CENTERS FOR DISEASE CONTROL & PREVENTION
ENVIRONMENTAL PUBLIC HEALTH TRACKING

# Communicating the Effects of the Transition from ICD-9-CM to ICD-10-CM on Asthma and Chronic Obstructive Pulmonary Disease Data

*Recommendations from the Environmental Public Health Tracking Program's Hospitalization Data Team*

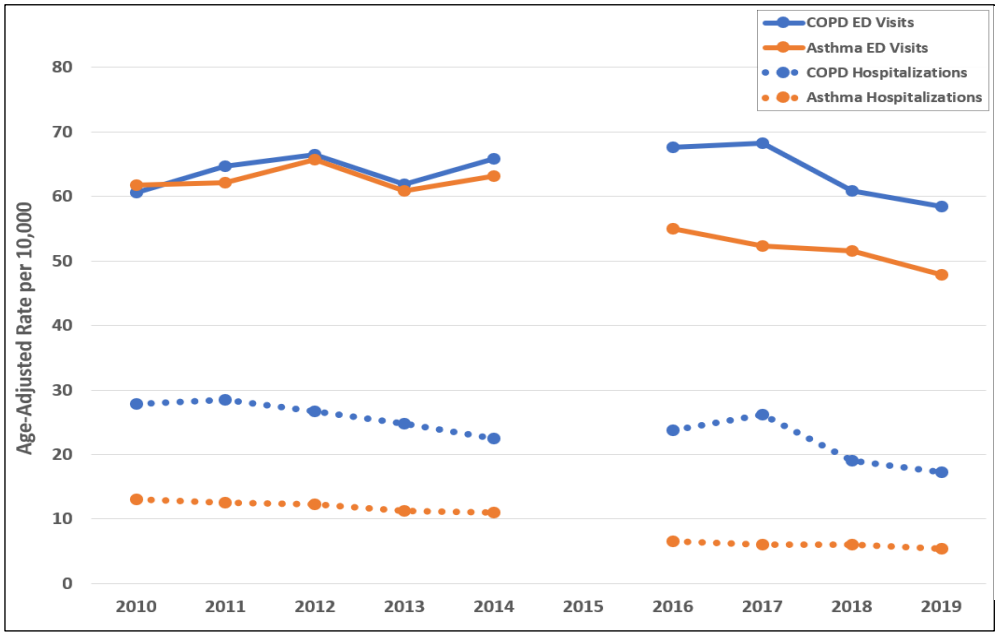
## Background on the ICD-CM Transition

The International Classification of Disease (ICD) is a system used to classify causes of death, hospitalizations, and emergency department (ED) visits around the world. It allows for consistency and standardization in recording, tracking, and billing. However, as lessons are learned from medical advancements and the application of the code system itself, revisions are made to increase accuracy and utility. On October 1, 2015, ICD-9-CM (9th Revision, Clinical Modification) transitioned to ICD-10-CM (10th Revision, Clinical Modification) for hospitalizations and ED visits. Each time a revision of ICD takes place, the coding of diseases, injuries, and causes of death are affected, which has a significant impact on public health surveillance systems. Often, classifications do not directly translate from one revision to the next, so conditions are not precisely comparable from one system to another. It is important to understand how ICD revisions affect data for conditions you are studying and to anticipate questions that may come up from users of those data. Looking at trends over time can be particularly problematic.

## Effects on Asthma and Chronic Obstructive Pulmonary Disease (COPD) Data

We assessed the effects of the ICD transition on asthma and COPD coding. A data review showed that, in general, age-adjusted asthma hospitalization and ED visit rates decreased from the time before the transition (2014 and prior) to the time after the transition (2016 and forward). At the same time, age-adjusted COPD hospitalization and ED visit rates increased for 2016–2017. Asthma and COPD are both conditions that vary across different age groups. For example, COPD is not generally seen in younger age groups, while asthma is prevalent among children.

**Asthma and COPD Age-Adjusted Hospitalization and Emergency Department Rates per 10,000 for Select States, 2010–2014 and 2016–2019**




Hospitalization data includes the following states: Arizona, Colorado, Connecticut, Florida, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Virginia, Washington, and Wisconsin. Emergency department (ED) visit data includes the following states: Arizona, Connecticut, Florida, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, New Jersey, New Mexico, New York, Rhode Island, Utah, Vermont, and Wisconsin.

## Tips for Providing Clarity around ICD-CM Transitions

It is important to understand how the ICD-CM transition affects the data so you can answer questions about trends over time.

- Regularly analyze data for your jurisdiction to gain insight into trends over time and factors that influence data.
- Stratify data by race, ethnicity, sex, and age.
- Analyze data with greater geographic precision (or granularity) to help identify regional variation.

Once you understand the issues that occur because of the transition, you can prepare talking points about the data and include footnotes on data visualizations and metadata.

## Sample Language for Footnotes or Metadata

It is helpful to include information with your data visualizations and in your resources about data interpretation. Below are examples of language that can be included as footnotes in visualizations or within metadata.

- On October 1, 2015, there was a transition from ICD-9-CM to ICD-10-CM diagnosis coding, and differences after this change could be due to coding changes, which should be considered in interpretation of trends. (*Tennessee*)
- Effective October 1, 2015, hospital record data transitioned to a new coding system called the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM). Differences between counts and rates in years before 2015 compared with 2015 and after could be a result of this coding change and not an actual difference in the number of events. (*Florida*)
- On October 1, 2015, there was a change in how hospitalization and emergency department data are coded, which is why there is a break in the line chart. As you interpret trends over time, be sure to note these differences in coding. (*Wisconsin*)
- On October 1, 2015, in the United States, the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) replaced the ninth revision (ICD-9-CM) for coding of medical terminology and disease classification. As a direct result of this change, there are nearly five times as many diagnosis codes in ICD-10-CM than in ICD-9-CM. This coding change affects information classifications for hospital discharge, emergency department, and outpatient records for administrative and financial transactions in all healthcare settings. In 2015, data were coded as ICD-9-CM from January to September and as ICD-10-CM from October to December. Differences in counts and rates in years before 2015 (ICD-9-CM) compared with 2015 (ICD-9-CM and ICD-10-CM) and subsequent years (ICD-10-CM) could be a result of this coding change and not an actual difference in the number of events. (*Centers for Disease Control and Prevention*)

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