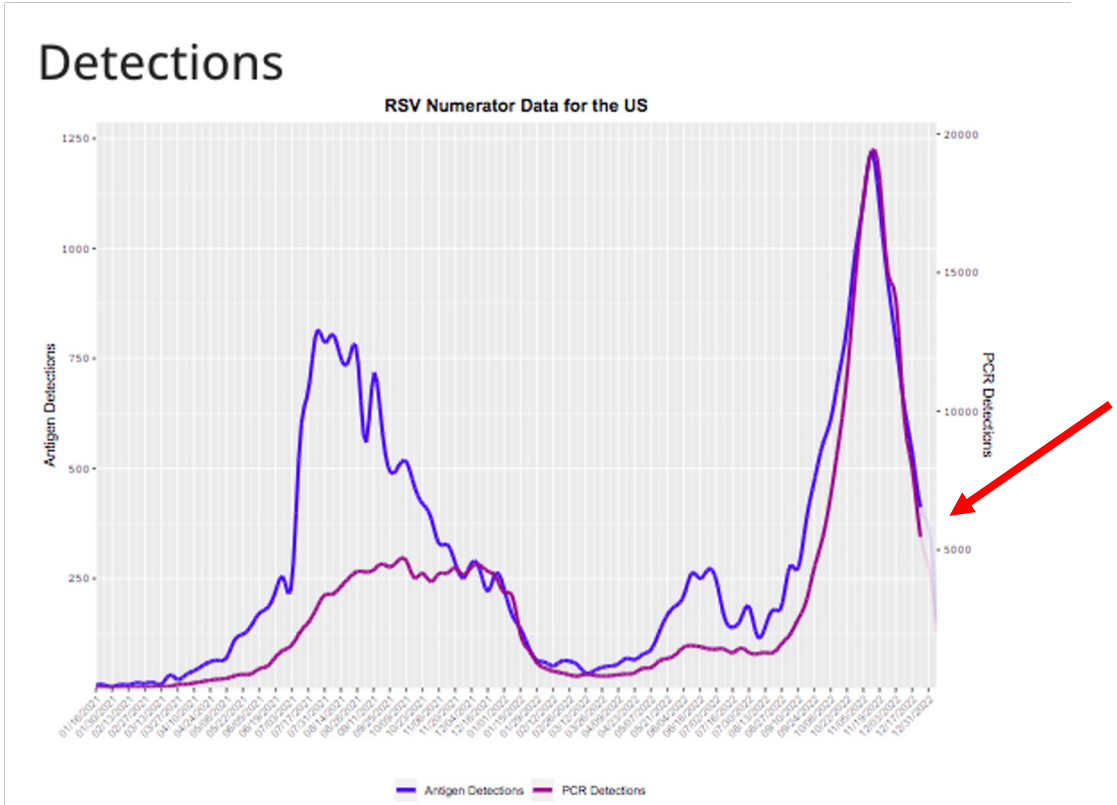
# Boarding the Bronchiolitis Patient

**Bringing Inpatient Pediatric Care to the Emergency Department**

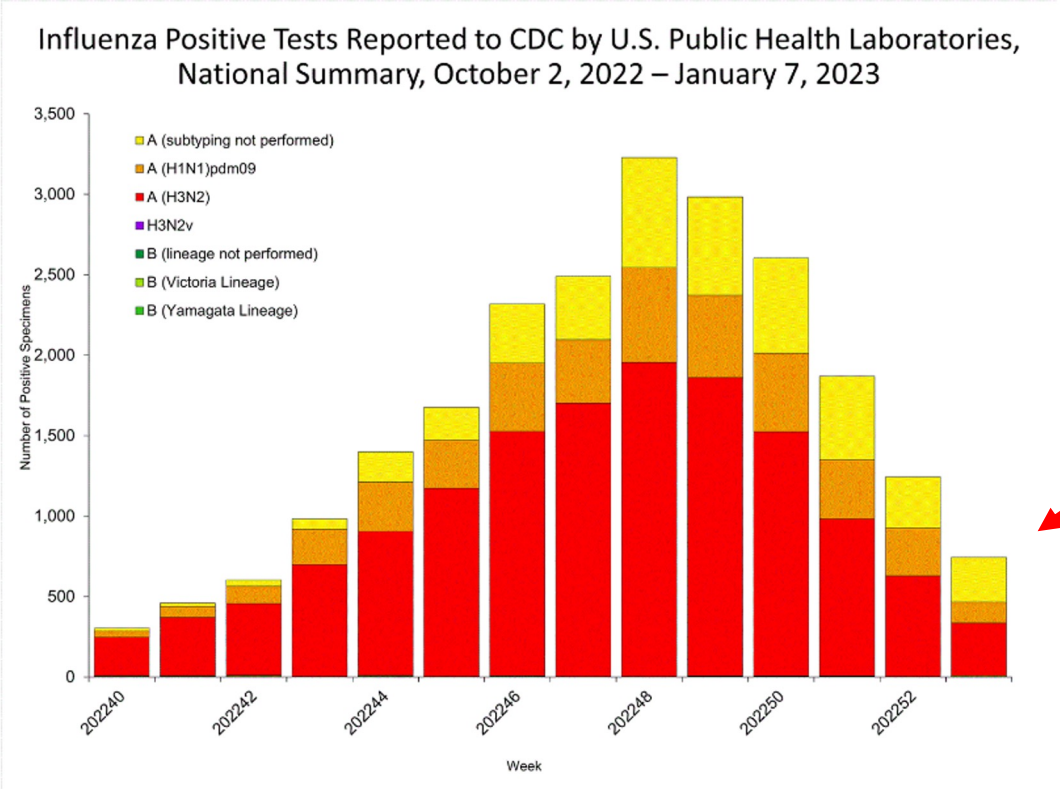
# Current Respiratory Trends

# CDC Surveillance - RSV



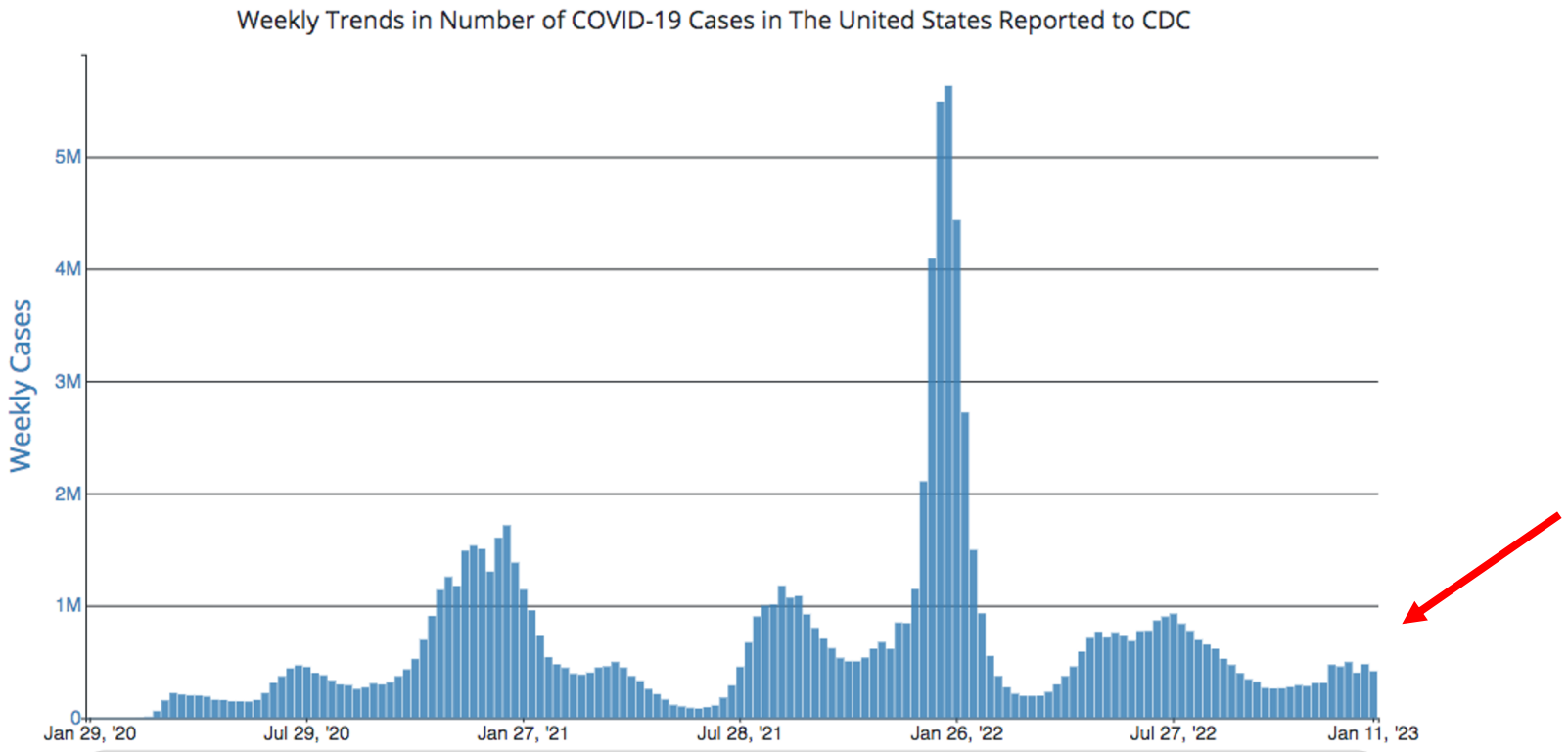

CDC NRVESS. RSV National Trends. https://www.cdc.gov/surveillance/nrevss/rsv/natl-trend.html

# CDC Surveillance - Influenza



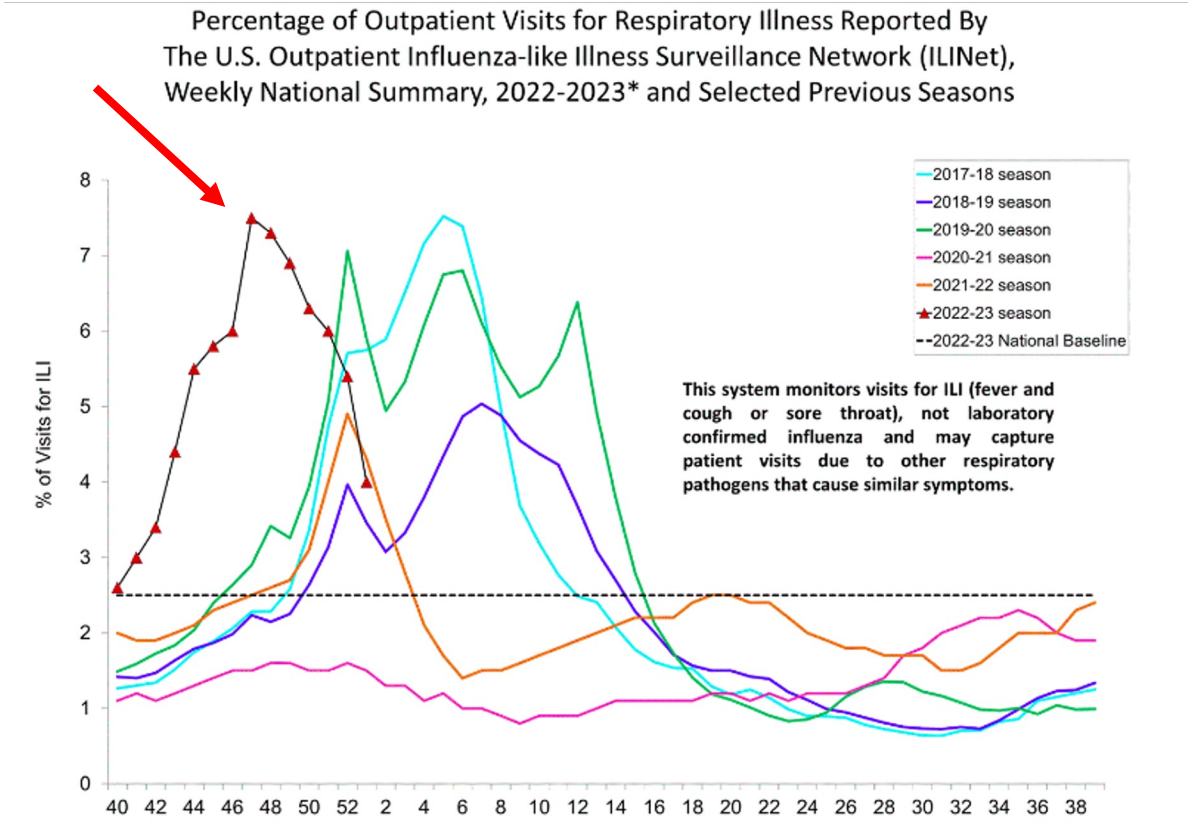

CDC Weekly Influenza Surveillance Report. https://www.cdc.gov/flu/weekly/index.htm

# CDC Surveillance - Covid



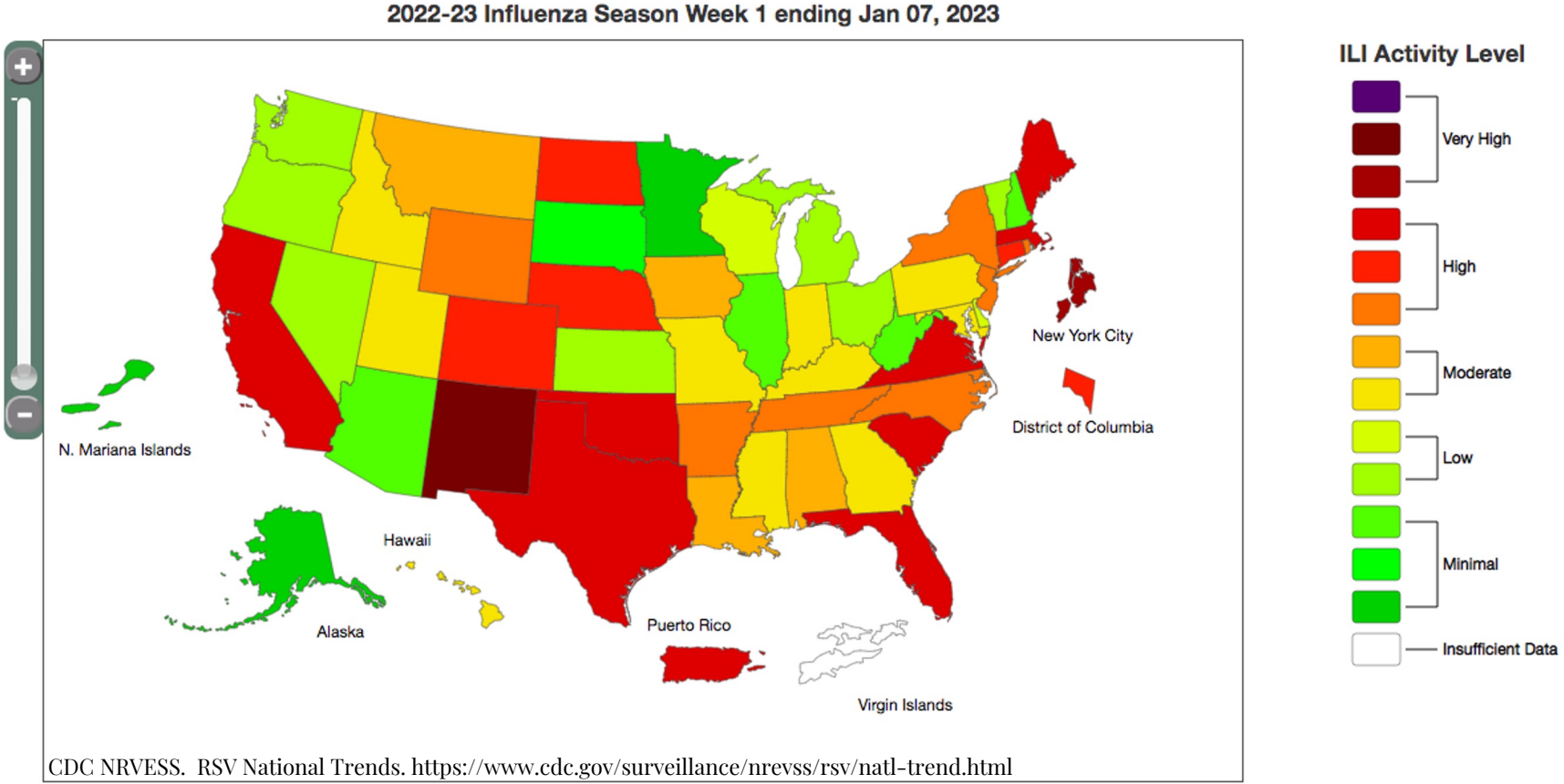

CDC Covid data tracker. https://covid.cdc.gov/covid-data-tracker/#trends_weeklycases_select_oo

# CDC Surveillance - Influenza Like Illness




CDC Weekly Influenza Surveillance Report. https://www.cdc.gov/flu/weekly/index.htm

# CDC Surveillance - Nationwide Variability

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# ED Boarding: A National Problem

# From "A Campfire to a Forest Fire": The Devastating Effect of Wait Times, Wall Times and Emergency Department Boarding on Treatment Metrics

by ALAN HUFFMAN

*Special Contributor to Annals News & Perspective*

The shortages go beyond frontline clinicians, Venkatesh said. "You wish you had more of everything—not only doctors and nurses but an extra

who need care for critical issues such as strokes, sepsis, heart attacks and other cardiological issues, and trauma.

The pandemic exacerbated delays, but it's inaccurate to say it caused them, Venkatesh said. "We always had a fire going, but it was a campfire. Now it's a forest fire," he said.

In one of 2 articles about the studies reported in *JAMA Network Open*, Venkatesh and his fellow researchers noted "the failure of the emergency care system to maintain broad access in the context of pandemic demands" and concluded that "existing regulatory and financial incentives may be inadequate to meet challenges of future pandemic waves and other disasters." [2]

In their analysis[3] of the databases, the researchers found that when hospital occupancy was above 85 percent, ED boarding typically exceeded the 4-hour duration considered safe by the Joint Commission, which sets standards for hospitals. Boarding overall increased through

“There’s also this massive situation - if you want to call it the great resignation - where we just don’t have enough workforce.  And the ED is the safety net.  We’re shunting all health care needs to the ED, and there aren’t enough resources in the ED.”

November 7, 2022

The President
The White House
1600 Pennsylvania Avenue NW
Washington, D.C. 20500

Mr. President:

There is no question that Americans have suffered great loss of life and endured financial hardships, across all sectors, over the past 32 months due to the COVID-19 pandemic. Frontline healthcare workers risked their lives, provided care during physically and emotionally demanding situations, and bore witness to their patients' goodbyes to loved ones from afar.

Yet, in recent months, hospital emergency departments (EDs) have been brought to a breaking point. Not from a novel problem – rather, from a decades-long,[1] unresolved problem known as patient "boarding," where admitted patients are held in the ED when there are no inpatient beds available. While the causes of ED boarding are multifactorial, unprecedented and rising staffing shortages throughout the health care system have recently brought this issue to a crisis point, further spiraling the stress and burnout driving the current exodus of excellent physicians, nurses and other health care professionals.

Emergency department boarding crisis sign on letter. https://www.acep.org/globalassets/new-pdfs/advocacy/emergency-department-boarding-crisis-sign-on-letter-11.07.22.pdf

# Introductions

Facilitator

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# Objectives

# Objectives

Understand the national increase in Emergency Department boarding times
Understand escalation of care for the bronchiolitis patient in the ED
Understand longitudinal care of the bronchiolitis patient in the ED
    frequency of assessment/interventions, disposition and escalation of care
Understand Respiratory Therapy interventions and adjuncts -
    effective suctioning,
    advanced interventions - hfnc/nasal cpap or bipap
Understand how to improve transitions to higher level of care (NICU/PICU)

# A Case

# A Case

CC: Abnormal breathing

# HPI

5 month old female

Full term, vaccinated, breast fed

Cough, runny nose x 4 days

Intermittent fever

Now decreased feeding, abnormal breathing and tired since today

T 102.1 F HR 205 RR 75

O2 sat 85%

Weight 4.3 kg

# Exam

Gen - Somnolent, irritable when aroused

HEENT - copious secretions

Card - cap refill < 3 seconds

Resp - tachypneic, suprasternal/intercostal and subcostal retractions, rhonchi

Neuro - somnolent, irritable when aroused, moves all extremities, flexed tone

# Workup

RSV +

Influenza/Covid -

Wbc 14, plts 256,000

Na 148, K 3.6, Cl 100, $CO_2$ 18

BUN 16, Creat 0.7

Gluc 92

# Pediatric Emergency Medicine

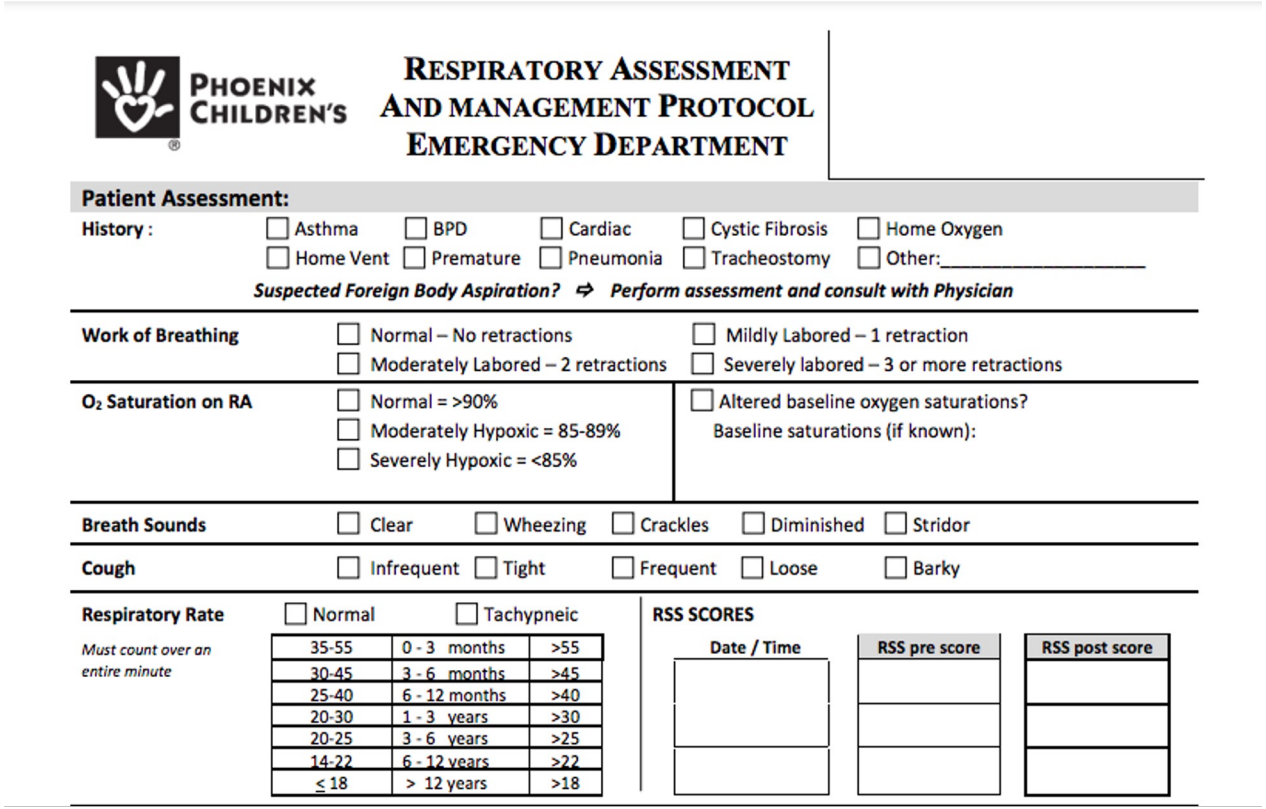
# Phoenix Children's Hospital - ED Assessment and Management Protocol

PHOENIX CHILDREN'S

## RESPIRATORY ASSESSMENT AND MANAGEMENT PROTOCOL EMERGENCY DEPARTMENT

| RSS Score - PARAMETER | | 0 Points | 1 Point | 2 Points | 3 Points |
|---|---|---|---|---|---|
| Respiratory Rate MUST count over an entire minute | 0-6 months | < 50 | 50 – 60 | 61 – 69 | ≥ 70 |
| | 7-12 months | < 40 | 40 – 50 | 51 – 59 | ≥ 60 |
| | 13-24 months | < 30 | 30 – 45 | 46 – 59 | ≥ 60 |
| | 2-3 years | < 30 | 31 – 34 | 35 – 39 | ≥ 40 |
| | 4-5 years | < 25 | 26 – 30 | 31 – 35 | ≥ 36 |
| | 6-12 years | < 22 | 23 – 26 | 27 – 30 | ≥ 31 |
| | ≥ 12 years | < 18 | 18 – 23 | 24 – 27 | ≥ 28 |
| $SpO_2$ on RA | < 2 years | ≥ 90% | 88% - 89% | 86% - 87% | ≤ 85% |
| | ≥ 2 years | >95% | 90% - 95% | 85% - 89% | < 85% |
| Breath Sounds | | Clear | Scattered wheezes or end-expiratory wheezes | Diffuse expiratory wheezing | Insp and Exp wheezing or little to no audible air movement |
| Retractions Nasal flaring | | Absent | 1 retraction: Intercostal or Subcostal | 2 of the following: Subcostal, Intercostal, Substernal, **OR** Nasal flaring (infants) | 3 of the following: Subcostal, Intercostal, Substernal, Suprasternal, Supraclavicular, **OR** Nasal flaring + Head bobbing (infants) |
| Dyspnea / General Appearance | < 2 years | No distress. Normal feeding, vocalization and activity. | Mildly irritable; easy to console | Moderately irritable; difficult to console | Extremely irritable; cannot be comforted |
| | 2-4 years | Normal feeding, vocalization and play. | 1 of the following: Decreased appetite, increase coughing after play, hyperactivity | 2 of the following: Decreased appetite, increase coughing after play, hyperactivity | Stops eating or drinking, stops playing, **OR** drowsy and confused |
| | ≥ 4 years | Counts to ≥ 10 in one breath | Counts to 7-9 in one breath | Counts to 4-6 in one breath | Counts to ≤ 3 in one breath |

# Phoenix Children's Hospital - ED Assessment and Management Protocol



PHOENIX CHILDREN'S

## RESPIRATORY ASSESSMENT AND MANAGEMENT PROTOCOL EMERGENCY DEPARTMENT

**Patient Assessment:**

**History :** ☐ Asthma ☐ BPD ☐ Cardiac ☐ Cystic Fibrosis ☐ Home Oxygen
☐ Home Vent ☐ Premature ☐ Pneumonia ☐ Tracheostomy ☐ Other:_____

***Suspected Foreign Body Aspiration? ⇨ Perform assessment and consult with Physician***

**Work of Breathing** ☐ Normal – No retractions ☐ Mildly Labored – 1 retraction
☐ Moderately Labored – 2 retractions ☐ Severely labored – 3 or more retractions

**$O_2$ Saturation on RA** ☐ Normal = >90%
☐ Moderately Hypoxic = 85-89%
☐ Severely Hypoxic = <85%
☐ Altered baseline oxygen saturations?
Baseline saturations (if known):

**Breath Sounds** ☐ Clear ☐ Wheezing ☐ Crackles ☐ Diminished ☐ Stridor

**Cough** ☐ Infrequent ☐ Tight ☐ Frequent ☐ Loose ☐ Barky

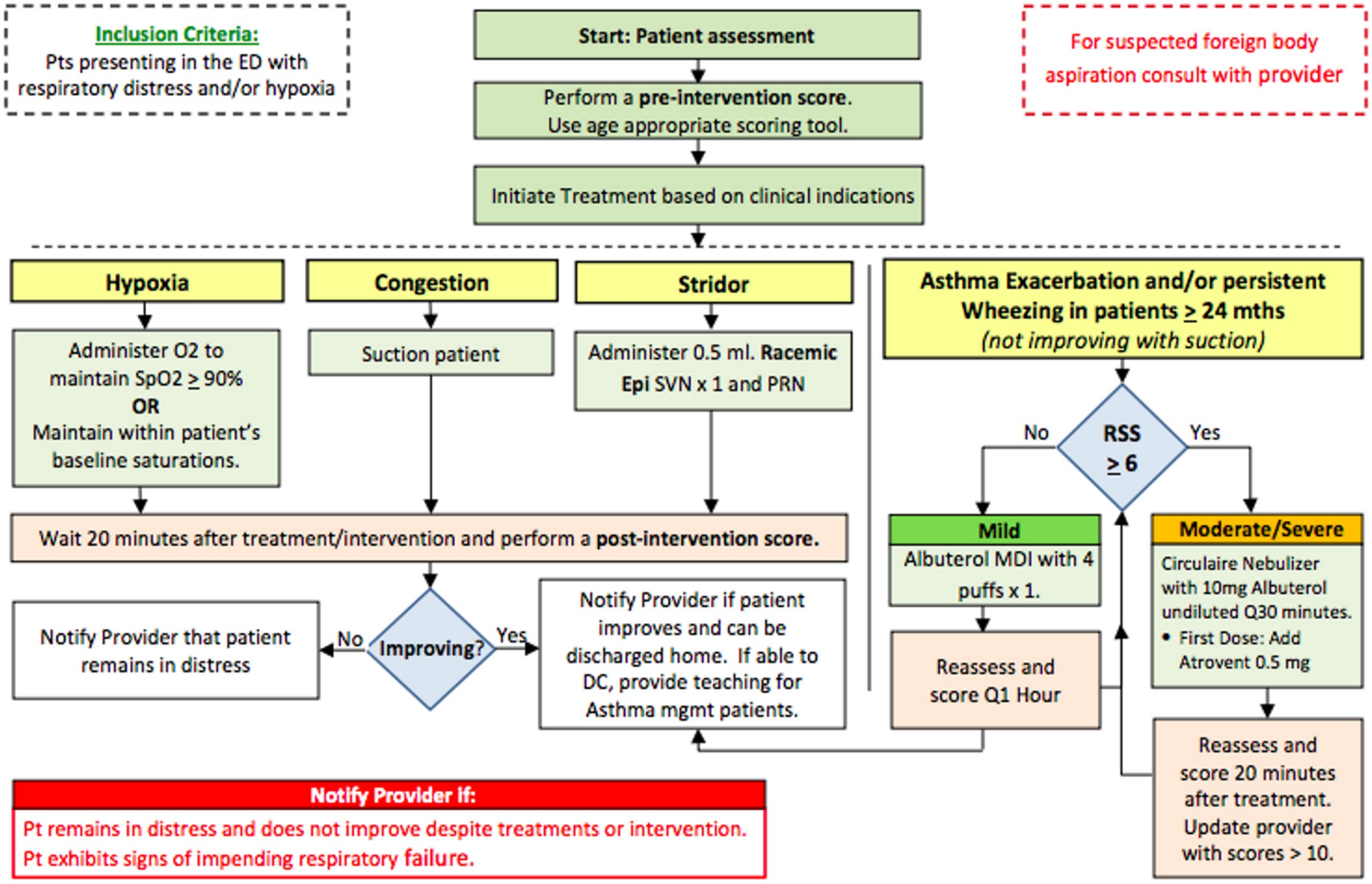
**Respiratory Rate** ☐ Normal ☐ Tachypneic

*Must count over an entire minute*

| | | |
|---|---|---|
| 35-55 | 0 - 3 months | >55 |
| 30-45 | 3 - 6 months | >45 |
| 25-40 | 6 - 12 months | >40 |
| 20-30 | 1 - 3 years | >30 |
| 20-25 | 3 - 6 years | >25 |
| 14-22 | 6 - 12 years | >22 |
| ≤ 18 | > 12 years | >18 |

**RSS SCORES**

| Date / Time | RSS pre score | RSS post score |
|---|---|---|
| | | |
| | | |
| | | |


Inclusion Criteria:
Pts presenting in the ED with respiratory distress and/or hypoxia
Start: Patient assessment
Perform a pre-intervention score. Use age appropriate scoring tool.
Initiate Treatment based on clinical indications
For suspected foreign body aspiration consult with provider
Hypoxia
Congestion
Stridor
Asthma Exacerbation and/or persistent Wheezing in patients ≥ 24 mths (not improving with suction)
Administer O2 to maintain SpO2 ≥ 90% OR Maintain within patient's baseline saturations.
Suction patient
Administer 0.5 ml. Racemic Epi SVN x 1 and PRN
No
RSS ≥ 6
Yes
Mild
Albuterol MDI with 4 puffs x 1.
Moderate/Severe
Circulaire Nebulizer with 10mg Albuterol undiluted Q30 minutes.
First Dose: Add Atrovent 0.5 mg
Wait 20 minutes after treatment/intervention and perform a post-intervention score.
Notify Provider that patient remains in distress
No
Improving?
Yes
Notify Provider if patient improves and can be discharged home. If able to DC, provide teaching for Asthma mgmt patients.
Reassess and score Q1 Hour
Reassess and score 20 minutes after treatment. Update provider with scores > 10.
Notify Provider If:
Pt remains in distress and does not improve despite treatments or intervention.
Pt exhibits signs of impending respiratory failure.

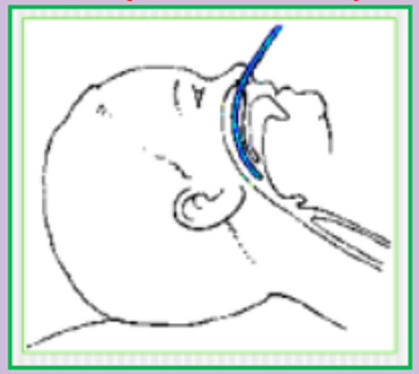
# Standard Suctioning - How To

Olive Tip - BBG

# Deep Suctioning - How To

- When is nasopharyngeal (NP) "deep" suctioning with a catheter needed to be performed by RN or RT?
  - When secretions are not relieved with nasal suctioning
  - Deep suctioning is not frequently necessary. Reserve for patients with signs of significant airway obstruction - weak cough, tenacious secretions, decreased aeration
- Are you comfortable performing nasopharyngeal suction? Do you know how to pre-measure?

Pre-measure: nose to ear



Tip of catheter will be above the vocal cords

*Routine use of NS for suctioning is not warranted, however a few drops of NS may be used sparingly to moisten the nares and help loosen secretions*

Revised Nov 2020

T 101.1 F  HR 175  RR 55

O2 sat 89%

# Adjuncts

Hydration

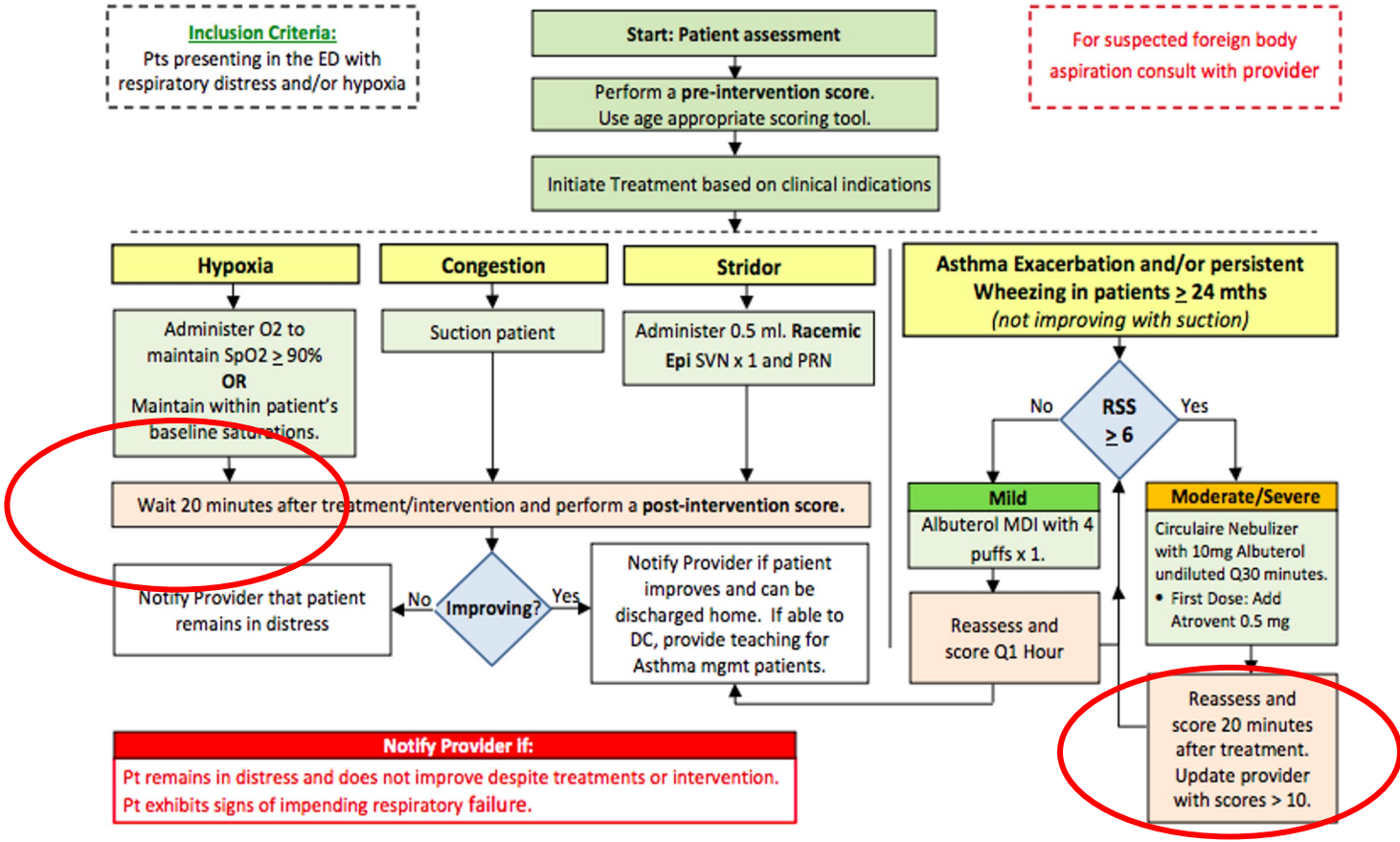
Anti-Pyretic

Antibiotics

Albuterol

Steroids

# Reassessment



# High Flow Nasal Cannula

When do you implement

Starting settings

Max settings

# Intubation Preparation

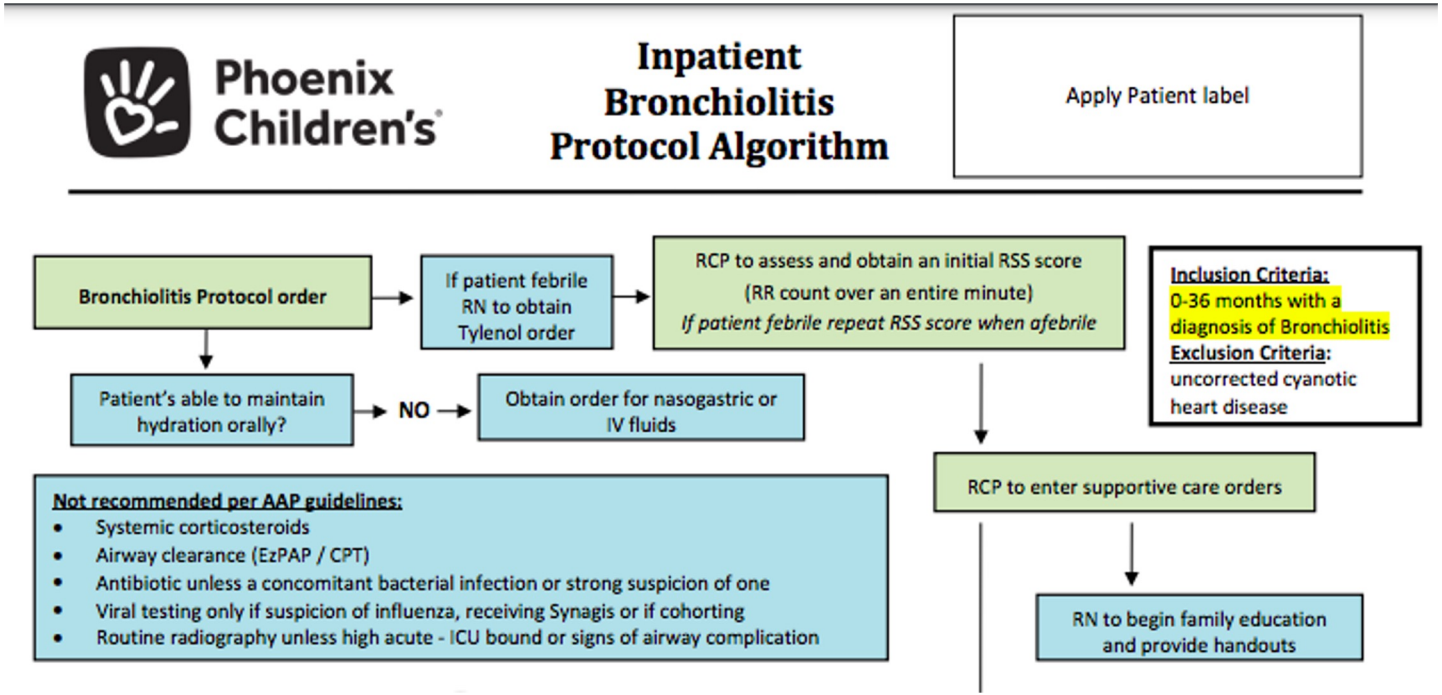
Recommended real time reference

T 99.4 F  HR 140  RR 36
O2 sat 92%

# Inpatient Pediatrics

T 99.4 F  HR 140  RR 36
O2 sat 92%

# Assessment and Reassessment



# Assessment and Reassessment

****SUPPORTIVE CARE ORDERS****

- **Oral and/or nasal suctioning as needed by RN:** Evaluate need for suction with every assessment and prior to feeds.
  - *Deep suctioning into the pharynx or larynx should be reserved for patients with significant airway obstruction.*
  - RN to call RCP for increasing respiratory distress
- **Pulse oximetry**
  - < 1 month of age = Continuous pulse oximetry
  - > 1 month of age = Continuous pulse oximetry **UNTIL** on room air, **THEN** Spot check pulse oximetry Q4 and PRN
- **Supplemental $O_2$ if $SpO_2$ is consistently <88%:**
  - Wean $O_2$ and discontinue when $SpO_2$ is consistently ≥ 88% for 1 hour
  - If $SpO_2$ falls below 88% and the patient remains comfortable, assess and suction prior to restarting $O_2$
- **RCP to assess and perform RSS score:**
  - Score **PRE and POST** interventions (allow child to recover prior to POST score).

    ***Inpatient RCP assessments:***
    - **PRN if post score is 0-4** ***(RN to call RCP for PRN assessments)***
    - **Q4 if post score is ≥ 5**
    - **Q2 if post score ≥ 7**
- **RN to notify physician when discharge criteria are met.**
  - Room air saturation at least 88% for ≥ 4 hours for inpatients
  - Age appropriate respiratory rate without significant work of breathing
  - Maintaining age appropriate hydration
  - Discharge education complete

# Assessment and Reassessment - Suctioning

**SUCTIONING.....is a shared responsibility between nursing and respiratory!**

Young infants are obligate nose breathers. Nasal suctioning will clear nasal passages and diminish work of breathing.

- When is suction needed?
  - Minimally every 4 hours and PRN
  - Prior to feeds and naps
  - Prior to initiating or turning up oxygen
  - Obvious signs of nasal congestion

Nasal Aspirator (BBG)

Literature* supports lapses > 4 hours between suctioning events are associated with a longer hospitalization stay.
*JAMA PEDATR/May 2013*

# High Flow Nasal Cannula on the Floor

Acceptable?

Max allowable settings?

# Nasal CPAP/BiPAP

Clinical utility

Indications

T 99.4 F  HR 185  RR 68

O2 sat 92%

# Respiratory Therapy

T 99.4 F  HR 185  RR 68

O2 sat 92%

# Onboarding in the PICU

Describe typical initial assessment

Common ED and/or floor loose ends

# Non-Invasive Ventilation

Nasal cannula

High Flow Nasal Cannula

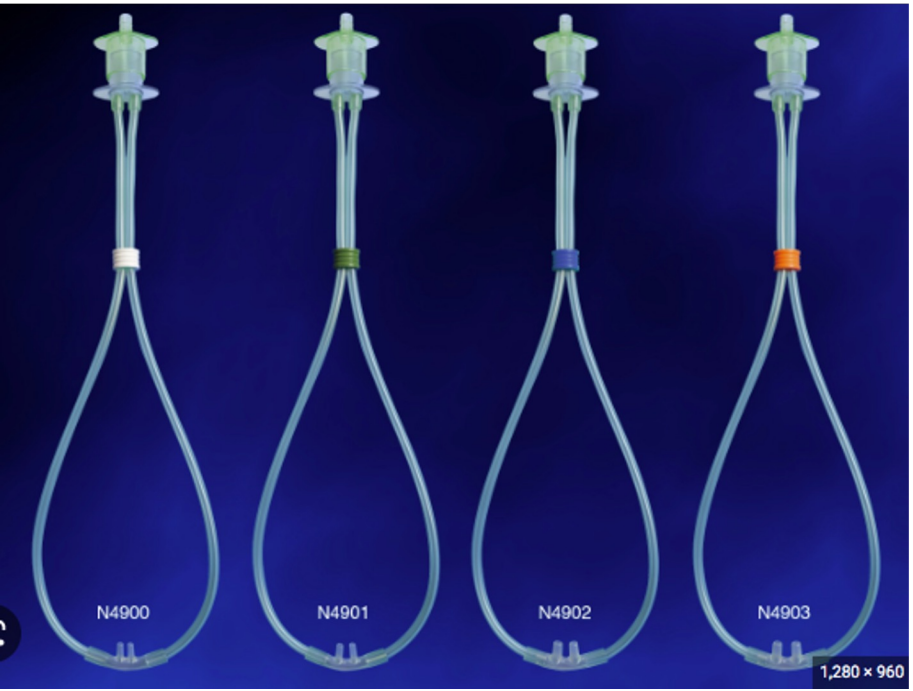
RAM Cannula

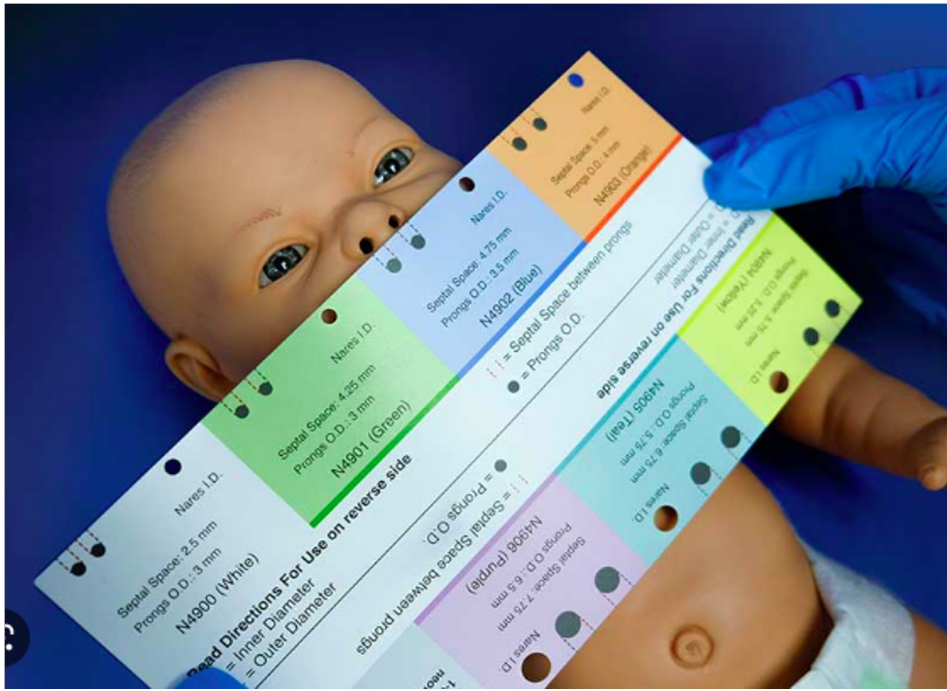
Nasal CPAP

Nasal BiPAP

# High Flow Nasal Cannula - Physiology and How-To

# RAM Cannula - Physiology and How-To



# Nasal CPAP/BiPAP - Physiology and How-To

# Invasive Ventilation

Initial Mode

Initial Settings

Real time reference

T 99.4 F  HR 140  RR 36
O2 sat 92%