CSN Children's Safety Network at Education Development Center

Stories of Innovation

Collecting Real-Time Outcomes Data for Injury Prevention

Participants in the Child Safety Collaborative Innovation and Improvement Network (CS CoIIN) are identifying and developing innovative ways to collect real-time outcomes data. Typically, data on injury-related deaths, hospitalizations, and emergency department (ED) visits are centrally collected at the state level. On an annual basis, these data are cleaned by the state, released, and submitted to a national dataset. The cleaning and release process leads to a two-year or more delay in the availability of the data. However, because states centrally collect and house the data, there are opportunities for innovation in using real-time data. Some states in the CS CoIIN are now able to collect and report real-time data on injury-related deaths, hospitalizations, and ED visits, enabling them to incorporate this information into their injury prevention efforts.

Below are descriptions of the approaches that three of these states are taking.

Massachusetts: Suicide and Self-Harm Emergency Department Visit and Death Data

The Massachusetts Office of Emergency Medical Services (OEMS) collects emergency medical services (EMS) data, using the Massachusetts Ambulance Trip Record Information System (MATRIS). MATRIS data are used to improve and support the EMS systems, conduct research, and assure delivery of quality patient care. The Massachusetts Suicide Prevention program partners with OEMS and uses the data from MATRIS as a proxy to identify suicide-related emergency department visits. Though this collaboration is still in its early stages, the team plans to test the feasibility of using MATRIS data to identify young adults experiencing a psychotic episode and provide follow up services to ensure they receive behavioral healthcare.

The Massachusetts Registry of Vital Records provides the Massachusetts Suicide Prevention program with updated bi-monthly files containing information on deaths that occur in the state. Because these files contain real-time information, the program finds that the status of the possible suicide cases are still "pending closure". Despite this limitation, they are able to estimate the number of suicide deaths on a monthly basis using the files.

Tennessee: Death and Hospitalization Data on Falls

Previously, the Tennessee Department of Health used the state's Hospital Discharge and Vital Statistics data to collect and report death, hospitalization, and ED visit data related to falls for the CS CoIIN. Because these data sources lagged by almost a full year, the Tennessee team turned to the Tennessee Traumatic Brain Injury (TBI) Registry. The TBI Registry collects data on all hospitalizations and deaths (whether in or before hospital) related to traumatic brain injuries from all non-federal hospitals in Tennessee. Hospital facilities are required to report to the Registry either monthly or quarterly, which allows for more real-time data.

While the TBI Registry is closer to real-time, it does have limitations. Since facilities are only mandated to report TBI-related hospitalizations and deaths to the Registry, limited data on TBI-related ED visits are available. New research suggests that most youth concussions are seen in EDs or, more often, primary care settings. (Arbogast KB, 2016) This may prove to be a barrier when measuring the full impact of the fall prevention activities the team is conducting. The team is examining other data sources that may include real-time ED visit data.

Indiana: Child Passenger and Interpersonal Violence Data

Death Data

The Indiana Death Registration System (IDRS) is an electronic registration portal that streamlines the death registration process through online collaboration. Through Indiana Codes 16-37-1-3.1 and 16-37-3 beginning January 1, 2011, all deaths in Indiana must be recorded using the IDRS and all fetal deaths in Indiana must be recorded using the Indiana Fetal Death Registration System (IFDRS). The funeral director is responsible for initiating the death record within five days after death; the record is then released for review and data entry by the medical certifier, who may be a coroner, local health officer, or physician. The medical certifier has five days to complete the case, although coroners may take longer to review a case. Once the death record is signed by both the funeral director and the medical certifier by an electronic signature, the record is electronically submitted to the local health department for review. The local health department reviews and accepts the record before sending it to the ISDH within five days. The death record is fully filed and ready for issuance. The typical death record is completed within one month after the death. Individual and aggregate death certificate data for Indiana residents are provided to the Indiana State Department of Health (ISDH) Division of Trauma and Injury Prevention by the ISDH Vital Records division on a monthly basis.

The cause-of-death section of the death certificate is organized according to the World Health Organization guidelines and coded with ICD-10. The Division of Trauma and Injury Prevention analyzes death data using SAS statistical software. The ISDH maintains several positions that regularly use mortality data, including an injury prevention epidemiologist consultant, Indiana Violent Death Reporting System epidemiologist, Prescription Drug Overdose epidemiologist, and several Records Consultants.

Some of the Division's projects, including the National Violent Death Reporting System (NVDRS), have created the opportunity for the Division to establish processes to access the death certificate data from the Vital Records division on a regular basis. Some of the deaths for the CS CoIIN projects involve coroner investigations. One data quality issue stems from these coroner death investigations. Indiana's current coroner system is without a central data repository, and differences and inconsistencies between coroner reports and death certificate coding for various causes of death have been noted. These issues translate into vague coding on death certificates and limited information on coroner reports. Activities through the National Violent Death Reporting System, along with a new project, Prescription Drug Overdose: Prevention for States, will result in improving coroner training and data collection.

Hospitalization Data:

The Indiana Trauma Registry is a repository into which statewide trauma data has been brought together to support three foundational activities: identification of the trauma population, statewide process improvement activities and research. The Indiana Trauma Registry was implemented in 2007, with initial participation by the seven hospitals in Indiana that were verified by the American College of Surgeons as level I or level II trauma centers. Indiana's first level III trauma centers were established in 2014. Currently, more than 100 hospitals participate in the registry. Each hospital has access to the registry free of charge and free registry use training is provided by the ISDH Division of Trauma and Injury Prevention.

The Indiana State Department of Health follows the strict definition of traumatic injury defined by the American College of Surgeons – Committee on Trauma, with severe traumatic injuries meeting specific criteria and resulting in hospital admission, and/or patient transfer from one hospital to another, and/or death. Data are coded by trauma registrars within hospitals according to ICD-10-CM beginning

October, 2015. Trauma center data are received from Indiana hospitals with EDs on a quarterly basis through Indiana Administrative Code. The Indiana Trauma Registry is mined for CS CoIIN related data based on the most severe traumatic injury outcome, timeliness of data submission, and completeness of records.

The Division of Trauma and Injury Prevention analyzes Indiana Trauma Registry data using SAS statistical software. There are multiple feedback reports for each hospital and public health preparedness district. Changes to the data dictionary are discussed with the trauma registrars before being released for the next year. The ISDH maintains two positions related to the Trauma Registry: a data analyst epidemiologist and trauma system performance improvement manager.

Emergency Department Data:

De-identified ED data are received by the Indiana State Department of Health (ISDH) Epidemiology Resource Center Data Analysis Team via the Indiana Hospital Association (IHA) on a quarterly basis. The ISDH has a memorandum of understanding (MOU) with the IHA. These data must be reviewed and cleaned before they are released, and this leads to a delay in data access and use. The injury and external cause of injury codes were classified according to the ICD-9-CM, and as of October 2015, are now coded according to ICD-10-CM. ED data for 2016 are yet to be released. The Division of Trauma and Injury Prevention analyzes ED data using SAS statistical software. These data are used to support a wide range of programs and reporting activities, including the Preventing Injuries in Indiana: A Resource Guide and mobile app and the CDC Prescription Drug Overdose Prevention for States program.

Works Cited

Arbogast KB, C. A. (2016). Point of Health Care Entry for Youth With Concussion Within a Large Pediatric Care Network. *JAMA Pediatr*, 170(7):e160294. doi:10.1001/jamapediatrics.2016.0294.

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