

Supplementary Table 1. PICO Questions and Critical Outcomes

PICO #1: In adults age >65 years old with ≥ 3 rib fractures (P), should admission to an ICU setting (I) versus admission to a non-ICU setting (C) take place to reduce pneumonia, mortality, need for intubation, or ventilator days (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Pneumonia | 5 | 9 | 7.9 | 1.18 | 20 |
| Mortality | 2 | 9 | 7.8 | 2.23 | 20 |
| Need for Intubation | 4 | 9 | 7.7 | 1.49 | 20 |
| Vent Days | 3 | 9 | 7.05 | 1.75 | 20 |

PICO #2: In adults age >65 years old with rib fractures (P), should routine use of incentive spirometry (I) versus no routine use of incentive spirometry (C), be performed to reduce need for intubation, pneumonia, or mortality (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Need for Intubation | 5 | 9 | 8.16 | 1.09 | 19 |
| Pneumonia | 5 | 9 | 8.11 | 1.02 | 19 |
| Mortality | 1 | 9 | 7.06 | 2.3 | 18 |

PICO #3: In adults age >65 years old with rib fractures and acute hypoxic respiratory failure refractory to nasal cannula and face mask (P), should noninvasive positive pressure ventilation (I) versus endotracheal intubation and positive pressure ventilation (C) be performed to reduce need for intubation, pneumonia, mortality, or ventilator days (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Need for Intubation | 5 | 9 | 8.11 | 1.37 | 19 |
| Pneumonia | 4 | 9 | 7.68 | 1.45 | 19 |

| | | | | | |
|-----------|---|---|------|------|----|
| Mortality | 2 | 9 | 7.53 | 2.16 | 19 |
| Vent Days | 2 | 9 | 7.16 | 1.81 | 19 |

PICO #4: In adults age >65 years old with ≥ 3 rib fractures and dyspnea or refractory pain (P), should ketamine infusion plus structured multi-modal pain therapy per institutional protocol (I) versus no ketamine infusion but structured multi-modal pain therapy per institutional protocol (C) be performed to reduce need for intubation, pneumonia, mortality, or ventilator days (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Pain | 5 | 9 | 8.37 | 1.18 | 19 |
| Need for Intubation | 5 | 9 | 7.79 | 1.2 | 19 |
| Pneumonia | 5 | 9 | 7.42 | 1.14 | 19 |
| Mortality | 3 | 9 | 7.28 | 1.94 | 18 |

PICO #5: In adults age >65 years old s with ≥ 3 rib fractures and dyspnea or refractory pain, should a thoracic epidural catheter and structured multi-modal pain therapy per institutional protocol (I) versus tructured multi-modal pain therapy per institutional protocol alone (C) be performed to reduce pain, need for intubation, pneumonia, mortality, or hospital length of stay (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Pain | 7 | 9 | 8.68 | 0.57 | 19 |
| Need for Intubation | 7 | 9 | 8.37 | 0.81 | 19 |
| Pneumonia | 6 | 9 | 8.11 | 1.02 | 19 |
| Mortality | 3 | 9 | 7.5 | 1.89 | 18 |
| Hospital LOS | 5 | 9 | 7.32 | 1.13 | 19 |

PICO #6: In adults age >65 years old with ≥ 3 rib fractures and dyspnea or refractory pain, should non-epidural locoregional anesthetic (subcutaneous infusion pump or local block) and structured multi-modal pain therapy per institutional protocol (I) versus structured multi-modal pain therapy per institutional protocol alone (C) be performed to reduce pain, need for intubation, pneumonia, mortality, or ventilator days (O)?

| Field | Minimum | Maximum | Mean | Std Deviation | Count |
|---------------------|---------|---------|------|---------------|-------|
| Pain | 8 | 9 | 8.67 | 0.47 | 18 |
| Need for Intubation | 7 | 9 | 8.11 | 0.87 | 18 |
| Pneumonia | 5 | 9 | 7.82 | 1.1 | 17 |
| Mortality | 3 | 9 | 7.24 | 2.04 | 17 |
| Vent Days | 3 | 9 | 7.06 | 1.81 | 18 |