British Columbia Patient Safety & Learning System

Making patient safety easier to "see": Providing visual analytics to BC's healthcare leaders

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Context

Fostering safety culture across BC's healthcare system

The British Columbia Patient Safety & Learning System (BC PSLS) is a web-based safety event reporting and learning tool used by healthcare providers across the province. BC PSLS collects information about adverse events and near misses to support quality and safety improvement.

Implementation of BC PSLS began in 2008 and was completed in 2011. Today, nearly 1,000 hospitals, long-term and residential care facilities and provincial laboratories use BC PSLS to report safety events, analyze trends and support learning.
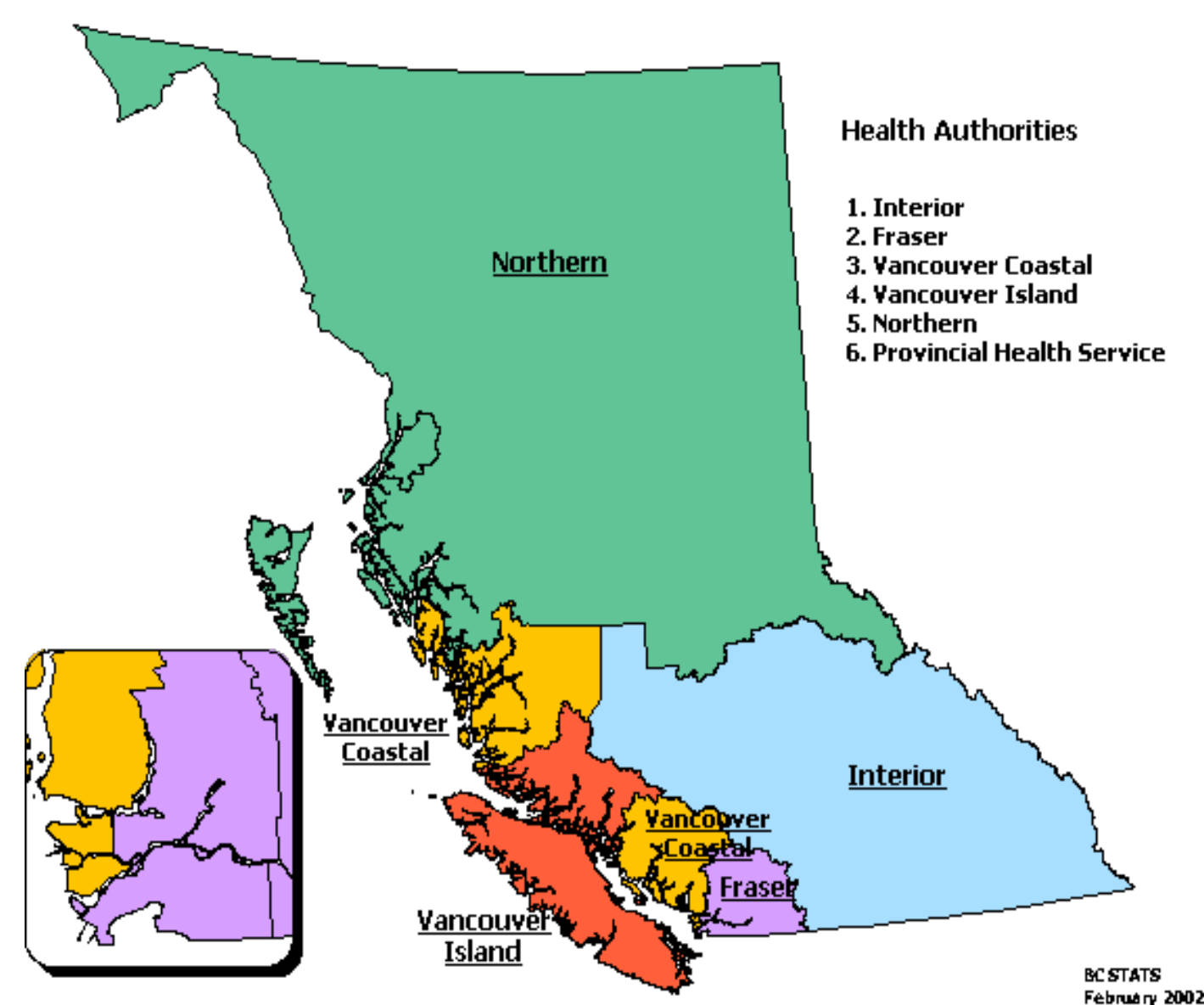

Figure 1. Five geographic BC health authorities

In addition to the geographic health authorities, the Provincial Health Services Authority administers specialty services throughout the province of BC. BC PSLS is in operation across the continuum of care throughout the province.

The goal of BC PSLS is to make healthcare safer for British Columbians through shared learning and continuous system improvement.

In the short- to medium-term we aim to:
• Improve safety event reporting
• Provide effective reporting tools
• Support more efficient processes
• Encourage teamwork and collaboration

In the long-term we aim to:
• Foster a culture of safety
• Improve information-sharing
• Promote learning and improvement
• Reduce healthcare costs associated with patient safety events

More information

Please visit our website or contact us for information about this and other initiatives.
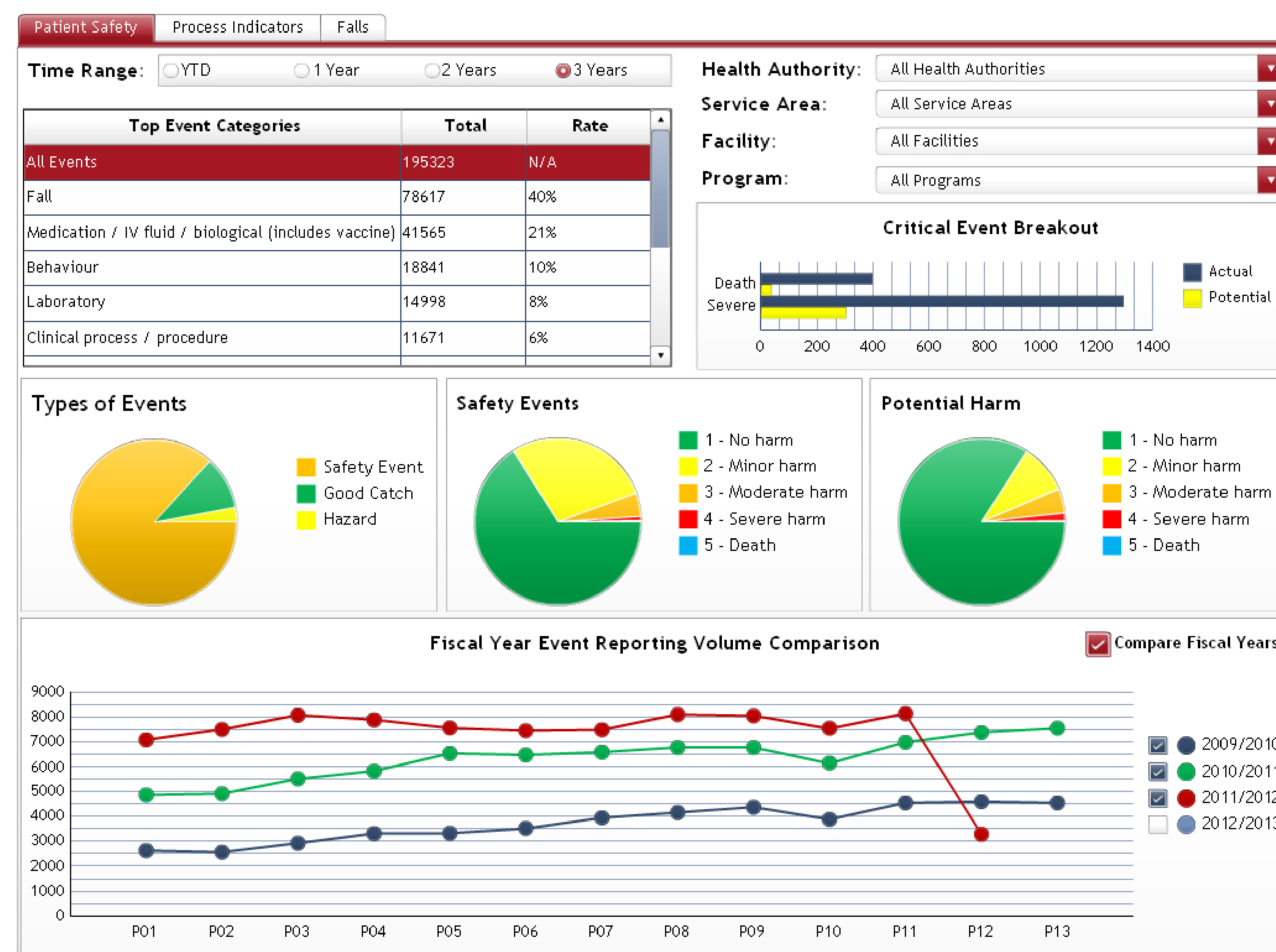
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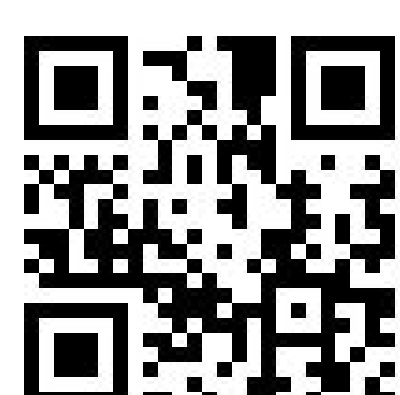
Results

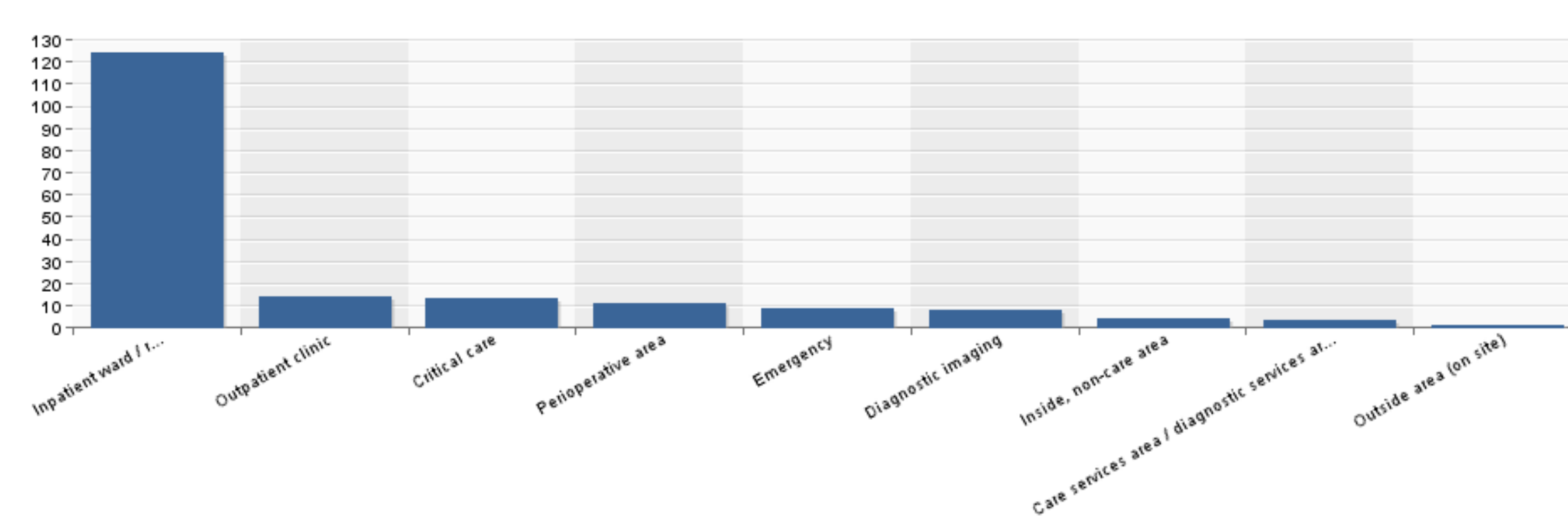### New BC PSLS reports now available to BC health authorities

Examples:

Dashboard Report
Provides an overview of indicators and enables trending over time.

Bar Chart
Values are displayed as horizontal or vertical bars with lengths proportional to the frequency of occurrence in a set of data (e.g. number of reports per type of location).
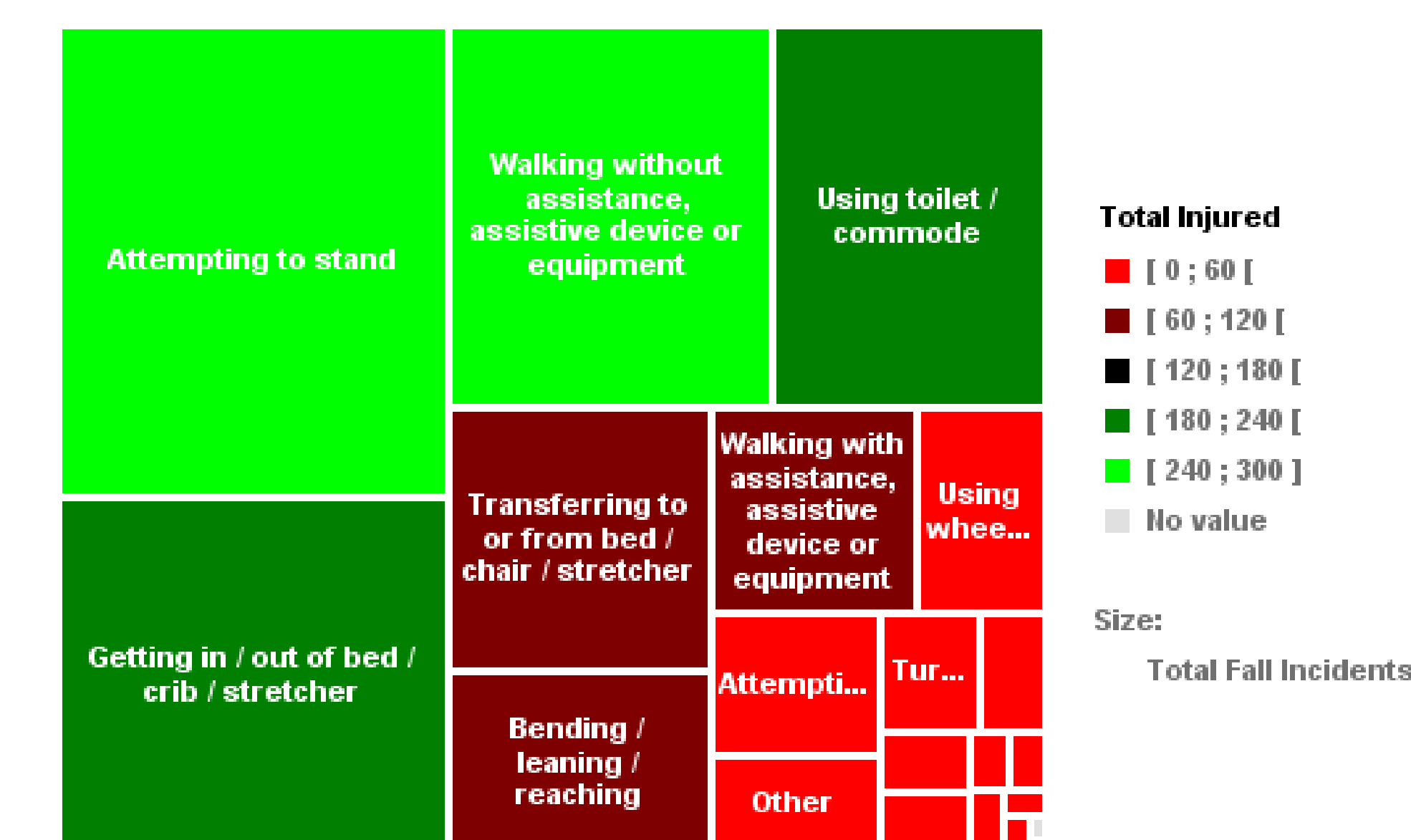

Radar Chart
Displays several axes starting from a unique origin with a common scale. Each axis represents a category. Plots are directly placed on an axis according to their values.
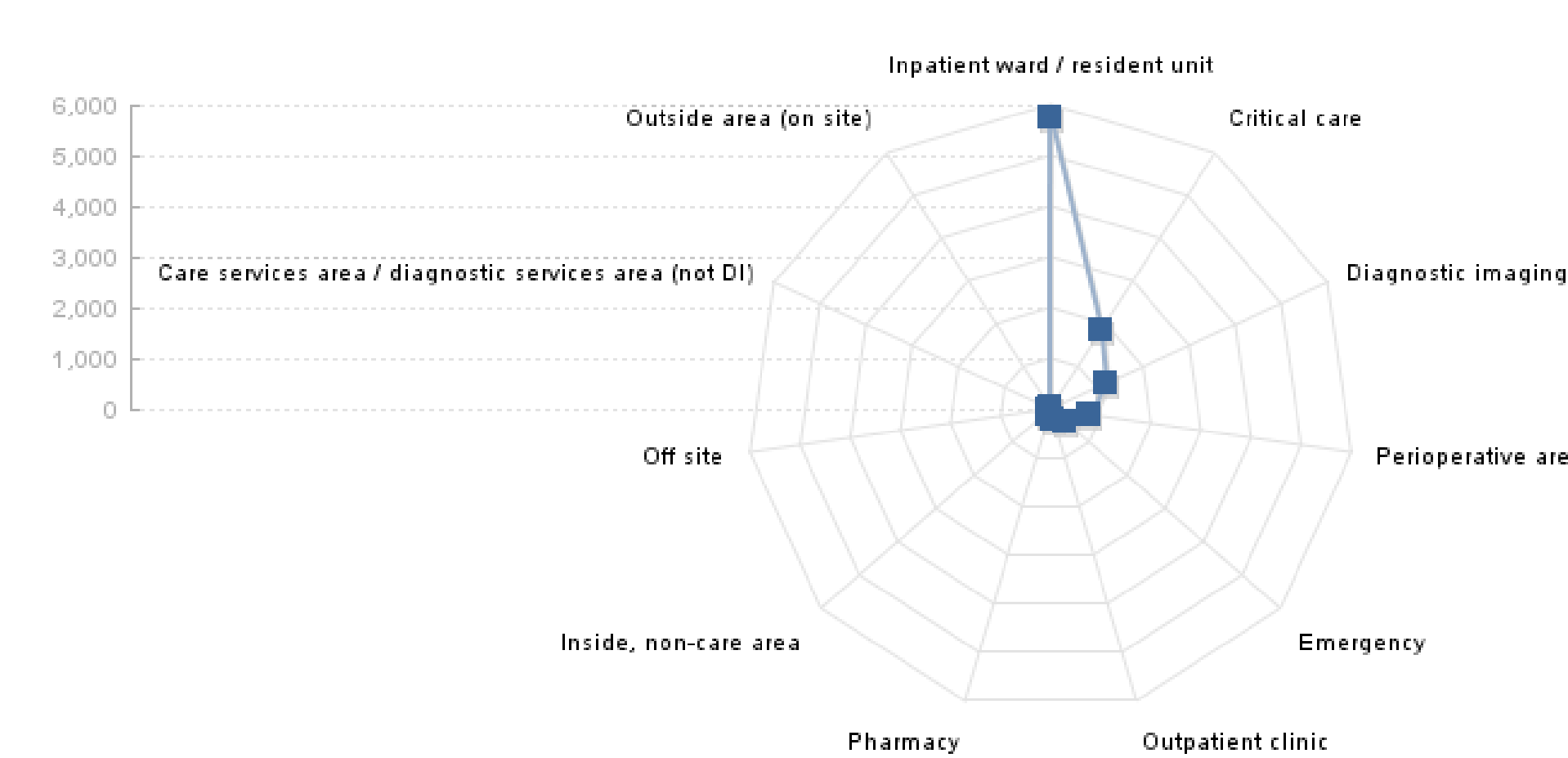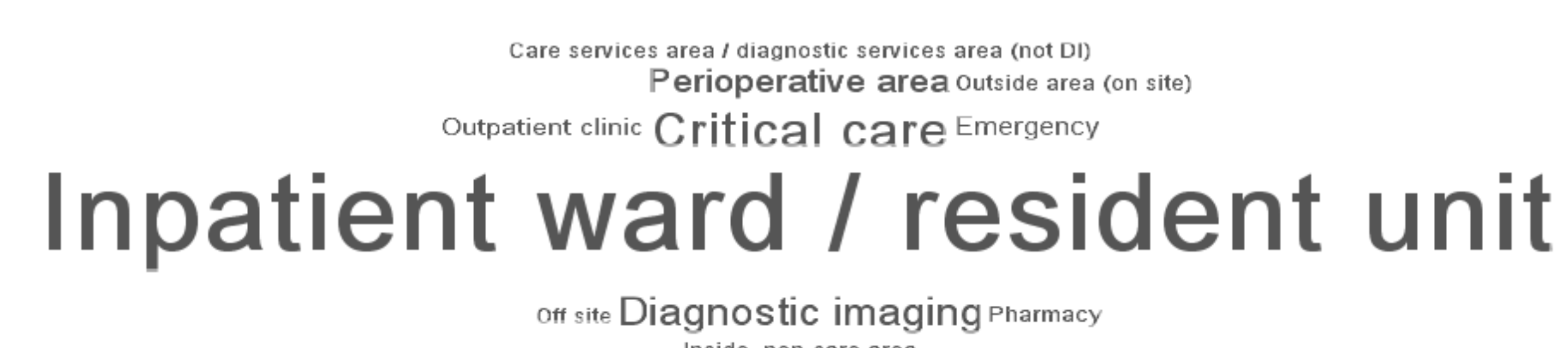

Tree Map
Values are displayed within nested rectangles. The size of the rectangle expresses a set of values (e.g. number of reports) as does the colour (e.g. number of injuries).

Word Cloud
Mono-dimensional visualization representing data as words where the word font size represents its relative weight (e.g. number of reports) in the data set.

Problem

With over 265,000 records in our BC PSLS provincial database and, on average, 300 new reports arriving daily, we were challenged to support timely, accessible trending, data analysis and learning at various levels of the provincial healthcare system from our small Central Office. Our reporting software enables managers to view and analyze their data to inform local improvement work, but additional functionality was needed for senior leaders.

Aim

Use improved analytics to create meaningful, actionable information from our rapidly-growing data set to support decision-makers and help the healthcare system achieve visible improvements in safety and quality.

Strategy for change

In early 2010, we began a visual analytics project with a prototype dashboard report delivered monthly to health authority leaders using SAP's Xcelsius software. User feedback was sought to confirm acceptability of the dashboard approach and to help us learn how best to present the data to promote understanding of patient safety issues.

Based on user feedback, we built a reporting suite to allow interactive data analysis. Using the latest technology from SAP BusinessObjects, a leader in visual analytics, the reporting suite gives leaders the ability to interact with and drill through BC PSLS data without restrictions to answer emerging questions about quality and safety.

Lessons learned

• Considerable attention must be given to data quality, confidentiality and accessibility issues.
• A variety of tools are required to meet emerging questions and varying user skills
• Selecting tools that are easy for users to learn to use is critical
• The ability to interact with the reporting tools on mobile devices, such as iPads, is a key selling point

Sustainability

As we launch the new reports tools, we are engaging user groups to help ensure our ongoing development meets emerging requirements. We are diversifying our tool set and are developing simple training tools to support e-learning.

Acknowledgements

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