BRIEF REPORT

ADOPTION OF NEW AIS VERSION BY VICTORIAN STATE TRAUMA REGISTRY

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Background

The Abbreviated Injury Scale (AIS) is used to code injuries sustained in major and potentially major trauma events, and the patient Injury Severity Score (ISS) derived from it is used to classify the bulk of Victoria's major trauma. Since 2001, the VSTR has used a 1998 AIS version (AIS98), essentially unchanged since 1990. A significantly revised and expanded 2008 version (AIS08) has been released, and the assigned severity of many injuries has been changed to better reflect contemporary norms of trauma care, both in the investigations performed and the outcomes expected. Work has been undertaken to develop tools to accurately convert (map) and compare AIS data coded using different versions, and to assess the effects of adoption of AIS08 in Victoria. VSTR data for the 2008-09 financial year was mapped to AIS08 estimates and evaluated using Victorian-developed mapping techniques.

Definition of major trauma vs significant trauma activity documentation

Due primarily to improvements in management and an increased use of imaging, AIS08-derived scores tend to be lower than those using AIS98. This has the potential to substantially decrease the number of patients classified as major trauma. The current ISS threshold (>15) for major trauma corresponds to the traditional indicator of a 10% risk of mortality. VSTR data demonstrate that this indicator in turn corresponds to an ISS threshold of >12 for patients coded using AIS08. While the Victorian major trauma definitions remain unchanged, therefore, it is recommended that patients with an AIS08-coded ISS >12 should be regarded as being at significant risk of death, and their monitoring should be incorporated into current major trauma evaluation and planning activities.

Effects of AIS change on injury and patient classification

In 2008-09, 21,473 injuries were identified in 5,789 patients on the VSTR, of whom 2,650 had been classified as major trauma. When mapped to AIS08, 4,417 injuries (21%) changed in their assigned severity (on an ordinal scale from 1 to 6). This resulted in a total of 2,091 patients (36%) receiving a different ISS using AIS08; 25 patients had an increased ISS, and 2,066 patients had a decreased ISS. Using AIS08, it is estimated that only 2,170 patients would be classified as major trauma, a decrease of 18%. However, this decrease is limited to 173 patients (6.5%) if the more appropriate ISS >12 threshold is used for AIS08 data.

Data conversion activities of the VSTR

Mapping exercises have been conducted on VSTR data over the past 18 months, and will continue to be performed while AIS08 is being adopted. The entire dataset of previous AIS98-coded injury data will be mapped to AIS08 equivalents, in order to enable internal and external data comparisons which are compatible with current global standards. Whilst the work performed in Victoria in assessing the impact of AIS change, and the development of accurate AIS mapping tools is world-leading, there continue to be uncertainties which are inherent in any mapping exercise. It is expected, though, that our ability to recognise and account for mapping inaccuracies will improve over time.

Trauma Appropriateness Payments

VSTR data indicated that TAP payments were as a result of the management of 684 patients in 2008-09. Using AIS08, it is estimated that the number of patients meeting criteria for a TAP payment will decrease by 13.5%; this decrease would be limited to only 4.4% if a more contemporary ISS >12 threshold is used for patient identification. It is recommended that as an interim measure during the first 12 months following

the implementation of AIS08, newly-coded AIS08 should be mapped back to AIS98 for consistency of patient identification; this will permit further planning of the most appropriate way to encourage VSTS hospitals to adhere to best practice in transferring patients within the system.

Conclusions

The adoption of AIS08 by the VSTR is necessary in order to maintain correct assessments of the burden of severe injury in Victoria. It is recommended that in addition to the existing Victorian major trauma criteria, a further subset of severely injured patients at significant risk of death (ISS >12) for use with AIS08-coded data is identified. If this is employed, the introduction of AIS08 by the VSTR will have a comparatively minor effect on the number of patients classified as severe trauma.

The AIS08 system will be progressively introduced, with all patients injured from July 1 2010 coded using the new system, and patients injured prior to this still coded in AIS98. Careful monitoring and mapping exercises will continue to be undertaken to ensure that any impact on TAP payments is both appropriate and minimal, and that the VSTR can continue to accurately monitor and compare trauma outcomes over time.