

Project Tetra

Table of Contents

Stakeholder Concerns	2
1: Volumes fill most compliant lung segment	2
2: PEEP would be impossible to manage	2
3: Monitoring pulmonary mechanics impossible	2
4: Alarm monitoring infeasible	2
5: Individualized management for clinical improvement	2
6: Stop ventilation in the event of cardiac arrest	3
7: Added circuit volume	3
8: External monitoring required	3
9: Patients deteriorate and recover at different rates	3
10: Greatest risk with sudden deterioration	4
User Stories	4

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.