

A Decade of Difficult Airway Response Team

Lessons Learned from a Hospital-Wide Difficult Airway Response Team Program

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KEYWORDS

- Difficult airway response team • Rapid response teams • Difficult airway patient
- Multidisciplinary airway management • Simulation-based medical education
- Hospital difficult airway alert systems • Difficult airway registry • Second victim

KEY POINTS

- Difficult airway adverse events continue to be the fourth most common event in the American Society of Anesthesiologists closed claims database, with devastating consequences to patients, families, providers, and institutions.
- Multidisciplinary airway teams have been shown to reduce emergency surgical airways and the associated morbidity and mortality.
- The Johns Hopkins Hospital Difficult Airway Response Team (DART) program has integrated operations, safety, and educational components designed to improve multidisciplinary teamwork and communications, reduce airway-related adverse events, and promote innovative educational activities for airway providers.
- Institutions interested in initiating a DART program can use the Johns Hopkins program as a roadmap for developing a similar initiative.

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INTRODUCTION

Difficult airway adverse events continue to be the fourth most common type of adverse event in the American Society of Anesthesiologists (ASA) closed claims database, with devastating consequences to patients, families, providers, and institutions.¹ Patients with difficult airways present unique challenges in emergency situations, particularly outside the operating room, increasing the risk of life-threatening complications, including anoxic brain injury, death, and long-term disability. In the ASA closed claims analysis, respiratory-related events were twice as likely in remote locations than in the operating room (OR).² Litigation related to these events may result in significant settlement costs, including structured settlements for those patients with permanent neurologic disability, often resulting from anoxic brain injury. Although the events are likely underreported and national data on prevalence are not currently collected, the state of Maryland lists airway events resulting in death and disability as the sixth most common reported adverse event, after falls, pressure ulcers, surgical events, delays in treatment, and medication errors, but the second highest fatality rate of all events.³

A decade ago (2008-2018) the Johns Hopkins Hospital Difficult Airway Response Team (DART) program was created as a multidisciplinary effort to prevent airway-related morbidity and mortality after evaluating a series of actual or near miss events related to emergency difficult airway management between 2005 and 2007. Root cause analysis indicated that a major factor in airway event morbidity and mortality was the lack of a systematic approach for responding to difficult airway patients in an emergency. Common themes across these adverse events were inconsistent paging/communication, lack of availability of advanced and specialized airway equipment, insufficient training/experience of providers for advanced and specialized procedures, lack of a mechanism for reliably enlisting more experienced physicians, and unclear definition of roles and responsibilities during a multidisciplinary airway event. In addition, the authors made the following observations:

- All events occurred outside the OR environment.
- Four primary disciplines were involved anesthesiology and critical care medicine (ACCM), otolaryngology–head and neck surgery (OHNS), trauma surgery (TS), and emergency medicine (EM)
- Although each discipline had recognized difficult airway experts—at national and international levels—the authors had not effectively leveraged their expertise to form a coordinated, multidisciplinary approach to complex airway management at the institution.

A business plan was drafted to fund the startup and operational costs of what would become the DART program. An oversight committee was formed to lead the DART program, which included physician representation from ACCM, OHNS, TS, and EM as well as risk managers, safety officers, human factors engineers, and Lean Six Sigma experts.

DIFFICULT AIRWAY RESPONSE TEAM PROGRAM: GOALS AND DESIGN

The DART program had 5 goals:

1. Establish a coordinated, multidisciplinary emergency response process for managing adult difficult airway patients.
2. Decrease the risk of adverse airway events resulting in permanent disability or death.

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