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## **How KHN Analyzed The Data**

KHN analyzed data on nursing home inspection reports and staffing kept by the Centers for Medicare & Medicaid Services (CMS). Its Nursing Home Compare (<https://www.medicare.gov/nursinghomecompare/search.html?>) database presents metrics for assessing the quality of care at nursing homes that are certified by Medicare and Medicaid. Our analysis included citations that indicate increased risk for infections which are common causes of sepsis. We looked at deficiencies in care related to bedsores, catheters, feeding tubes and the home's required infection prevention and control program. We excluded citations with no or minimal potential for harm, such as paperwork violations and other minor citations.

KHN also analyzed staffing measures in Nursing Home Compare that are based on payroll records for the latest quarter of 2018, using the adjusted average hours of care given to each resident by registered nurses (RNs), licensed practical nurses (LPNs) and certified nursing assistants (CNAs). These hours are adjusted by CMS according to the relative need of the residents in each home, making them fair for comparison among homes that may have residents with different levels of need. Homes that have not submitted payroll data were excluded from the analysis.

For overall numbers of sepsis deaths in hospitals and costs to Medicare, KHN worked with Definitive Healthcare (<https://www.definitivehc.com/>), a private health care data firm. We provided ICD-9 and -10 codes for septicemia based on HCUP Clinical Classifications Software (<https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>), excluding codes specifically for newborns. Definitive Healthcare analyzed claims sourced from CMS' Inpatient LDS and Skilled Nursing Facility LDS Standard Analytic Files (SAF); the analysis was modeled after a 2013 report by the Department of Health and Human Services' Office of the Inspector General (<https://oig.hhs.gov/oei/reports/oei-06-11-00040.asp>). Definitive Healthcare analyzed the annual data files for calendar years 2012 through 2016 as well as the 2017 quarterly data files for Q1 through Q3. The analysis looked at hospitalizations for patients who had been discharged from a skilled nursing facility within one day of the hospitalization, and included cases of septicemia in both primary and secondary diagnoses. The analysis excluded patients of hospital-based swing-bed units.

Reporters used Courthouse News, a legal reporting service, to analyze negligence lawsuits across the country involving injuries related to sepsis and other infections in nursing homes.

## **Use the data**

You can use this data to look at individual skilled nursing facilities. All deficiencies listed and counted are related to bedsores, catheters, feeding tubes and the home's required infection prevention and control program. The data includes the date, level, and description of the most serious deficiency cited since the beginning of 2015, as well as a count of all related deficiencies in that time period (these exclude citations with no or minimal potential for harm).

KHN also calculated the average adjusted residents per aide for each facility, as of the most recent release of the data (at the time of publication) which is based on the second quarter of 2018. In a few cases, this number exceeds the number of beds in a facility because the facility has reported too few aide hours. The numbers are adjusted by CMS to account for the needs of the resident population so that a facility with more residents who have severe needs can be fairly compared to a facility with a more independent population.

Contact Elizabeth Lucas ([ELucas@kff.org](mailto:ELucas@kff.org)) if you have any questions about the data.