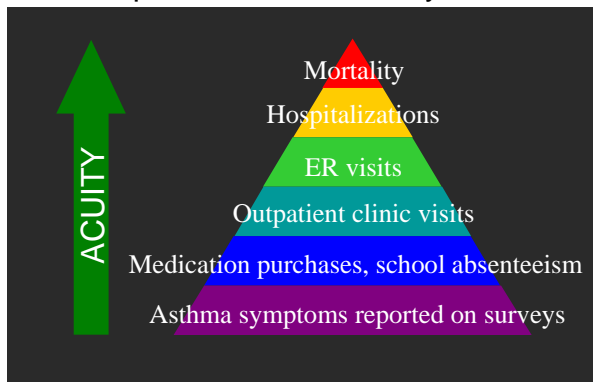


Hospitalization rates are the most widely used indicator of how big the problem of asthma is. Because these rates are widely available, some people rely solely on hospitalization numbers, bypassing entirely the mention of asthma prevalence (that is, the number of children that have asthma), even though prevalence may be a more direct measure of the problem.

In California, pretty much all hospitalization rates that we normally see are calculated from the datasets maintained by the Office of Statewide Health Planning and Development (OSHPD). Therefore, it is very important for those of us involved in asthma advocacy to understand where these data come from, what they are useful for, and what their limitations are.

What part of “asthma” does this represent?

Hospitalization of children for asthma represents only the “tip of the iceberg” of asthma in any given population (see figure). This is because, for every child hospitalized, several may have



visited the emergency room for an asthma attack but were stabilized and sent home. For each of these, many more visited non-

emergency outpatient clinics, and even more have asthma on an ongoing basis but are managing their disease through medications, or are not being managed at all.

This argument might suggest that hospitalization rates are not very useful for monitoring, or even discussing, the burden of asthma among children. It should be kept in mind, however, that hospitalizations represent the *most severe* asthma among children. Furthermore, since exacerbations of asthma are preventable (at least for the most part), most hospitalizations could be considered as treatment failures or (more broadly speaking) health policy failures. For some arguments, hospitalizations are precisely the part of asthma we want to focus on. Finally, hospitalizations are particularly costly, so they can add weight to one’s argument when one is advocating on behalf of children with the disease.

Where do these data come from?

Unfortunately, there is no registry to which a physician reports when he or she hospitalizes a child for asthma, and no standard criteria for judging how bad the asthma needs to be to justify hospitalization. Instead, physicians’ notes describe the clinical situation in question, often listing both primary and secondary diagnoses. To add to the confusion, where one physician may list “asthma” as the primary diagnosis, another may list “respiratory failure” or “pneumonia” as primary and “asthma” as an underlying cause, or secondary diagnosis.

Physicians’ notes are then abstracted by professional coders who list

the primary and secondary diagnoses involved *for billing purposes*, rather than for the purpose of public health monitoring. These numbers, along with basic demographic information, are periodically reported by the hospital to OSHPD in Sacramento.

While the original reasons for hospitalization may have included asthma as an underlying cause, most reports using OSHPD data include only those hospitalizations for which asthma was listed as the *primary diagnosis*.

Rates for small areas

As we all know, most communities are interested in quantifying asthma in their local area; this can present a problem, however, when we are relying on hospitalization rates to represent the burden of asthma in a population. This is because, relatively speaking, hospitalization for asthma is a rare event.

Communities with high population densities may be able to calculate hospitalization rates at the city or even at the zip code level with relative certainty. In rural areas, however, there may be only a handful of hospitalizations for asthma in an entire county, making it difficult to estimate a hospitalization rate with any confidence. Furthermore, OSHPD takes care to suppress data that may lead to a breach of confidentiality; therefore small communities with only a few residents of a certain age may not have their hospitalization data released at all.

What to do

All data have limitations; the important thing is to communicate these limitations whenever the data are to be presented. Therefore, ***always report hospitalization rates along with confidence intervals***. This is particularly important when one is comparing the rate

for one community to that of another, to a statewide rate, or to a reference level (for example, a *Healthy People 2010* objective for asthma hospitalizations).

Presenting hospitalization rates alongside their confidence intervals can prevent people from drawing inappropriate conclusions from the data. It also allows people to keep in mind the uncertainty associated with rates calculated for small populations. In general, rates based on small populations (for example zip codes or rural communities) will have wider confidence intervals. Rates based on several years' worth of data aggregated together, on the other hand, will have narrower confidence intervals.

How to access OSHPD data

The CDC-funded California Breathing program through the Environmental Health Investigations Branch of the California DHS has produced a *California County Asthma Hospitalization Chartbook*, which is available through their website (www.californiabreathing.org, under the "Papers" section). The *Chartbook* has hospitalization counts, rates, and confidence intervals based on the most recent three years of OSHPD data.

California Breathing has also been collaborating with the CAFA state office to calculate similar statistics for zip codes in the counties where CAFA Local Coalitions operate. This information is expected to be released in the spring of 2004.

The opinions expressed here are those of the author. The material is being presented on behalf of CAFA; none of it has been reviewed or approved by the staff of the California Office of Statewide Health Planning and Development.