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What's the Problem?

COVID-19 is a respiratory disease with high utilization of ventilators. Ventilator shortage was reported nationally, especially during the initial days of the crisis in New York.

Jefferson Health hospitals, spread across South Jersey, Center City, South Philadelphia, Northeast Philadelphia, Bucks County and Montgomery County, serves a large population of patients, and requires a robust supply of ventilators. Initial predictive models suggested high utilization of ventilators, ICU beds, and potential ICU surge areas.

The hospitals are prepared to handle higher volumes but not as predicted for COVID-19 crisis. Ventilators were not available to rent.

Cause Analysis

- A nationwide shortage of ventilators, to buy or to rent, and the unpredictability of need.
- Lack of awareness about the complexity of ventilators available.
- COVID-19 patients with respiratory complications require complex ventilators.
- If a shortage of ventilators occurs, the available fleet should be allocated appropriately across all campuses.

How Might We: Effectively portray ventilator availability and usage across the enterprise to manage ventilator supply at our acute care hospitals.

We developed a concise definition of ventilators to accurately represent them in all reports across the enterprise, and a ventilator deployment plan.

DEFINITIONS

- Acute Care Ventilator:
  - Primacy fleet of ventilators at the location managed by Respiratory Department. These machines are capable for advanced modes of ventilation.
- Anesthesia Ventilator:
  - Fleet of ventilators primarily used in the OR and managed by the Anesthesia Department.
- Back-up Ventilator:
  - These ventilators are primarily used for in-house transports. These machines do not have advanced modes.
- Non-invasive Ventilator (V60):
  - These are ventilators primarily used for non-invasive ventilation, which could be converted for invasive ventilation.
- Emergency Ventilator:
  - These ventilators have minimal capability with settings and alarms.

DEPLOYMENT PLAN

- Respiratory Therapy will keep running list of patients who currently meet criteria to have their ventilator downgraded to a back-up ventilator, in the event of a surge.
  - Once 75% of acute care ventilator fleet is in use, will begin the process of placing identified patients on the available back up ventilators.
- Once 75% of acute care ventilators are in use, anesthesia ventilators will be deployed at designated units at each campus.