A Web-Based Tool for Calculating the Cost of Foodborne Illness

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Government analysts estimate the cost and distribution of foodborne illness—illness caused by either naturally occurring pathogens or deliberate or accidental contamination of foods with toxic or other harmful substances—to help policymakers target food safety policies to programs where they will do the most good. Estimating costs requires a number of assumptions about illness incidence and burden. ERS's Foodborne Illness Cost Calculator (www.ers.usda.gov/data/foodborneillness/) provides policymakers and the general public with detailed information about the assumptions behind foodborne illness costs and provides the flexibility to change these assumptions and generate custom cost estimates. The Calculator describes the assumptions and calculations behind the ERS cost estimates for two foodborne pathogens, Salmonella and, as of spring 2006, Shiga-toxin producing E. coli O157 (STEC O157).

Example: Change the number of cases

Some potential uses of the Calculator include determining the cost of illness for a State or community where the incidence of STEC O157 is known, estimating the cost of illness due to an STEC O157 outbreak, or updating the cost of STEC O157 when a new estimate of annual cases becomes available.

For example, ERS's cost estimate for STEC O157 of $431.4 million (in 2005 dollars) is based on the Centers for Disease Control and Prevention's (CDC) 1999 estimate of 73,480 annual cases. Newly released data from CDC's FoodNet program for monitoring foodborne illness show a 29-percent decrease in the incidence of lab-diagnosed STEC O157 cases in 2005 compared with the 1996-98 baseline period. A calculator user could assume that the number of annual cases has decreased by the same percentage. - Entering this assumption (which is equivalent to 52,171 cases) into the Calculator, without changing any other assumptions, yields a new cost estimate of $304.5 million (in 2005 dollars).

Example: Calculate costs of contaminated ground beef

The Calculator could also be used to estimate the cost of STEC O157 illnesses due to a specific food vehicle, such as ground beef. The 2001 risk assessment conducted by USDA's Food Safety and Inspection Service estimated that ground beef contaminated with E. coli O157: H7 caused a median of 19,000 illnesses each year, distributed across a range of health outcomes.

The outcomes include 17,200 cases who didn't see a physician; 1,400 cases who visited a physician; 310 nonfatal cases who were hospitalized without developing the serious complication, hemolytic uremic syndrome (HUS); 80 nonfatal HUS cases; and 10 fatal HUS cases.

Plugging these outcome estimates into the Calculator and changing no other assumptions puts the estimated cost of STEC O157 infections due to contaminated ground beef at $71.4 million (in 2005 dollars).
This article is drawn from ERS’s Foodborne Illness Cost Calculator, available at: www.ers.usda.gov/data/foodborneillness/