Reducing Blood Waste Through Interactive Dashboard

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Background

Blood waste is a major issue throughout all hospital networks. The cost of these errors affect multiple aspects of an organization, including administration and inpatient care. The loss of such clinically vital products can also harm medical centers' finances, reliability, and ability to be fully equipped to provide great patient care. Current improvement efforts focus on retraining efforts which often only decreases blood waste for a short while. More permanent solutions are largely unpracticed, including consistent feedback, data monitoring, and goal setting. In early 2019, the QI team at Beth Israel created a dashboard, focused on interactivity and data translation, to put the affects of blood waste into a larger perspective and one entirely focused on improving patient care.

According to the American Association of Blood Banks 31st edition standards under section 8.2, "The following shall be monitored: usage and **discard.**[1]" However, the lack of mandates allowed us to represent the data in a way that unit managers most wanted to see and answer the questions *how does my team compare to other units* and *where is my team making mistakes?*

Date	Product	Unit	Comment	Error
Formatted so dates in year 2019 required.	Drop down list: red cell, cryo, plasma, platelet, RhIG	Free text, general location identified	Free text to describe events and reason for waste	Drop down list: fever, IV issue, cooler etc.
3/1/2019	Plasma	OR	No IV access	IV Issue
3/4/2019	Cryo	L&D	Left in cooler	Cooler Issue
3/8/2019	Red Cell	EW	Lost in tube	Tube Mechanics

Table 1. A few of the categories required when cataloguing a blood waste incident. Three fabricated examples show the content of the data tab, filled in by the Blood Bank manager at BI. Waste is categorized by month and year, product, unit, and error type.
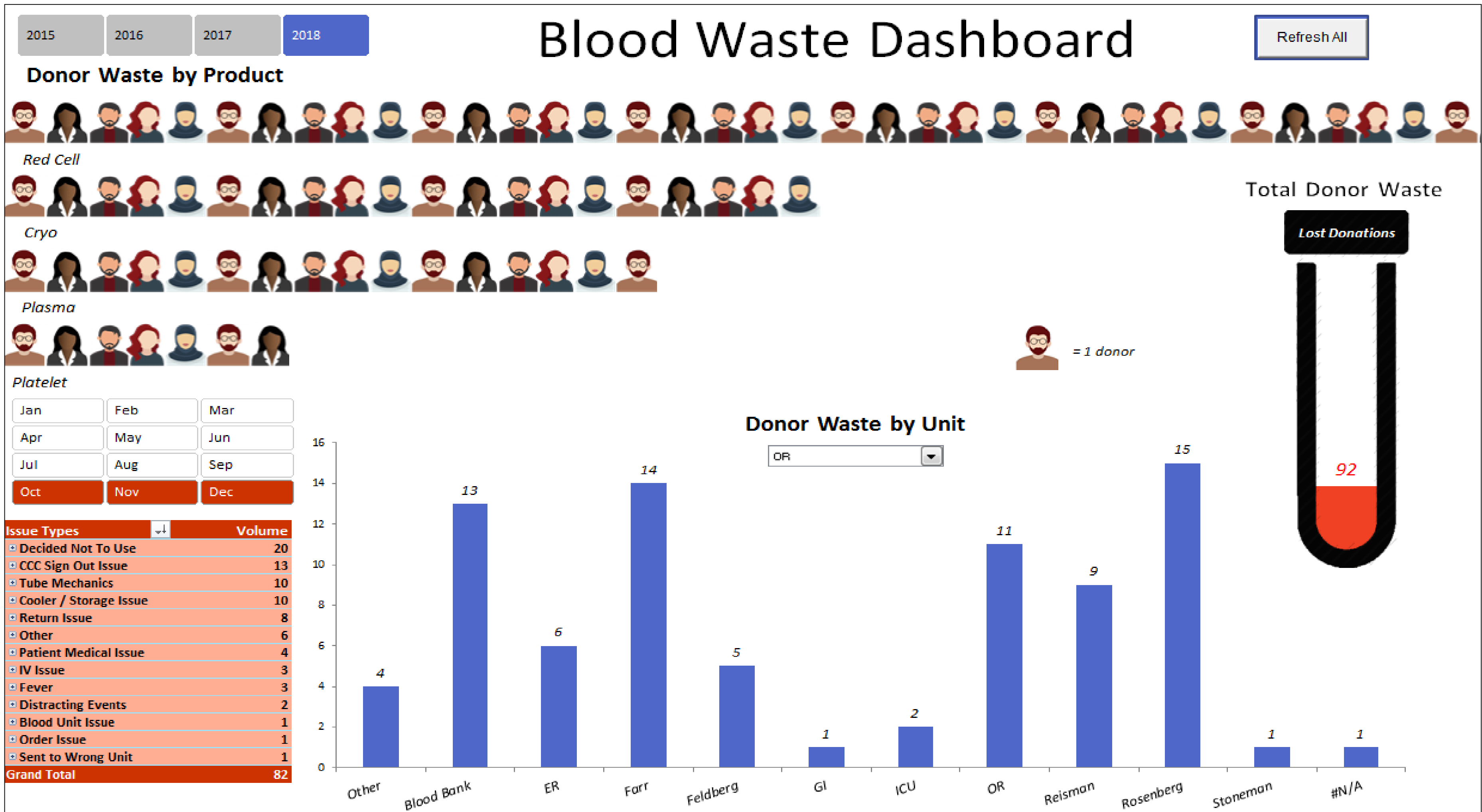

Image A. This dashboard analyzes the blood wasted within the hospital network, classifying waste by reason, date, product type, and location. It is currently being used to present to the floors and blood bank, showing in which units the errors are occurring and explaining the reparations of lost blood products.

Materials & Methods

The data is categorized by the product wasted, issue type, and unit in which the waste occurred. Details of each incident are recorded in the "data" tab by the Blood Bank manager. The data columns that are used to provide information for the dashboard's pivot tables and charts are formatted and standardized, shown in Table 1. Other columns include "general unit," to further organize the waste and whole blood number, or "WBN" to link waste to blood identification. Because the raw data entry is not user friendly, users can access a cleaned version of these data in by selecting their unit from the drop down list. A new sheet auto populates a table with the appropriate waste events, shown in Image B.

The dashboard contains four tabs:

- *Data* – Table 1. Tab in which the raw data is collected. Upon release, this tab is hidden from users.

- *Dashboard*– Image A. Unit errors shown by reason for waste, product, and location by month and year.

- *Dropdown List*– Hidden from users. Contains formulas and lists that feed information to the dashboard.

- *Unit Data*– Image B. This tab is only available once a user accesses specific unit data through the drop down menu. A new "unit data" tab will open if a second unit is chosen.

Results

With the design phase completed, focus is shifted to the proper distribution efforts of the dashboard. Future improvements include:

- Establish consistent data review periods and contact list
- Create warning systems for high blood waste practices
- Establish goals set by the unit leaders
- Add accountable parties to unit identifiers
- Conduct more interventions associated with Patient Blood Management[2], a system adopted by the AABB

Very few institutions are currently recording blood waste data in an accessible way. Thus, we are currently only able to make comparisons within the medical center network. We expect higher participation data availability in coming years.

References

1. American Association of Blood Banks Standards 31st Edition, 2018. Print.
2. Patient Blood Management (PBM), AABB http://www.aabb.org/pbm/Pages/default.aspx

Image B. This new tab contains all cases originating in the OR during 2018. It comes pre-formatted as a table, only containing relevant columns from the raw data. The tab is created automatically upon selection of a unit from the drop down menu on the dashboard.