Hotspotting Falls to Promote Optimal Distribution of Injury Prevention Activities at a Level 1 Trauma Center
Summa Health System
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Purpose: This practice enables us to target our resources towards the regions with the highest percentage of injury. Since minor falls (falls less than 10 feet, using the NTDB definition) are the number one cause of injury, as documented in our trauma registry, we can focus more injury prevention resources in the identified regions.

Resources: - Mapping software (Microsoft Excel 3D maps) - Matter of Balance coaches - Facilities to host Matter of Balance classes and Fall Prevention events - Matter of Balance coaching classes – presented in this region last year & planned for this spring - Home safety fall prevention course presented by Partners 4 Safety committee, which consists of representatives from healthcare, senior housing, local fire departments, EMS, police departments & pharmacies - Sessions offered free of charge & at various dates and times

Description: Raw data on patients who suffered a minor fall and their home zip code is exported from the trauma registry and imported into Microsoft Excel. A simple heat map is created using the 3D maps option in Microsoft Excel. The map is examined to determine where the most minor falls occurred in our hospital service area. Subsequently, fall prevention activities are concentrated in the areas that have high rates of minor falls.

Effectiveness: Given that the data-driven and geographically targeted injury prevention process is a new process in our trauma center, we have scheduled a multi-week fall prevention course in the area identified by the heat map. Additionally, we are training more coaches to instruct fall prevention courses (Matter of Balance, Senior Tai Chi) so additional classes will be able to be offered.

Lessons Learned: This process helped us identify the areas where our patients who experienced minor falls are concentrated. Providing fall prevention resources close to these individual’s homes and residences may help increase participation in programs, although this data has yet to be collected. A benefit to geographically targeting injury prevention activities to areas where there is more need helps to focus resources in the areas where the need is the greatest. This helps to allocate our limited resources in a more efficient way. A drawback of this method is that it favors geographic areas that are more densely population. For this reason, we will still continue to offer some fall prevention activities at other (non-targeted) location to ensure we maintain equitable geographic coverage.

Conclusions: In conclusion, this project demonstrated that injury prevention activities can be easily targeted using standard software (Microsoft Excel) and simple data from the trauma registry (patient zip code and cause code). This practice helps our trauma center and injury prevention coordinator to target injury prevention activities to the geographic areas that have the greatest need, based on prior volumes. This may also help increase participation at injury prevention events, although this hypothesis has yet to be validated with data.

Benefits to Others: This process may help other Trauma Centers use their trauma registry data to better target their injury prevention activities. This process does not need to be limited to minor falls. This practice can also be used to look at pedestrian injuries (where traffic safety education may be needed) or traumatic brain injuries in children (where child-proofing and helmet use education may be needed). Targeting resources to where they are most needed helps to optimally allocate injury prevention resources so the greatest good can be done with limited resources.

Implementation by Others: To implement this, trauma centers take two steps—first preparing the data, and interpreting the data and targeting resources to the hot spots. To prepare the data, trauma centers can implement this by creating a report that includes trauma encounters, patient zip code, and cause code from their trauma registry. Next, they would create a pivot table for each cause code of interest by zip code. This data would subsequently be imported into the 3D maps feature in Excel to create a heat map. To interpret the data, the resulting map can be examined and “hot spots” can be identified. As such, appropriate resources can be allocated to the “hot spot” areas.