Project Tetra

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Stakeholder Concerns

The Project Tetra is guided by a series of stakeholder concerns, listed below.

1: Volumes fill most compliant lung segment

> Volumes would go to the most compliant lung segments

Reference:

- Joint Statement on Multiple Patients Per Ventilator

2: PEEP would be impossible to manage

> Positive end¬expiratory pressure (PEEP), which is of critical importance in these patients, would be impossible to manage.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

3: Monitoring pulmonary mechanics impossible

> Monitoring patients and measuring pulmonary mechanics would be challenging, if not impossible.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

4: Alarm monitoring infeasible

> Alarm monitoring and management would not be feasible.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

5: Individualized management for clinical improvement

Individualized management for clinical improvement or deterioration would be impossible.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

6: Stop ventilation in the event of cardiac arrest

In the case of a cardiac arrest, ventilation to all patients would need to be stopped to allow the change to bag ventilation without aerosolizing the virus and exposing healthcare workers.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

7: Added circuit volume

The added circuit volume defeats the operational self¬test (the test fails).

Reference:

- Joint Statement on Multiple Patients Per Ventilator

8: External monitoring required

Additional external monitoring would be required. The ventilator monitors the average pressures and volumes.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

9: Patients deteriorate and recover at different rates.

Patients deteriorate and recover at different rates, and distribution of gas to each patient would be unequal and unmonitored.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

10: Greatest risk with sudden deterioration

> The greatest risks occur with sudden deterioration of a single patient (e.g., pneumothorax, kinked endotracheal tube), with the balance of ventilation distributed to the other patients.

Reference:

- Joint Statement on Multiple Patients Per Ventilator

User Stories

The Project Tetra's stakeholder concerns are then used to identify a series of user stories to capture the functional requirements of the Project Tetra project.

1: Volume Adjustment

> As a **Clinician** I want to **individually adjust valves** so that I can **control volumetric flowrate per patient**.

Example:

Adjusting flow for each patient, decreasing PIP for the healthier lungs, and increasing PIP for the less healthy patient.

Derived From:

- Volumes fill most compliant lung segment
- Individualized management for clinical improvement
- Patients deteriorate and recover at different rates.

2: Matching Protocols

> As a **Clinician** I want to **[object Object]** so that I can **maintain matching protocols per patient volume**.

Example:

Derived From:

- Volumes fill most compliant lung segment
- Individualized management for clinical improvement
- Patients deteriorate and recover at different rates.