Q&A: Diagnostic accuracy in the ED for Medicare beneficiaries with and without Alzheimer's disease

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Laura Burke, MD, MPH, an emergency physician at Beth Israel Deaconess Medical Center (BIDMC), is at the forefront of research that

intersects emergency medicine and public health. Burke's project focuses on advancing emergency care.

In addition to her work on diagnostic excellence, Burke, who is also an assistant professor of emergency medicine at Harvard Medical School, is a lead author of a study published in the *Journal of the American Geriatrics Society* examining trends in observation stays in emergency departments, with a focus on patients with Alzheimer's Disease and related dementias (ADRD).

Her findings indicate that observation stays are particularly high among nursing home residents with ADRD, shedding light on the unique challenges faced by this vulnerable population.

In the following Q&A, Dr. Burke discusses her passion for emergency medicine, the complexities of diagnostic error, and the implications of her research on both clinical practice and health policy.

What made you interested in pursuing Emergency Medicine and public health?

I'm someone who's always been interested in policy and politics. In medical school, I became interested in how government policies influence health and health care. I like that we can study real-time policies and give policymakers information that can hopefully lead to improvements in care delivery.

Massachusetts has been a leader in a number of health policy innovations, several of which have impacted emergency care delivery. In 2009, Massachusetts' Department of Public Health enacted a public health directive to ban ambulance diversion.

People predicted all these adverse consequences.

When I was in medical school, my mentor, fellow emergency physician Peter Smulowitz, allowed me to participate in a study looking at the impact of Massachusetts' health reform on ED visits. Participating in that study really got me hooked on health services research as a way to improve emergency care delivery.

My colleague Stephen Epstein and I studied the ambulance diversion ban after it occurred, and I was struck by the fact that those adverse consequences did not materialize. We then formally studied it and quantified the lack of an adverse impact on ambulances and EDs.

In many parts of the country, if an emergency department is full, they can turn away or "divert" ambulances to other hospitals. While this may sound like a good idea, when one hospital is full, they're usually all full and struggling with crowding.

Furthermore, diversion harms patients by delaying care and leading to people being treated in hospitals that are not familiar with their history. If you have had a transplant at BIDMC, it's inconvenient to get sent to a hospital that doesn't have your records or the specialists who care for you regularly.

Although record sharing is better now, the reality is that diverting ambulance patients is inconvenient for patients and does not fix the problem of crowding; it rather avoids addressing the root cause of ED crowding (which is boarding of admitted patients in the ED) and passes on the problem to patients and other hospitals.

Massachusetts remains the only state in the country to ban this practice.

You spoke about loving the 'myth-busting aspect' of

your job. Can you cite an example?

It's been debunked so many times with empirical evidence, yet there's this persistent idea that the uninsured use the emergency department more than insured people—it's not true. It's just their only option, so as a percentage of their overall health care utilization, they use the ED more. But [uninsured] people who are on the hook for thousands of dollars actually don't go to the emergency department more than insured people do.

Another persistent myth about emergency care is the idea that there's a large number of unnecessary ED visits. This has even led to some insurers trying to retrospectively deny payment for ED visits based on the final diagnosis. But people don't have a crystal ball. They're not medical providers and they're often not great judges of what's a medical emergency.

Is chest pain a medical emergency? Often, yes, but is acid reflux a medical emergency? Well, some people with acid reflux present with chest pain. It is only after patients have seen a physician with years of medical training and, in most cases, undergone testing, that one can determine if a patient is having a true emergency.

Sometimes, even then, it is not clear and the patient needs to be admitted for additional tests. A final diagnosis for a condition that is not life-threatening (such as acid reflux) doesn't necessarily reflect whether someone is using the ED inappropriately. Judging their decision to seek care based on information that was only available at the end of an ED visit is unfair and does not reflect the situation facing patients or their caregivers at the time of decision-making.

How does your research fit in with questions like

these?

I'm trying to come up with estimates of diagnostic error in emergency care. Of course, everyone misses diagnoses at times. There are some diagnoses that we say are "not gettable." That is, sometimes the presentation is so atypical that it's almost impossible to get on the first pass.

One example is an aortic dissection—a tear in your aorta, the big artery that comes off your heart and supplies your entire body with blood. It has a classic presentation of a sudden onset, tearing, ripping, and chest pain. When someone looks sick and has those symptoms, it is easy to make the diagnosis.

However, sometimes people have no pain, or they have pain that doesn't fit that presentation. I know of one patient with aortic dissection that presented as ear pain only. Such atypical presentation is likely to be misdiagnosed.

Some might say that missing that diagnosis is not an error because a reasonable person couldn't have picked that up. I agree, but if we stick to that framework, we're never going to improve as a specialty. Wouldn't it be good to understand the circumstances where it was a hard diagnosis? Some physicians probably made the right diagnosis, and some didn't. Why?

By asking these questions, we can figure out how to better pick up those atypical presentations. It's not about, "Are you a bad doctor?" It's about, "Did you figure it out?" And if not, what can we do to make it so more physicians eventually do make those diagnoses.

You recently published a paper on trends on ED stays

for patients with Alzheimer's disease (AD). What were you looking at and what did you find?

The total number of people with dementia is projected to increase, and it's also a population that has high use of the ED.

Over the last several years, policy discussions have focused on observation (OBS) status, which is when someone is in the hospital, but not considered an inpatient. For example, you have an older patient who fell, and you have ruled out a serious injury. They don't necessarily need to be in the hospital for days, but they're not quite safe to go home yet.

We have many examples of how we can use an emergency department observation to efficiently manage someone who's not ready to go home after a few hours in the ED. We can set up more support, such as physical therapy, in-home care, rehab facilities, and observation units elsewhere in the hospital. However, observation can also be an administrative status.

Meanwhile, Medicare payment policies have set up competing incentives. Medicare covers inpatient stays, but only 80 percent of most people's outpatient hospital visits.

When there were concerns that hospitals were billing inappropriately for inpatients who really didn't need that level of care, they became aggressive about auditing and levying hospitals with penalties if they had too many patients that they felt had inappropriate short days. Hospitals responded by using observation status more.

We found that days in observation (OBS) have gone up a lot for everyone in the older adult population, and they've especially increased for those with dementia. ED visits have also increased with the dementia

population, so, we wondered how much of their OBS increase is driven by them using the ED, and how much is individual provider behavior in the ED. We found that it's both: they're coming to the ED more, and when they come to the ED, they're more likely to be placed in OBS.

As a next step, we are about to submit a paper about how this relates to patient outcomes. At a national level, there has been an increase in OBS stays and ED discharges while inpatient admissions have gone down. But when we look at individual hospitals, there are differences in which have seen big changes, and which haven't. Large teaching hospitals seem to be using OBS more often compared to smaller rural hospitals.

You recently received a grant from the American Board of Medical Specialties. Could you tell us about the research you're going to do?

I just worked on a study with a colleague looking at emergency physician age and association with patient mortality. Broadly, it found that older emergency physicians (40 and above) have higher seven-day mortality. The oldest emergency physicians had the highest mortality.

In general, you would think that with time, you would get better. But emergency medicine is a young specialty that trains physicians differently now than we did just a few decades ago. We're not all board-certified in emergency medicine.

With this grant, we will research components of board certification to see if it's associated with the risk of diagnostic error and outcomes. It may not be age that is driving the findings from our prior study, but rather differences in training. Additionally, there are some EDs, particularly in rural areas, that are staffed by physicians of all ages who are not board certified in emergency medicine.

The goal of this project is to understand the degree to which board certification matters for diagnostic error and outcomes in emergency care. If there is an association, increasing access to board-certified emergency physicians across the country may be a way to improve quality and reduce preventable deaths in emergency care.

More information: Laura G. Burke et al, Trends in observation stays for Medicare beneficiaries with and without Alzheimer's disease and related dementias, *Journal of the American Geriatrics Society* (2024). DOI: 10.1111/jgs.18890

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