Evaluation of the Alaska Trauma Registry

Background

The Alaska Trauma Registry (ATR) was one of the Nation's first statewide injury surveillance systems.[1] Initiated by the Southern Region Emergency Medical Services Council in 1988, it was adopted by the Alaska Department of Health and Social Services (DHSS) in 1990 and expanded to a statewide program in 1991. The ATR includes data from all 24 of Alaska's acute care facilities, and ATR data have been used in at least 23 peer-reviewed articles (references available upon request) and numerous Alaska Epidemiology *Bulletins*.

Five of the 24 reporting facilities abstract and enter their own trauma data directly into a computerized data repository. Smaller facilities either abstract the data at the facility and then send them to a registry contractor for entry into the repository, or scan records for both abstraction and entry into the repository by the contractor. The DHSS ATR manager is then responsible for cleaning the data and importing them into the ATR dataset.

From 2001 to 2008, the ATR used Digital Innovation, Inc.'s *Collector* software. In 2008, the Alaska Uniform Response Online Reporting Access (AURORA) system was launched and the decision was made to transition the ATR to use ImageTrend, Inc.'s *Trauma Bridge* which would enable the integration of Emergency Medical Services (EMS) data with ATR data. This transition was unsuccessful primarily due to poor implementation, planning, and stakeholder engagement. This failure, combined with concerns about the conversion of existing data into the new database, threatened the acceptability of the ATR among stakeholders. As a result, *Collector* software was re-employed in January 2010. A new ATR manager was hired in November 2010 and in 2011 will coordinate the launch of an upgraded version of the *Collector* software system that includes web-based applications.

In response to the aforementioned stakeholder concerns, the Section of Epidemiology undertook a thorough evaluation of the ATR in August 2010. The objectives of our evaluation were to describe the current state of the ATR and to formulate specific recommendations to maintain acceptability and improve data quality and usefulness.

Methods

We evaluated characteristics of the ATR including acceptability, usefulness, data quality, timeliness, and sensitivity, as per the national recommendations for the systematic analysis of a surveillance system.[2] We assessed these characteristics using two on-line stakeholder surveys, one for registrars at the facilities and another for trauma coordinators, contractors, and other ATR data users. We also conducted unstructured interviews with the injury surveillance program manager, the acting ATR manager, the multi-institution ATR contractor, and an employee at the National Institute for Occupational Safety and Health (NIOSH). Finally, we compared trauma cases in the Alaska Hospital Discharge Data Set (HDDS) in July 2007 with those in the ATR to evaluate case identification (i.e., sensitivity). We examined cases present in the HDDS that were not in the ATR in order to determine if there was a systematic failure to capture cases with specific causes of injury in the ATR.

Results

As measured exclusively by participation in the registry, the ATR has a high level of acceptability, with all Alaska acute care facilities contributing data. The survey response rate was 71% (17/24) for abstractors and 19% (4/21) for trauma coordinators, contractors, and other ATR data users who were queried. Registrars reported that several factors occasionally prevent complete data abstraction, with 54% citing insufficient time allotted by the facility and 36% reporting that the ATR worksheet is too cumbersome. The ATR was considered useful by 95% of respondents, who cited reasons including that the data can be used to identify areas for prevention and to evaluate delivery of patient care. However, several registrars reported that they were unaware if/how the data are being used at their facilities.

While ATR data are subject to review and cleaning (e.g., reviewing coding and identifying duplicate entries) prior to finalization in the ATR dataset, non-systematic methods are employed to assess data quality and no formal evaluation of the ATR has been carried out in over a decade. Nevertheless, interviewees perceived data quality to be high with regard to the accuracy of data elements, such as patient demographics and the nature and external cause of injury. Survey respondents reported concerns about data quality, citing their perception of a lack of oversight at the state-level, a lack of systematic validation, a lack of training and feedback for abstractors, and a lack of a comprehensive policies and procedures manual for the ATR.

With regard to timeliness, registrars reported that the time to data abstraction after patient discharge/transfer/death typically ranged from ≤2 weeks to ≥3 months (over half reported that time to abstraction typically takes ≥2 months). The most recent year for which a finalized ATR dataset is currently available is 2007.

During July 2007, there were 618 trauma cases in the ATR; an additional 130 trauma cases were identified in the HDDS that were not in the ATR. We did not identify a systematic pattern to explain the HDDS trauma cases missing from the ATR.

Conclusion and Recommendations

The ATR is a valuable resource for improving trauma care and characterizing the epidemiology of traumatic injury in Alaska; however, the registry is in need of improvement. Based on the findings from this evaluation, we recommend the following:

- ATR program staff should create a formal policies and procedures manual that includes information regarding data collection, validation, management, and provision of data reports to contributing facilities.
- ATR program staff should conduct a rigorous data validation study to identify any data quality weaknesses (e.g., problems with case identification or systematic errors in data entry).
- Facilities should work to get the data entered into the repository within 1 month, which may require allotting additional time for abstraction. The ATR manager should then be able to retrieve, clean, and make the data available as the finalized ATR dataset within 1 year of the end of the calendar year and provide individualized, useful, and timely data reports back to the facilities.
- ATR program staff should assure that planning for the implementation of the new version of the *Collector* software is sufficient, and schedule trainings and regular meetings with registrars and other stakeholders to make sure that potential concerns are identified and addressed.

References
1. State of Alaska Trauma Registry website. Available at http://www.hss.state.ak.us/dph/ipems/injury_prevention/trauma.htm
2. Updated Guidelines for Evaluating Public Health Surveillance Systems. *Morb Mort Wkly Rep* 2001;50(RR-13).

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