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Special report from the CDC

A review of CDC's Web-based Injury Statistics Query and Reporting System (WISQARS™): Planning for the future of injury surveillance☆

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ABSTRACT

Introduction: The Centers for Disease Control and Prevention (CDC) developed the Web-based Injury Statistics Query and Reporting System (WISQARS™) to meet the data needs of injury practitioners. In 2015, CDC completed a Portfolio Review of this system to inform its future development.

Methods: Evaluation questions addressed utilization, technology and innovation, data sources, and tools and training. Data were collected through environmental scans, a review of peer-reviewed and grey literature, a web search, and stakeholder interviews.

Results: Review findings led to specific recommendations for each evaluation question.

Response: CDC reviewed each recommendation and initiated several enhancements that will improve the ability of injury prevention practitioners to leverage these data, better make sense of query results, and incorporate findings and key messages into prevention practices.

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1. Introduction

In 1999, the Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control (NCIPC) became early adopters of leveraging newly emerging internet technology to meet the data needs of injury and violence prevention practitioners (Centers for Disease Control and Prevention, 2016a). The Web-based Injury Statistics Query and Reporting System (WISQARS™), was developed as a user-friendly system that allowed the public 24/7 access to injury surveillance data and customizable reports. Initially WISQARS™ provided fatal injury reports and leading causes of death reports (Table 1), and over the next 10 years gradually expanded the scope of WISQARS™ to include additional modules such as nonfatal injury reports, the National Violent Death Reporting System (NVDRS) (Blair et al., 2016), fatal injury mapping, and cost of injury reports (Table 2).

CDC research and scientific programs periodically undergo external review to maintain the quality, relevance, and impact of the centers' activities. Since 2005, NCIPC has conducted a number of Portfolio Reviews on topic areas such as youth violence, falls among older adults (Sleet et al., 2008), traumatic brain injuries, Injury Control Research Centers, motor vehicle injuries, State Injury Control Core Programs, and sexual violence (DeGue et al., 2012). In 2015, NCIPC completed a WISQARS™ Portfolio Review. In this article we describe the essential elements of the Review, and how this process has informed future development and improvement of an important national resource.

2. Review process and methods

Multiple groups of individuals were involved in the review. The Review Work Group, which included key science, policy, and communication experts in NCIPC, developed evaluation questions; provided guidance on goals, scope, and process; and helped to identify the External Peer Review

☆ The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. The Journal of Safety Research has partnered with the Office of the Associate Director for Science, Division of Unintentional Injury Prevention in the National Center for Injury Prevention & Control at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, USA, to briefly report on some of the latest findings in the research community. This report on WISQARS is the 45th in a series of CDC articles for this journal.

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Table 1
Ten leading causes of death by age group, United States, 2014.

	Age goups										
Rank	<1	1–4	5–9	10–14	15–24	25–34	35–44	45–54	55–64	65+	Total
1	Congenital anomalies 4746	Unintentional injury 1216	Unintentional injury 730	Unintentional injury 750	Unintentional injury 11,836	Unintentional injury 17,357	Unintentional injury 16,048	Malignant neoplasms 44,834	Malignant neoplasms 115,282	Heart disease 489,722	Heart disease 614,348
2	Short gestation 4173	Congenital anomalies 399	Malignant neoplasms 436	Suicide 425	Suicide 5079	Suicide 6569	Malignant neoplasms 11,267	Heart disease 34,791	Heart disease 74,473	Malignant neoplasms 413,885	Malignant neoplasms 591,699
3	Maternal pregnancy comp. 1574	Homicide 364	Congenital anomalies 192	Malignant neoplasms 416	Homicide 4144	Homicide 4159	Heart disease 10,368	Unintentional injury 20,610	Unintentional injury 18,030	Chronic low. respiratory disease 124,693	Chronic low. respiratory disease 147,101
4	SIDS 1545	Malignant neoplasms 321	Homicide 123	Congenital anomalies 156	Malignant neoplasms 1569	Malignant neoplasms 3624	Suicide 6706	Suicide 8767	Chronic low. respiratory disease 16,492	Cerebro–vascular 113,308	Unintentional injury 136,053
5	Unintentional injury 1161	Heart disease 149	Heart disease 69	Homicide 156	Heart disease 953	Heart disease 3341	Homicide 2588	Liver disease 8627	Diabetes mellitus 13,342	Alzheimer's disease 92,604	Cerebro–vascular 133,103
6	Placenta cord. membranes 965	Influenza & pneumonia 109	Chronic low. respiratory disease 68	Heart disease 122	Congenital anomalies 377	Liver disease 725	Liver disease 2582	Diabetes mellitus 6062	Liver disease 12,792	Diabetes mellitus 54,161	Alzheimer's disease 93,541
7	Bacterial sepsis 544	Chronic low respiratory disease 53	Influenza & pneumonia 57	Chronic low respiratory disease 71	Influenza & pneumonia 199	Diabetes mellitus 709	Diabetes mellitus 1999	Cerebro–vascular 5349	Cerebro–vascular 11,727	Unintentional injury 48,295	Diabetes mellitus 76,488
8	Respiratory distress 460	Septicemia 53	Cerebro–vascular 45	Cerebro–vascular 43	Diabetes mellitus 181	HIV 583	Cerebro–vascular 1745	Chronic low. respiratory disease 4402	Suicide 7527	Influenza & pneumonia 44,836	Influenza & pneumonia 55,227
9	Circulatory system disease 444	Benign neoplasms 38	Benign neoplasms 36	Influenza & pneumonia 41	Chronic low respiratory disease 178	Cerebro–vascular 579	HIV 1174	Influenza & pneumonia 2731	Septicemia 5709	Nephritis 39,957	Nephritis 48,146
10	Neonatal hemorrhage 441	Perinatal period 38	Septicemia 33	Benign neoplasms 38	Cerebro–vascular 177	Influenza & pneumonia 549	Influenza & pneumonia 1125	Septicemia 2514	Influenza & pneumonia 5390	Septicemia 29,124	Suicide 42,773

Panel. The Evaluation Team supported the day to day activities and oversaw the work of an external contractor, who supported the planning and implementation, and development of the final report. Lastly, the External Peer Review Panel, which included key non-CDC subject matter experts, reviewed the report and developed recommendations.

The Review addressed the following questions:

1. Are WISQARS™ data being utilized for scientific and programmatic purposes by key stakeholders? [*Utilization*]
2. How can modern technology and innovation enhance the use of WISQARS™? [*Technology and innovation*]
3. What are the opportunities to expand the data sources/datasets? [*Data sources*]
4. What training, tools, and resources would facilitate actionable data translation? [*Tools and training*]

- Information from a number of sources was obtained, critically analyzed, and synthesized to form the basis for recommendations.
- Environmental scan of other data systems: internal and external web-based data querying systems (WBDQS) were identified and assessed.
- Technical features of these interfaces were summarized and documented.

Table 2
Current WISQARS™ modules.

Module	Year launched
Fatal injury reports	2000
Leading causes of death	2000
Nonfatal injury reports	2001
Leading causes of nonfatal injury	2001
Fatal years of potential life lost (YPLL)	2002
Violent deaths	2008
Fatal injury maps	2010
Cost of injury reports	2011
Mobile applications	2014

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