

# Guidelines for Pediatric Chronic Ventilator Patients on the Floor



- There should be a maximum of **4** ventilator patients on the floor at any given time, including patients receiving non-invasive ventilation (aka “BiPAP”) with a ventilator.
- Transfers from the PICU to the floor should **not** routinely occur at night or on weekends
- If extenuating circumstances require the need to exceed 4 patients, or transfers during nights/ weekends, the following people should be contacted:
  - PMP and PICU attendings, floor charge nurse, PAC, floor RT, and PICU bedside nurse. If there is a lack of consensus, contact Children’s Administrator on-Call.
- **Respiratory Therapy** and **6CH Nurse Manager** should confirm adequate staffing prior to transfer.
- **Pediatric Pulmonology Service** (PMP) should be the primary service except in unique situations\*
  - \*In cases when it is unclear that a vent patient should be on PMP Service, the PMP attending should discuss with the PAC. Regardless of service, *PMP should see and leave a note daily on all floor vent patients.*
- **PICU team, PAC, 6CH Nurse manager, and Pulmonology** will meet on Mondays at 8:30a and ad hoc at the PICU board to discuss eligibility of ventilator patients for transfer to the floor. PAC will leave a treatment team note (**.pedventtransfer**) for those not with transfer criteria.
- Patients admitted for acute respiratory symptoms needing increased support from baseline (except small increases in oxygen) should **not** be admitted to the floor.
- Patients should be *stable* before transfer, including:
  - Able to tolerate at least **15 seconds** off the ventilator without desaturations or respiratory distress. PICU team should confirm before requesting transfer to the floor.
  - Should **not** have unstable cardiac disease or **moderate or severe** pulmonary hypertension.
  - Not requiring suctioning more often than every **1** hour.
  - No changes to ventilator settings in the past 24 hours.
  - Should not have active non-respiratory comorbidities requiring new or frequent treatments in the past 3-days, including seizures, feeding intolerance, etc. PICU team should again confirm before requesting transfer to the floor.
- Other subspecialties following home ventilator patients should continue to co-manage home ventilator patients while on the PMP service and leave daily notes, and their continued involvement must be confirmed before transfer out of the PICU.
- **Modest** ventilator titration and weaning may be done by the Pulmonology fellow supervised by the attending. If a patient is experiencing acute worsening of their respiratory status requiring escalation of care more than a small increase in fractional inspired oxygen (FiO<sub>2</sub>) or supplemental oxygen flow, they must be transferred to the PICU.
  - **Respiratory therapy** should make or be present for any ventilator setting changes, and the physician should place a new EPIC order with updated settings.
  - Residents should **not** adjust ventilator settings independently. An attending physician must review and approve any changes.
- Ventilator settings should be documented **daily** by Respiratory Therapy as a separate progress note using the smartphrase **.ppulmtrachventdocumentation**
- Patients who have stable, nighttime only non-invasive ventilatory support and those with tracheostomies without ventilator support **do not** need to be admitted or transferred to the PMP Service unless the child has a “critical airway,” as determined by the pediatric otolaryngology and pulmonology.

## **Guidelines for transfer and care of children with special care needs requiring chronic mechanical ventilator support to the pediatric ward.**

Based on a recent Human Resources and Services Administration survey (<https://mchb.hrsa.gov/programs-impact/focus-areas/children-youth-special-health-care-needs-cyshcn>), more than 14 million children in the United States with special health care needs. Few present with more challenges than those faced by children requiring chronic mechanical ventilator support. The shift from care in the pediatric intensive care unit, to the pediatric ward, and ultimately to home can be challenging, since many of these children are complex, clinically fragile, and have wide-ranging, complex medical needs. Some have advanced or progressive pulmonary conditions, abnormalities in central control of breathing, or underlying neurological or neuromuscular diseases that lead to insufficient minute ventilation to maintain normocapnea or adequate oxyhemoglobin saturations. Their respiratory compromise also varies in severity, from children who have inadequate respiration solely during sleep and require support only at night, to those who require continuous ventilatory assistance for survival.

Five years ago, North Carolina Children's Hospital adjusted its policy and permit certain children requiring chronic mechanical ventilator support to receive care on the pediatric ward, specifically Children's Hospital sixth floor, including transfers from the Inpatient Pulmonary (PMP) Service. Inpatient Pulmonary (PMP) Service attending has been the physician of record and assumed responsibility for the child's care and after transfer the primary service. With few exceptions, that arrangement will not change.

Due to limitation in nursing and respiratory therapy support outside the critical care units, no more than four children with invasive ventilatory needs can be present on the pediatric ward at any given time. Transfers do not occur at night or weekends, though in rare, extenuating circumstances, that can be waived with the consensus among the Inpatient Pulmonary (PMP) Service attending physician, Critical Care attending, Pediatric Intensive Care Unit bedside nurse, sixth floor charge nurse, the ward respiratory therapist, and PAC. The respiratory therapy and floor nurse manager should confirm adequate staffing and the necessary expertise before transfer.

Patients who have tracheostomies but not require mechanical ventilator support do not need to be admitted or transferred to the Inpatient Pulmonary (PMP) Service unless the child has a "critical airway," as determined by the pediatric otolaryngology and pulmonary services. The same for patients who have stable, nighttime non-invasive ventilatory support. The inpatient pulmonary attending physician, fellow, or nurse practitioners will regularly evaluate the patient and provide consultation notes with specific recommendations regarding airway management.

Children who receive chronic mechanical ventilator support admitted for acute respiratory symptoms requiring greater support from baseline, except for small increases in supplemental oxygen support, should not be admitted to the Children's Hospital sixth floor.

For transfers from the Pediatric Intensive Care Unit, children must be clinically stable, without significant changes in supplemental oxygen or mechanical ventilator support for more than 24 hours before transfer. Children who have inadequately controlled or unstable non-respiratory conditions, e.g., seizures, cannot be admitted directly or transferred to the Children's Hospital sixth floor.

Additionally, the child must be able to tolerate at least 15-seconds removed from ventilator support without oxyhemoglobin desaturations or respiratory distress and not require airway suctioning more often than more every hour.

Children with unstable cardiac disease or moderate-to-severe pulmonary hypertension are other contraindications to transfer.

Because many of these children have non-pulmonary complications, often active, it is important for the relevant subspecialty consultative service(s) to remain involved in the child's care after transfer. These services are obligated to write daily, detailed consultation notes with specific recommendations regarding diagnostic studies and management until the pulmonology attending considers the problem resolved or no longer requires regular care from the consulting subspecialty service.

Following transfer, modest changes to chronic mechanical ventilator support in a clinically stable child can be performed by the Inpatient Pulmonary (PMP) Service attending and fellow. In these situations, a respiratory therapist should be available and make any changes to mechanical ventilator settings. A nurse practitioner or physician from the Inpatient Pulmonary (PMP) Service should place a new order with updated settings. Ventilator settings will be documented daily by Respiratory Therapy as a separate progress note using the smartphrase .ppulmtrachventdocumentation.

Residents should not change ventilator settings independently.

Notably, if a patient is experiencing acute respiratory deterioration requiring escalation of care, more than modest increases in supplemental oxygen support, the child should be transferred to the Pediatric Intensive Care Unit for closer monitoring and management.

Has the child required significant changes in supplemental oxygen or mechanical ventilator support within 24 hours before transfer?

no

yes

PICU

Has the child had inadequately controlled or unstable non-respiratory conditions within 24 hours before transfer?

no

yes

PICU

Does Children's Hospital sixth floor have sufficient RN/ RT staffing?

yes

no

PICU

Is the child at baseline home or "sick" settings?

yes

no

PICU

Is the child able to tolerate 15-seconds removed from ventilator support without oxyhemoglobin desaturations or distress (MUST BE TRIALED) ?

yes

no

PICU

Does the child require suctioning or other interventions less than every 1 hour?

yes

no

PICU

Admit or transfer to Children's Hospital sixth floor