renal derangements
    - Septic shock

PHASE 2 – Supports - Acutely

- Criticall – one number to call, PICU MD available 24/7
- Pediatric Virtual Critical Care (OTN platform) if available
- Pediatric RT, RN, Rx back up as needed
- Pediatric tertiary care sub-specialty consultation as needed
- Local pediatrician support/co-management

- Transport via Ornge or local ped critical care transport team
  - Regional variation/availability

PHASE 2 – Supports - Transition

- Ongoing discussions with regional pediatrician groups
- Principles:
  a. Prioritizing regional inpatient pediatric beds at tertiary and non-tertiary centres for transfer or repatriation of patients within adult ICUs once critical care needs are over.
  b. All attempts will be made to repatriate to regional centre if clinically appropriate.
  c. Systems to ensure appropriate followup with pediatric resources (e.g, Mental Health) will be essential on discharge from ICU.

Phase 3: Satellite PICU and Out of Province Transfers

- Select sites per region
- Enacting the distribution of these pediatric patients will be the responsibility of the Ontario COVID-19 Critical Care Command Centre and managed with collaboration of Criticall and Ornge

	MD Lead	Administrative Lead
Children's Hospital of Eastern Ontario (CHEO)	Sonny Dhanani	Tammy DeGiovanni
Hamilton Health Sciences Centre (HHSC)	Ronish Gupta	Bruce Squires
Kingston Health Sciences Centre (KHSC)	Anupam Sehgal	Brenda Carter
Children's Hospital, London Health Sciences Centre (LHSC)	Ram Singh/Janice Tijssen	Jatinder Bains
Sickkids (previously referred to as Hospital for Sick Children)	Elaine Gilfoyle/Steven Schwartz	Judy Van Clieaf

Q & A

Sincere thanks
from Pediatric Critical Care Advisory Committee

Thank you for joining us today

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Questions? **info@ccso.ca**