INTRODUCTION

Unplanned extubation (UE) is a frequent, costly, and preventable adverse event that is infrequently measured and has serious, sometimes fatal consequences. Every year, unplanned extubation impacts more than 121,000 patients, causes over 36,000 cases of ventilator-associated pneumonia, leads to more than 33,000 preventable deaths, and adds more than $4.9 billion in wasteful healthcare costs. Unplanned extubation is defined as a premature removal of the endotracheal tube by action of the patient (known as self-extubation) or premature removal during nursing care and/or manipulation of the patient (referred to as accidental extubation). Self-extubation is most common, occurring in 63% of all unplanned extubations. This fact sheet provides additional data about unplanned extubation.

INCIDENCE AND COMPLICATIONS IN THE ICU SETTING

1.65 MILLION
Total intubated/ventilated ICU patients (each year)

MEDIAN 7.3% (0.5-35%)
Incidence of unplanned extubation

CONTROL GROUP WITH NO UNPLANNED EXTUBATION

13.8%
Ventilator acquired pneumonia
9 days
ICU Length of Stay
18 days
Hospital Length of Stay
$59,206
Average cost for ICU stay & complications

PATIENTS WITH UNPLANNED EXTUBATION

30%
Ventilator acquired pneumonia
18 days
ICU Length of Stay
30 days
Hospital Length of Stay
$100,198
Average cost for ICU stay & complications

Average costs are based on all unplanned extubations regardless of whether they required reintubation.

ANNUAL IMPACT

1.65M intubated ICU patients
121K unplanned extubation events
36K additional ICU VAPs
2X ICU Length of Stay
$41K additional cost per unplanned extubation
Unplanned extubation can only occur when an endotracheal tube is inadequately secured. When an endotracheal tube is inadequately secured the risk of UE increases with the following factors:

- Increased patient restlessness/agitation
- Inadequate sedation
- Use of physical restraints
- Absence of clear policies and procedures related to weaning
- Factors related to nursing staffing such as night shift, inexperienced ICU nurses, or unit characteristics that prevent adequate nursing observation

The primary cause of unplanned extubation is inadequate securement. Optimal endotracheal tube stabilizers should at a minimum prevent clinically significant movement (>3.5 cm) that could result in an unplanned extubation. Optimally it should prevent any movement of the endotracheal tube relative to the stabilizer. In addition to improved securement, research has demonstrated successful reduction in UE rates in systems that utilize a multidisciplinary improvement approach that includes these elements:

- Process standardization and compliance (sedation, restraint)
- Staff education on airway care, monitoring, and recognition of UE
- Identification of every UE incidence with careful root cause analysis and improvement. Ongoing tracking of rates
- Continuous sedation of intubated/ventilated patients with daily sedation break for assessment
- Careful and appropriate restraint

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