



Integrating Two Error Reporting Systems in Transfusion Medicine

Going from Paper to Electronic Submission

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Introduction & Objective

Occurrence management is an integral part of any healthcare system. It facilitates increased patient safety through ongoing quality improvements, as well as increased cost savings and decreased wastage of valuable blood products. Historically, all Transfusion Medicine (TM) related errors at Island Health were reported on a paper form, the Quality Improvement Report (QIR) (Figure #1). The information supplied by the reporter on the QIR was then manually entered into the Transfusion Error Surveillance System (TESS), a secure online database for detailed error coding and data analysis. Because Island Health has several sentinel sites using TESS, we have a commitment to provide certain TESS data elements on a quarterly basis for these facilities to the Public Health Agency of Canada.

In 2011, as part of a provincial-wide initiative to make healthcare safer in British Columbia (BC), Island Health was mandated by the province to implement and use the BC Patient Safety & Learning System (BC PSLs). The BC PSLs is a web-based tool, providing an electronic event reporting form for healthcare providers to report and learn about patient safety events, near misses and hazards within their healthcare facilities. For Island Health, this meant we could no longer use the paper QIR to report events and it posed some queries: How do we access the data entered into BC PSLs if the paper QIR for reporting errors would no longer be used? Was it even necessary for us to enter the same data into two different systems? Would it be possible to supplement the BC PSLs to capture all required TESS data elements?

Since we were already using the national TESS database to capture our transfusion errors, we understood the value that PSLs could add. We approached BC PSLs and explained what we were doing and asked if it was possible to integrate TESS into PSLs.

Figure #1 The QIR – paper form used to report errors in TM

Figure #2 New electronic TM Event Reporting Form (representative portion)

Acknowledgements

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Methods

In 2011, the Island Health TESS team collaborated closely with BC PSLs stakeholders. Once the two systems were thoroughly evaluated and gaps in data integrity and report output functionality were identified, a TM module was designed within BC PSLs. By 2012, existing data fields in BC PSLs were mapped appropriately and specific TESS data fields were added to capture all remaining required data elements, allowing us to not only capture TESS data but to also significantly enhance data analysis.

To support the capture of all TESS data elements, a TM specific electronic reporting form was also created (Figure #2), allowing the person reporting the event the ability to provide as much detail as possible. The electronic reporting form also supports anonymous self-reporting, which is extremely important when reporting is voluntary. It helps support the “just-culture” environment for staff, supervisors and management. The TM Event Report Form was made available to both laboratory and clinical staff, for ease of reporting TM related errors and events no matter where they occurred. This was a significant improvement because for the first time, the TESS team would have the ability to capture more errors and events happening on the clinical side of the transfusion process.

New Process and Procedure documents and job aides were drafted and provided to laboratory staff for implementation and assistance of the new electronic reporting form. Ongoing support from the TESS team in Island Health has also supported the growth of a culture of adverse incident self-reporting among staff, which directly contributes to improved quality of care and patient safety.

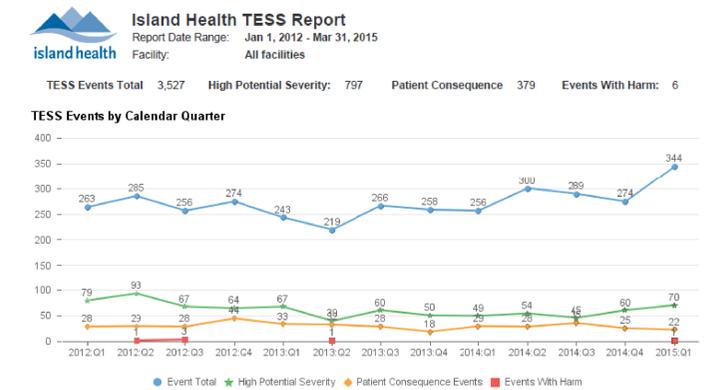
A dedicated TESS Datamart (an access layer of the data warehouse environment used to facilitate data delivery to end users) was also created, providing access to all non-patient identifying TESS data elements. It was integrated into the existing BC PSLs Business Intelligence (BI) Tool for production of customized data reports (Figures #3 & #4). We now have the ability to create customized, high-quality data reports, which can be produced either as needed or as ongoing automated monthly reports. The TESS Datamart also gave us the ability to upload TESS denominator data, facilitating in the creation of error rate graphs and charts for all error codes (Figure #5).

Figure #3 Report example showing Actual Events vs Near Miss Events

Actual Events vs Near Miss Events						
Actual or Near Miss Event	Harm/No Harm vs Planned/Unplanned Recovery	Consequence	Event Total	Event Total (%)	High Potential Severity	High Potential Severity (%)
Actual Event	Harm	Delayed serologic transfusion reaction	1	0.28%	1	0.87%
	Harm	Febrile non-hemolytic transfusion reaction	2	0.56%	2	1.74%
	Harm	IVlg headache	1	0.28%	0	0.00%
	Harm	Minor allergic reaction	1	0.28%	0	0.00%
	No Harm	Febrile non-hemolytic transfusion reaction	1	0.28%	1	0.87%
	No Harm	Incorrect dose administered	18	5.04%	8	6.96%
	No Harm	Lost traceability	3	0.84%	2	1.74%
Near Miss Event	Planned Recovery	No patient consequence	2,516	89.16%	544	88.89%
	Unplanned Recovery	No patient consequence	306	10.84%	68	11.11%
	Total		2,822	88.77%	612	84.18%
Grand Total			3,179	100.00%	727	100.00%

The table above shows total numbers and percentages of Actual versus Near Miss events, highlighting those with high potential severity. Actual events, broken down into Harm and No Harm, result in a consequence (outcome) to the patient. Near Miss events are evaluated by Planned Recovery versus Unplanned Recovery.

Figure #4 Report example showing TESS Events by Calendar Quarter



The above graph demonstrates an aggregate trending report for the entire health authority, broken down by events with potential high severity, events with patient consequence outcomes, and events with harm. This provides the ability to monitor the number of events reported and correlate this with operational action.

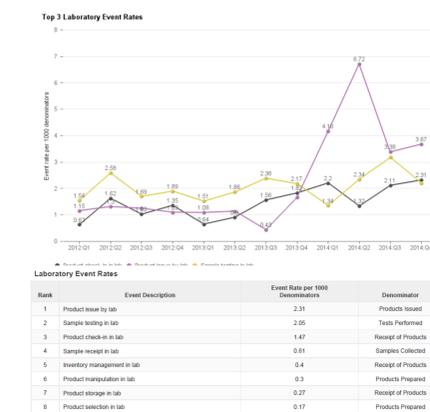
Results & Conclusion

Following implementation of the electronic reporting form, data analysis showed a significant decrease (more than 50% in some facilities) of reporting TM related errors occurring in the laboratory setting, while reporting of TM related errors occurring in clinical areas increased. Additional communication and training was necessary to increase compliance for voluntary error reporting. A bi-monthly newsletter was created and sent to lab staff to address current issues such as consistency in reporting, reminders on what events require a report and continued support of fostering a “just culture” within transfusion services. Customized reports are produced and shared monthly and quarterly with TM staff and stakeholders.

Since BC PSLs is used province-wide, this integration also allows for easy capture of TESS data for all health authorities within BC. In November 2013, Island Health presented the TESS initiative to representatives from other health authorities in the province, demonstrating the expediency of TESS data analysis using the customized reports. Earlier in 2015, Island Health facilitated the completion of TESS coding for all TM events reported within the province and recommendations are forthcoming for continuance moving forward. Bringing the entire province onboard with TESS will allow benchmarking and data comparison amongst all BC transfusion services, which may identify broader systems level quality gaps that need to be addressed.

The ongoing support of TESS/ PSLs integration and the electronic error report implementation in Island Health labs has encouraged the growth of a culture of adverse incident self-reporting among Island Health staff, which directly contributes to improved quality of care and patient safety.

Figure #5 Report example showing Event Rates Graph and Table



Event rates are calculated per 1000 denominators. The graph, which includes the top three TM Events, gives a visual display of changes in event trends over time, which is immediately visible through peaks and troughs.

The table shows a complete picture of all event rates, including a description of which denominator data was used in the calculation.

Further information

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