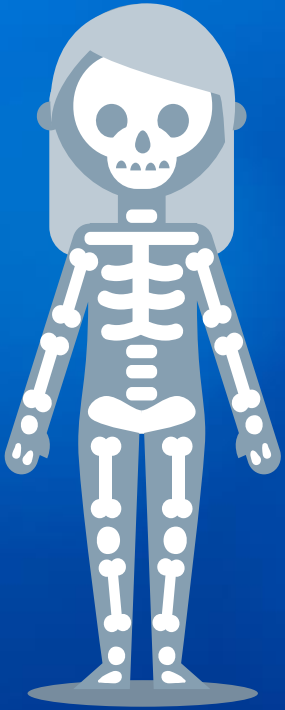


The background features a microscopic view of cells and viruses. On the left, there is a large cluster of cells with visible nuclei and cytoplasm. In the upper right, a single, small, spherical virus particle is shown. In the lower center, a larger, more detailed spherical virus particle is depicted, showing its characteristic surface proteins and structure. The overall color scheme is a gradient of blue and cyan.

COVID-19 in Pediatrics: Management Strategies

Dr. Narendra Singh



“Take Care of the
Kids
BUT
BEWARE OF THE
KIDS”

Coronavirus Disease 2019 in Children — United States, February 12–April 2, 2020

	COVID positive	Deaths	Fatality Rate
Kids	2573	3	0.002 %
Adults	435,128	14,795	3.4 %
Health Care Providers	10 – 28 %	??? > 250	

CHINA

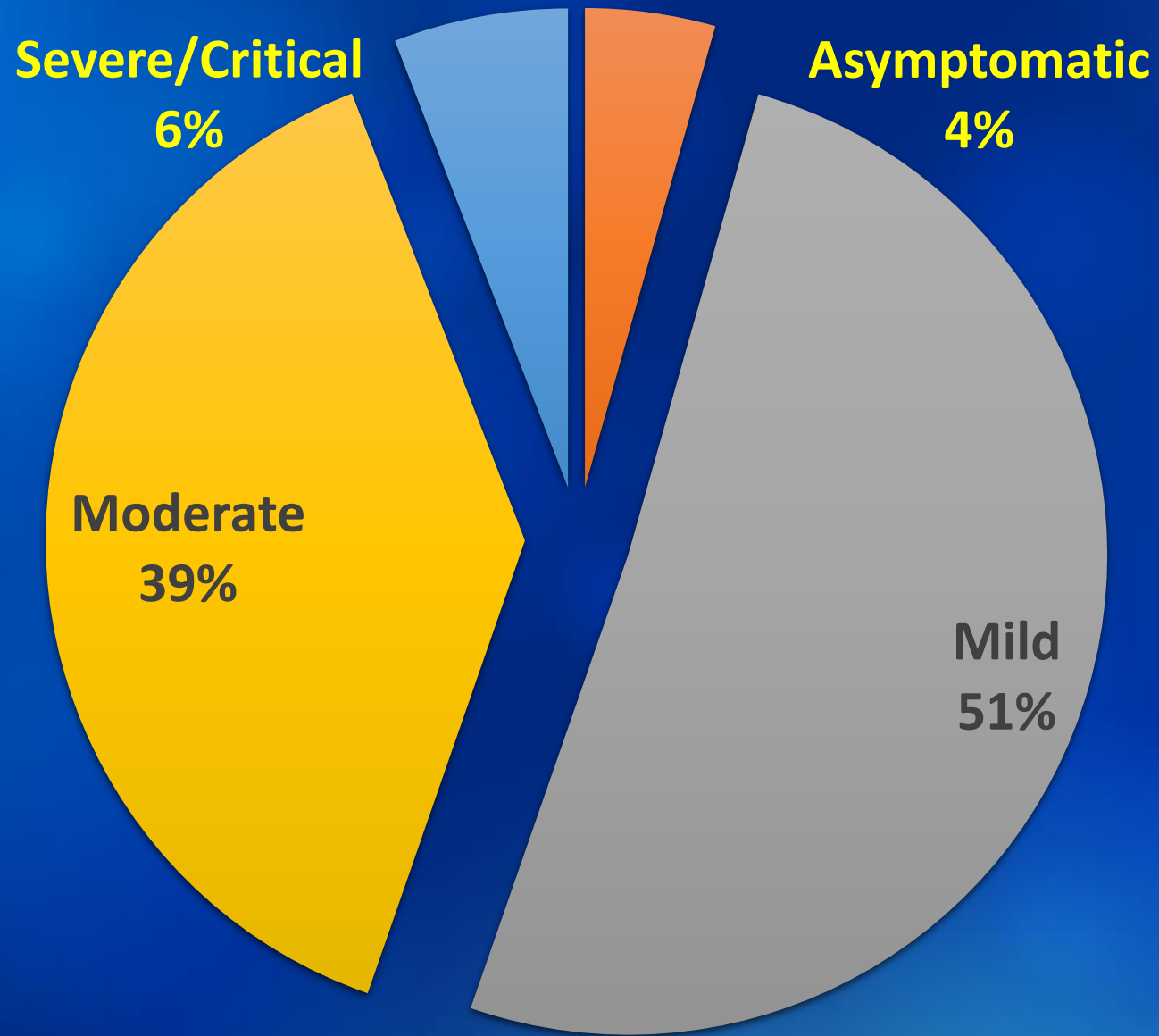
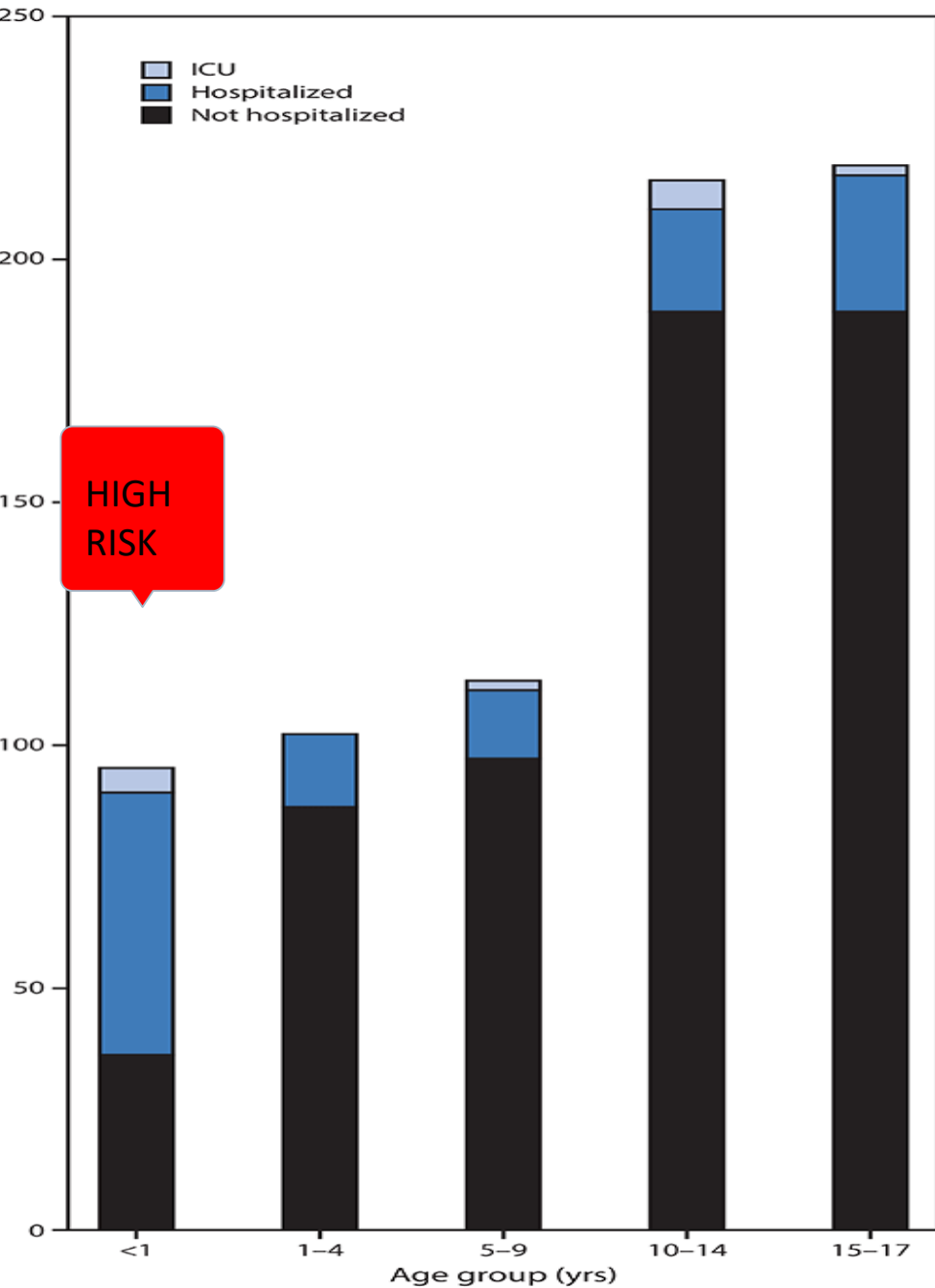


FIGURE 2. COVID-19 cases among children* aged <18 years, among those with known hospitalization status (N = 745),† by age group and hospitalization status — United States, February 12–April 2, 2020



USA

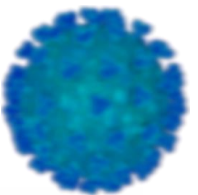
2573 Cases

147 admissions

(62 % are infants)

5 ICU Admissions

3 deaths



138

COVID-19 Positive

3

Confirmed Deaths

2302

Tested*

604

PICU Days

171

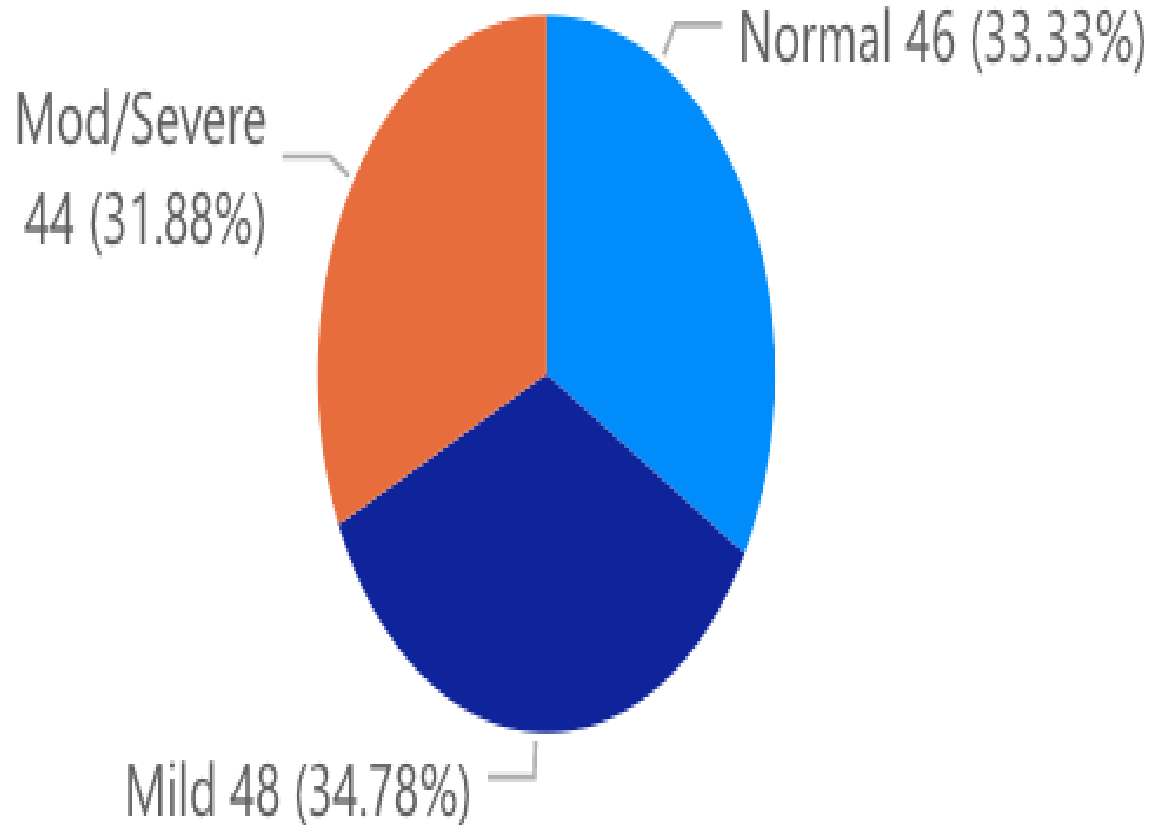
Sites Submitted Data*



COVID-19 Confirme



Comorbidity of Patients



Online Dashboard

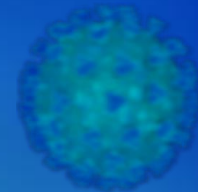
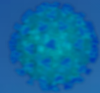
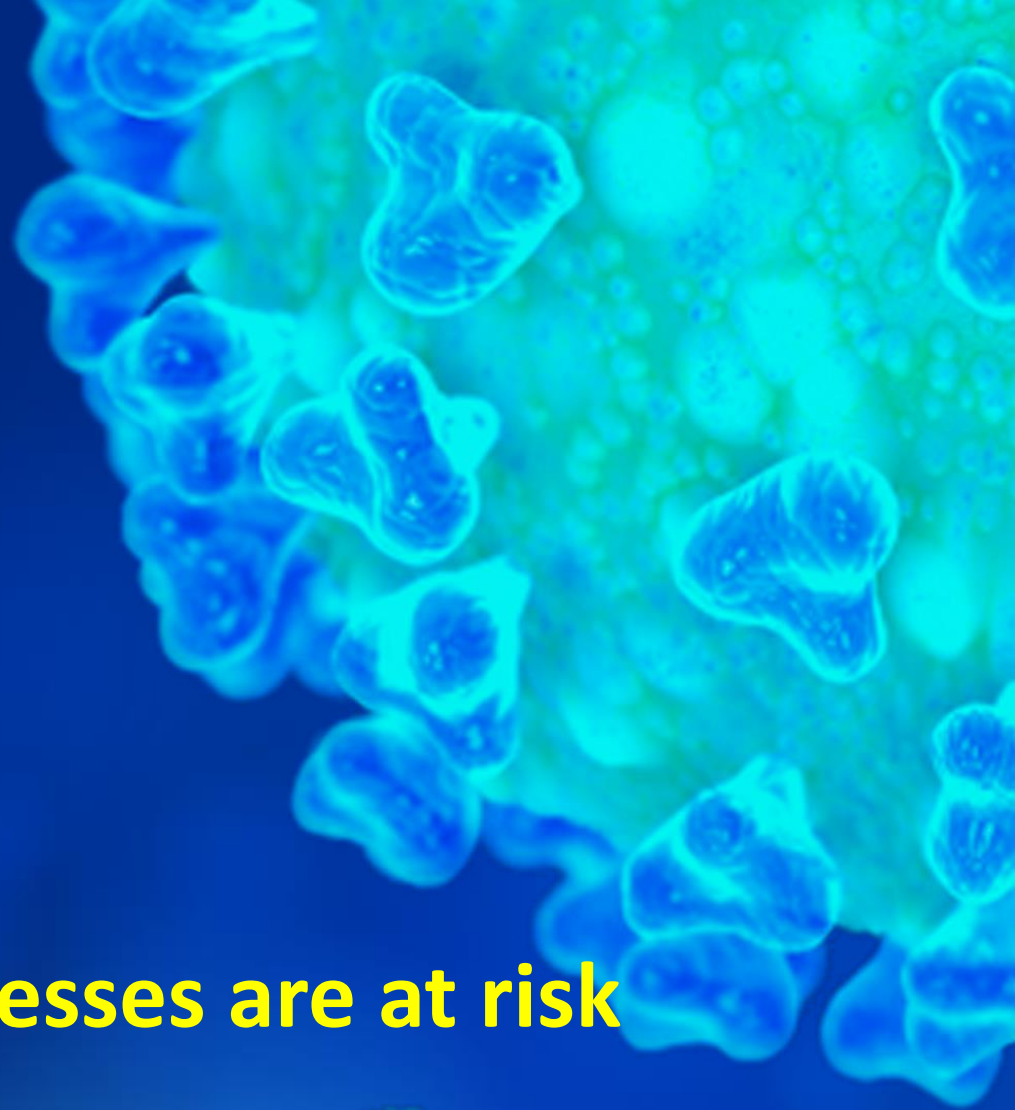
4/7/2020

9 BY STATE

	Positive	Deaths
	57	2
	17	0
	8	0
	7	0
	6	1
	5	0
	4	0
	4	0
	4	0
Total	138	3

TAKE AWAY MESSAGES

1. **Very Few Kids get severely Ill**
2. **Infants and Kids with Chronic illnesses are at risk**
3. **Kids are the perfect Vectors**



TRIAGE

Asymptomatic
And MILD

MODERATE

SEVERE

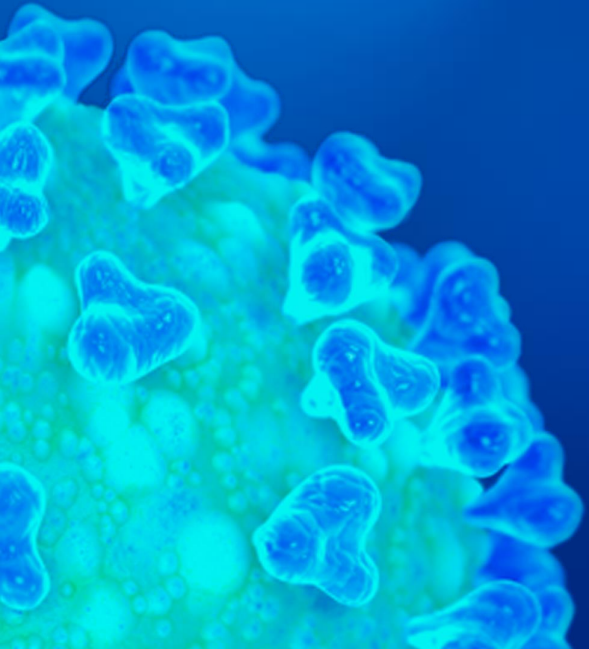
CRITICAL

1. Assume that they have COVID
2. Symptomatic treatment
3. Discharge Home if possible
4. Isolation for at least 14 days



SEVERE / CRITICAL

1. Admit to single isolation Room
2. CXR, Bloods, Viral Studies
3. IV Hydration
4. Broad Spectrum Antibiotics/ Tamiflu ?
5. Oxygen via nasal cannula to keep SaO₂ > 92 %
6. Bronchodilator Therapy: use MDI

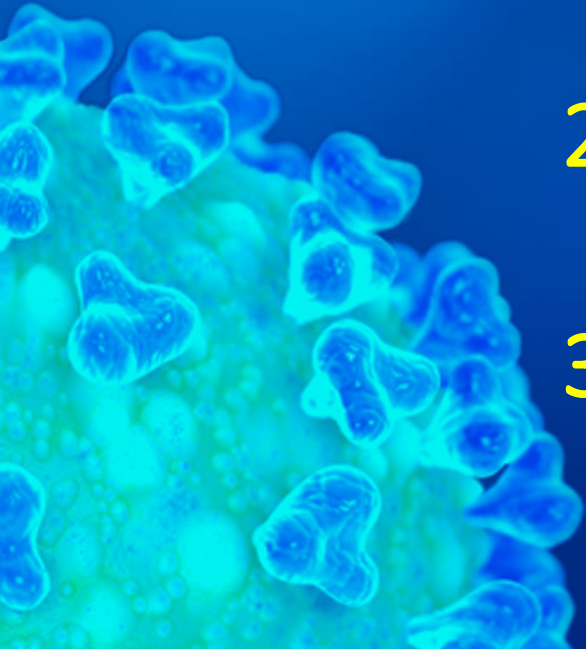


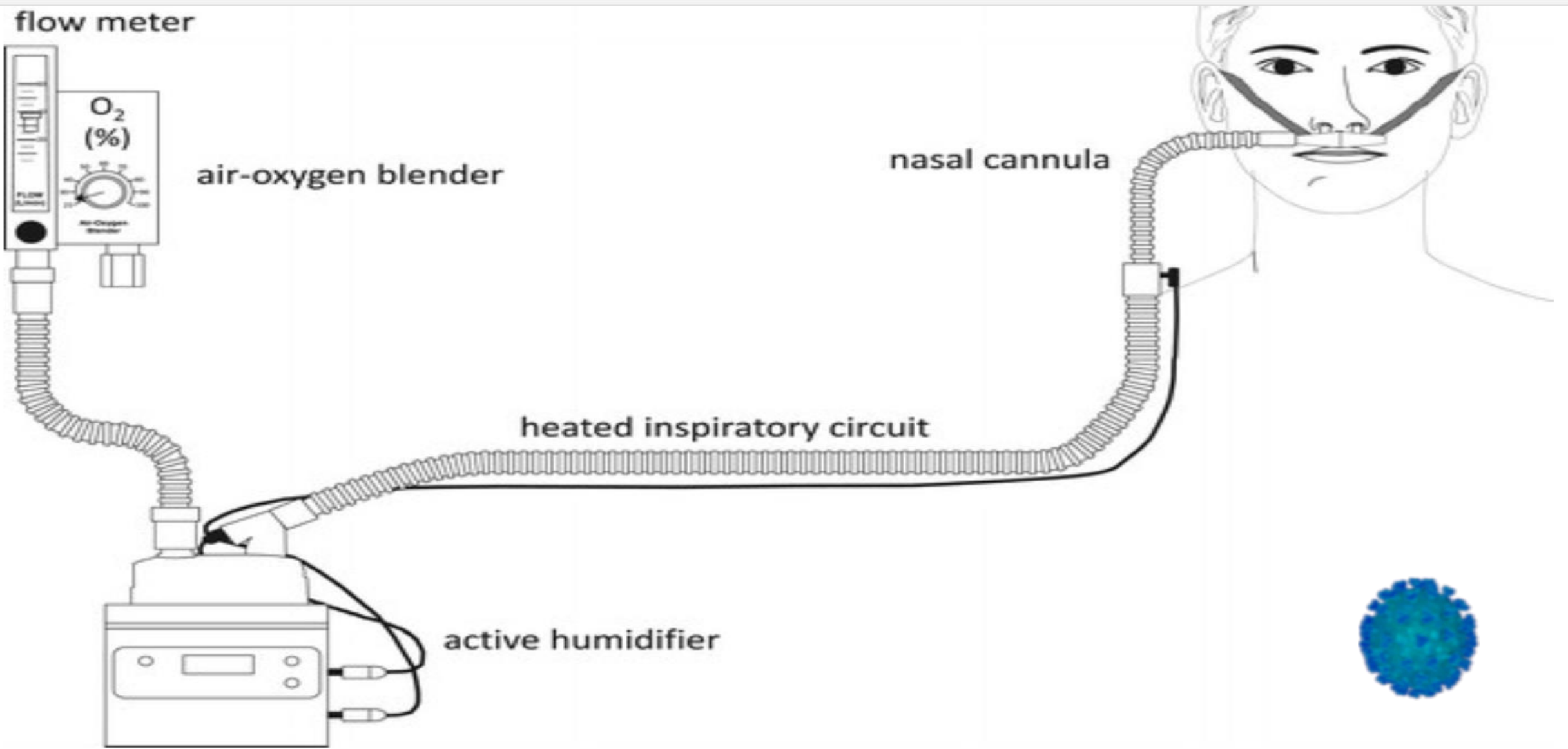


SEVERE / CRITICAL

HIGH FLOW NASAL CANNULA (HFNC)

1. Simple circuit
2. Heated(37 d.) and humidified air and oxygen
3. Cannula: $\frac{2}{3}$ diameter of the Nares

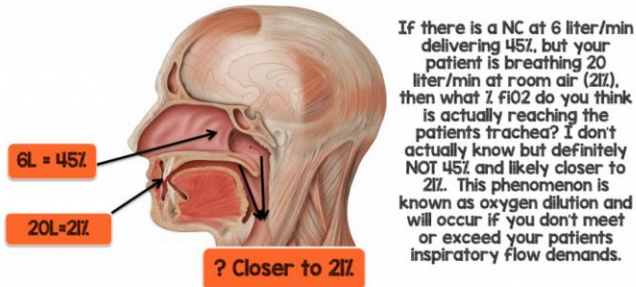




Principle setup of high-flow nasal cannula oxygen therapy. An air/oxygen blender, allowing from 0.21 to 1.0 FIO₂, generates up to 60 L/min flow. The gas is heated and humidified through an active heated humidifier and delivered via a single-limb heated inspiratory circuit. The patient breathes the adequately heated and humidified medical gas through nasal cannulas with a large diameter.

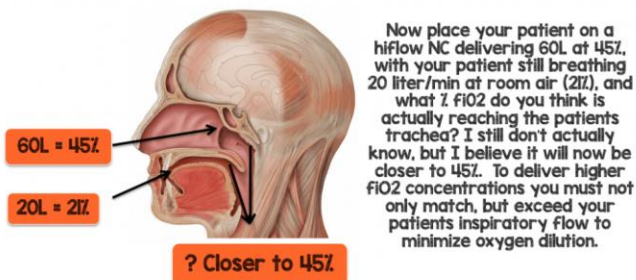
HOW DOES IT WORK

Oxygen Dilution



To deliver higher amounts of F_{iO_2} effectively to your patient you have to not only match, but exceed your patient minute ventilation and inspiratory demands to minimize oxygen dilution.

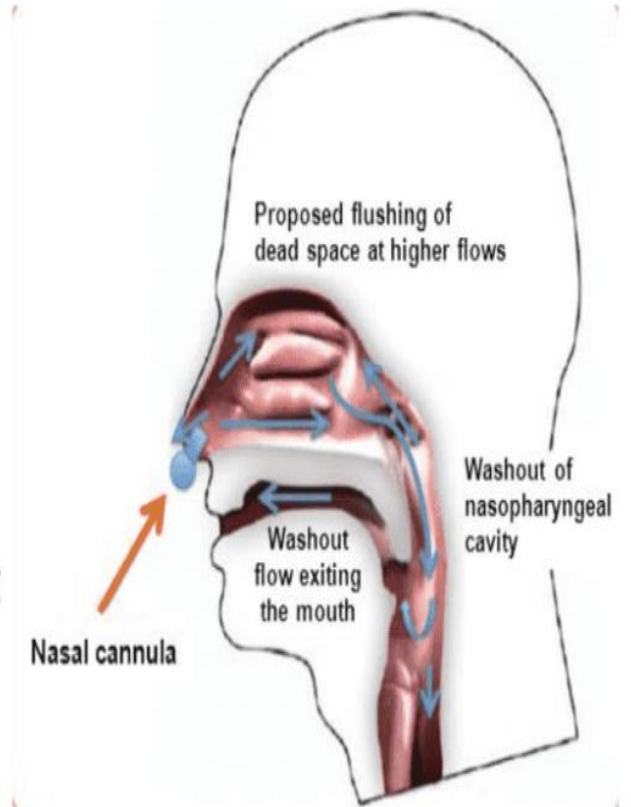
On HiFlow



Continuous high flow oxygen washes out the upper airways

Reservoir of oxygen in upper airway (pharynx) available for gas exchange

Avoids rebreathing of CO_2 and therefore decreases anatomic dead space



OXYGENATION

VENTILATION: CO_2

HFNC: Settings

- 1. 1 – 2 LPM / Kg (Max : 25 LPM)**
- 2. FiO₂ : 40 %**
- 3. Use MDI**
- 4. Use PPE**
- 5. Patient wears a mask**

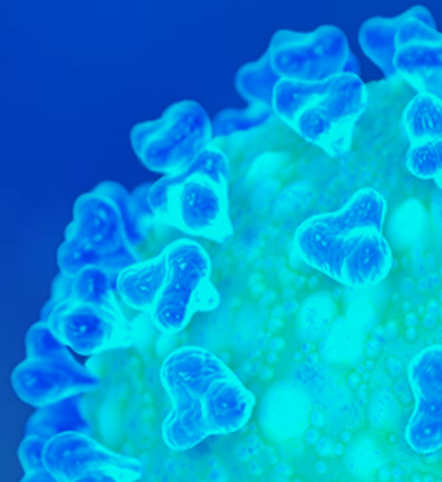




Figure 7. HVNI with Mask – velocity

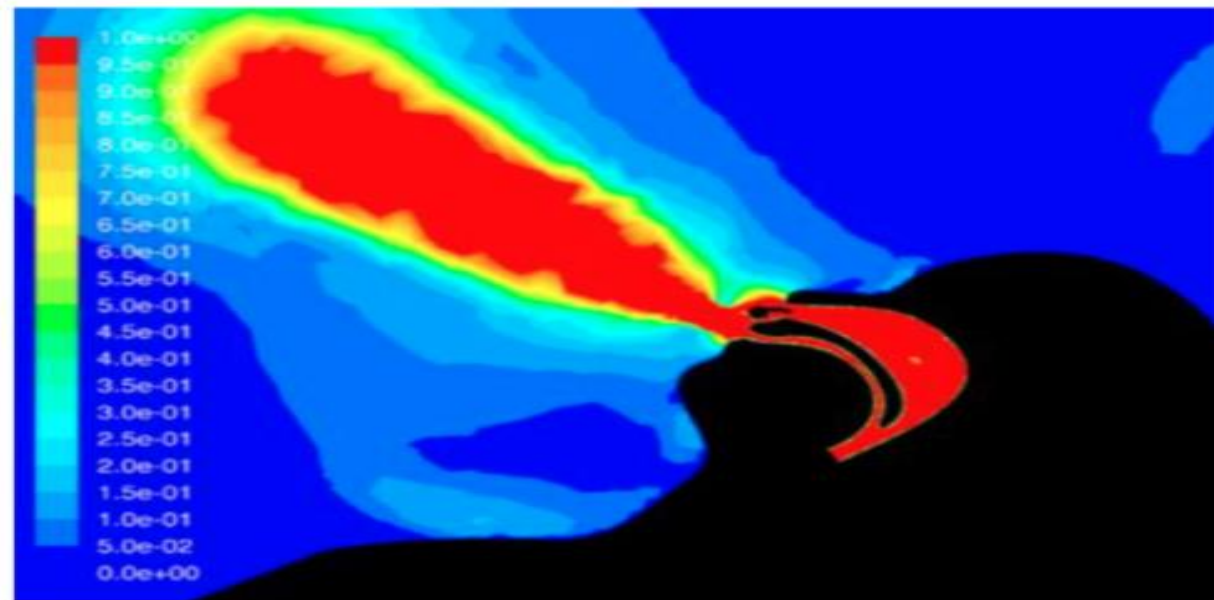


Figure 8. HVNI without Mask - velocity

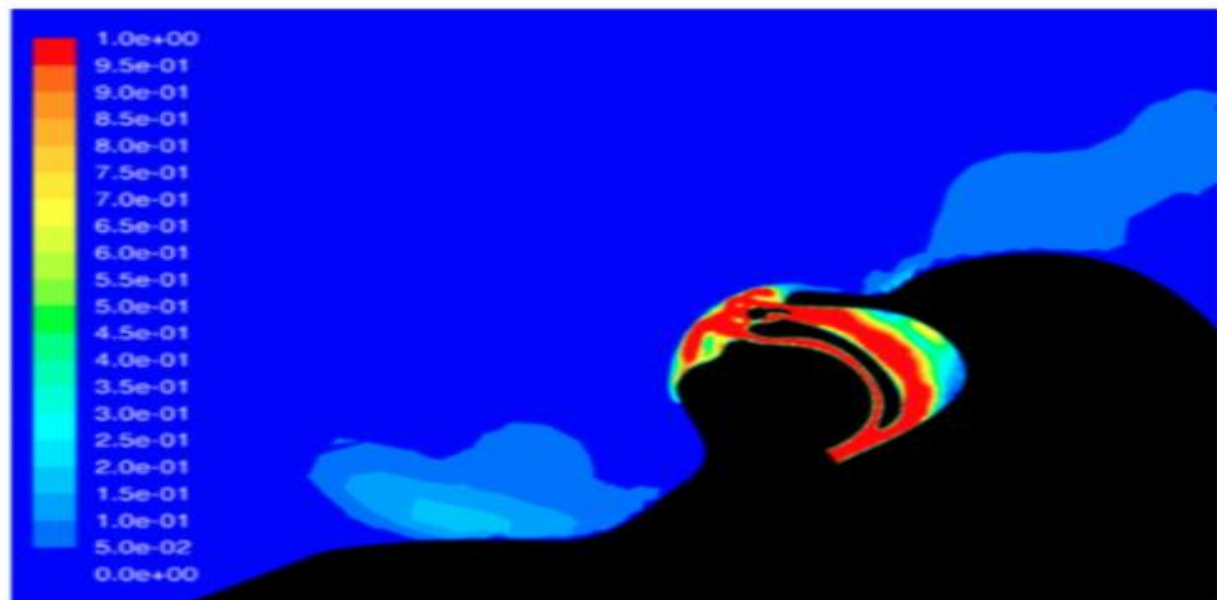


Figure 9. Low Flow Nasal Cannula with Mask – vel

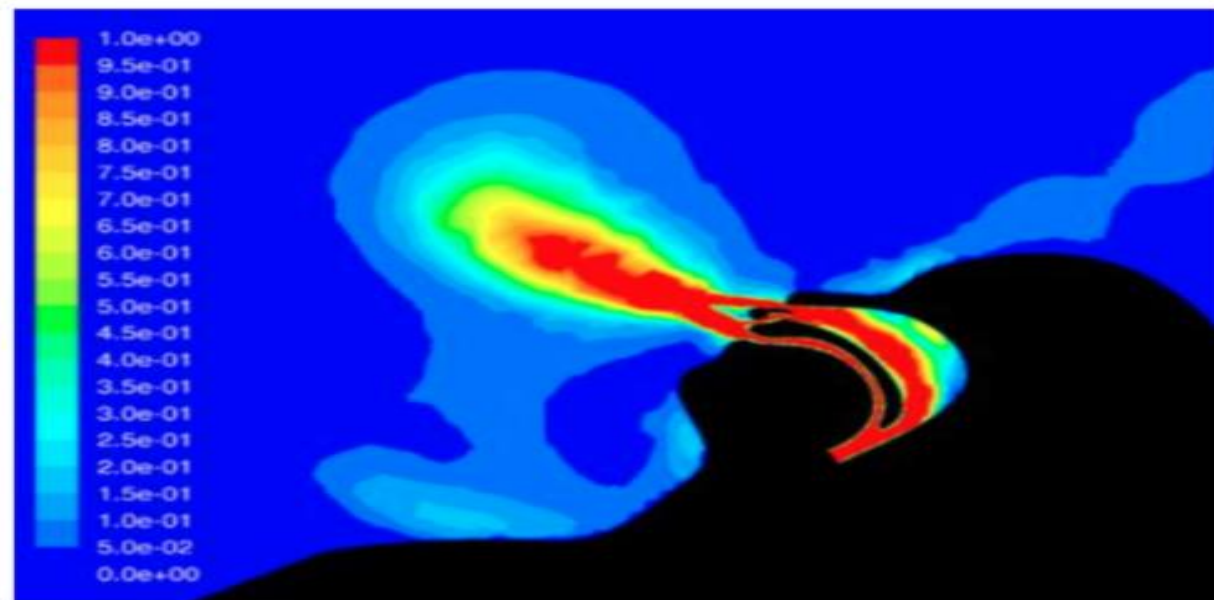


Figure 10. Low Flow Nasal Cannula w/o Mask - vel

CRITICAL : INTUBATION

1. Full PPE

2. Most Experienced

4. NO Bag and Mask

6. Cuffed ET tube preferred

8. Once Intubated Bag with Filter

9. Clamp ETT before you hook up Ventilator



Critical : Mechanical Ventilation

1. LUNG Protection Settings

Low tidal Volume: 6-8 mls /kg

Keep PIP < 30 cm/H₂O

PEEP 6 cm H₂O and titrate

2. Prone Position

3. Inline suctioning

4. Bronchodilator via MDI

through the circuit



SUMMARY

1. Kids have very mild disease
2. Beware of the high risk Groups
3. Protect your Staff





THANKS!

Dr. Narendra Singh
ncsingh@rogers.com
416-7207512

CREDITS: This presentation template was created by [Slidesgo](#), including icons by [Flaticon](#), and infographics & images by [Freepik](#)