Moderator: Thanks. The next speaker is Cynthia Lucero-Obusan. Her topic is firearm injury encounters.

Cynthia Lucero-Obusan: Good afternoon, everyone. I thank you for the opportunity to be here. My name is Cynthia Lucero-Obusan. I’m with the Public Health Surveillance and Research Group. I’m a medical epidemiologist and in the recent reorg we moved and we are now under the office of Quality, Safety and Value. I’m primarily an infectious disease epidemiologist. This work is definitely a little outside of my wheelhouse. But we felt that this was an important topic both in terms of public health importance as well as safety so we decided to embark on this analysis and see how we could use our public health surveillance data to really take a look at this issue and answer some questions.

So just as a way of background, firearm violence in the United States leads to more than 30,000 deaths and 80,000 non-fatal injuries annually. When I looked at the literature in terms of prior firearm studies among Veterans, I really found that it’s mostly focused around suicide and attempted suicide. In this analysis where we tried to focus on was looking a little bit more globally at injury encounters among VHA enrollees.

We included all manners or intents. This includes assaults, self-inflicted, injuries as well as unintentional, undetermined and other categories. The other category would include things such as legal intervention that involved firearms or operations that involved firearms, these types of things. We also looked at both the inpatient as well as the outpatient and emergency department settings.

In terms of our methods, we used our public health surveillance system which is called Credico to extract both the impatient and outpatient encounters that contained one or more ICD-9 or ICD-10 firearm injury codes. We went back to the beginning of 2010. The data extracted included encounter details as well as patient demographics, the era of service or eligibility, also encounter type and we looked at deaths as well. The codes were classified into manner or intent based on the CDC’s WISQARS matrix and then to include some more recent data, we went back and sort of did a crosswalk from ICD-9 to ICD-10 data so that we could look at more recently coded data.

The outpatient data in our surveillance system comes exclusively from our VHA facilities. But the inpatient data does include some non-VHA facility data that’s transmitted. We also calculated a firearm related hospitalization rate using the total VHA acute care admissions for the same time period in our denominator.

In our study, we had over 7,000 unique individuals that have been seen with a firearm injury code. In terms of demographics, obviously the vast majority are male, 97%. The median age was 54 years with the range of 19 to 100 years. We did exclude one pediatric patient that was seen in an emergency department as a humanitarian emergency. In terms of period of service, Persian Gulf War era was the most common, which was 40% of these individuals. Followed by Vietnam era, which was 36% and then post-Vietnam at 15%. The remaining categories of Korean, post-Korean, World War II, active duty military and then those with other or no period of service were 2% each. Again, the other or none category includes humanitarian emergencies and some other individuals without a specific period of service or eligibility.

The greatest number of patients resided in Texas, which was 9% of this cohort. Followed by California and Florida, which each had 7%. And you can see the rest. There were Ohio, Arizona, North Carolina, Illinois, Pennsylvania, and then Georgia and Missouri each had 3%.

The firearm admission rate that we calculated was 2.59 per 10,000 admissions. The most recent national rate that’s been published was back in 2010 and that rate was 1.96 per 10,000. So you can see our rate is trending a little bit higher than what’s been reported nationally.

I just want to orient you to this table here before I go too far. The various manners or intents are across the top. Again, we have unintentional injuries, self-inflicted, assaults, undetermined and our other category.

The number of outpatient or emergency department encounters during this time period was over 13,000 and we had 1,750 hospitalizations. Focusing on the unintentional category, as you can see here, more than half of all of our outpatient or emergency department encounters with a firearm injury code fell into this category. Which is more than any of the other manners combined. Then there was also more than double the number of hospitalizations in this category compared to any other manner or intent.

482 of our 1,750 hospitalizations occurred outside VHA. So it’s about 28%. My slides seem to be auto advancing so sorry I’m going backwards. Then focusing a little bit on the self-inflicted, the length of stay was longest in the self-inflicted category which may reflect patients requiring some additional care in mental health following sort of the acute injury and also the greatest number of deaths were in that category. These are patients that made it to the point of being admitted, so 38 out of 322, so about 12% in hospital mortality for those patients in that category. Compared to say assaults which was about 2%. Overall in this cohort, 62 death which was about 3.5% of all the firearm coded hospitalizations.

Next, I just want to share a little bit of high-level geography in terms of where these encounters are occurring. The top states here were Texas with over 1100. These are outpatient or emergency department encounters. Followed by Florida and California and then Illinois and Arizona had about the same number or close to 800.

We drill down a little bit further to the county level, we can see some sort of slightly different pockets of high activity. So the highest counties were Mericopa, Arizona and Cook County in Illinois.

Then in terms of hospitalizations, again, not too different from what we saw on the outpatient side. Texas, Florida, California sort of leading the pack here. Then again drilling down to the county level in terms of hospitalizations Cook County is again at the top there. Followed by Harris, Texas, then we had a fairly large number in San Diego and Los Angeles Counties and also in Allegheny County in Pennsylvania.

This is sort of just a first high-level look at these data. We likely underestimated firearm injury encounters among Veterans. Obviously, not all Veterans are VHA enrollees or seeking care in VA. And patients with these types of injuries may be preferentially routed to non-VHA trauma centers or other facilities. As I mentioned toward the beginning, data from non-VA outpatient emergency encounters are not included in our data and we only get some of the VHA hospitalizations in our surveillance system. We also didn’t perform chart reviews to really look at the accuracy or completeness of coding. So it’s possible that miscoding or misclassification of firearm injuries may have occurred. I suspect if we went back and examined more carefully say the patients that fell into the undetermined category, we might be able to place them in a different category if we looked more specifically at their history or present illness.

In conclusion, the unintentional injury category was the most common form of firearm injuries among VHA enrollees. It represented over half of our outpatient and emergency department firearm encounters and more than twice the number of hospitalizations compared to any other manner or intent including self-inflicted. We feel that additional study is needed to further understand the epidemiology of firearm related injuries among Veterans as well as to inform VHA leadership and providers and specifically I think some of the important questions we want to ask are how and when we’re going to screen Veterans for firearm access or the use habits for safe storage practices. And if providers are really only doing this in mental health settings, then most likely we’re missing the mark. We’re missing opportunities to prevent these types of injuries.

With that I just want to acknowledge my co-authors and thank you again for having me. [applause]

If there are any questions, I’m happy to take them.

Becky Yano: Hi, Becky Yano, VA, Greater Los Angeles, HSR&D Center. As an epidemiologist, I was pleased to see this linked into public health surveillance. These look like absolute numbers rather than rates. Have you guys started to try and do some denominator developments so you get an idea of not just where the mass of population centers are but what the rates are for these various areas?

Cynthia Lucero-Obusan: Yes, definitely that’s certainly an important question. We started by sort of looking at the overall hospitalization as a rate but I think you’re right. We definitely need, especially in terms of the geography, we’re going to need to drill down to look at more rates instead of just overall numbers because that’s really going to tell a bigger picture of where the pockets are that we really need to perhaps focus prevention efforts.

Becky Yano: Thank you. And then just one other note. One of our primary care doctors in our women’s health program has over time well before suicide prevention became a focus, began her own screening effort on whether or not women Veterans in the primary care program had access to a gun. And to this day, 100% of her patients say oh yes, of course. So I really applaud you for bringing some of this forward so that the thoughts around screening and safe practices and mental health assessment in a general primary care setting is an option too. Thank you.

Cynthia Lucero-Obusan: Thank you.

Joann Kirkshire: Hi, Joann Kirkshire, from Little Rock, Arkansas. Not surprising Dr. Yano got my first point which was looking at rates. Coming from a state such as Arkansas where our rates are very high though our absolute numbers may be relatively low, I think that’s an important lens through which to see the real problems.

The other thing I challenge you for because I’ve watched over the past year us go to open carry legislation. I would love to see what you are seeing in our data linked to policy changes by states and the degree to which guns are acceptable and more available in some states rather than others.

Cynthia Lucero-Obusan: Thank you for that comment. I think it’s an important point and I think obviously there’s a lot of state by state variation. As we’re able to apply and rate and look more specifically at geography we can try to answer some of those questions about how policies in states or public perception in states is really influencing not only access but just use practices and overall their risk.

David Atkins: Okay, so point of clarification. Sorry, David Atkins. You were just using hospital data, so presumably you were missing successful suicides that didn’t end up going to the hospital? I mean because that number of 62 deaths don’t

Cynthia Lucero-Obusan: Right, right. Unfortunately, our emergency department data doesn’t really include disposition or outcome data so we can’t really say how many of those patients showed up in the emergency department ended up dying. Also, some of the non-VA hospitalization data didn’t actually get recorded as a death but when you look at the date of death and the date of discharge, it’s the same. So you can sort of you know infer that that actually wasn’t just a regular discharge, it was a death. But yes, certainly, that’s an important piece.

David Atkins: But I mean a patient who kills himself at home and they call the police, they’re not necessarily going to end up with a hospital visit. Right? They’ll have a coroner and they’ll end up in the death index.

Cynthia Lucero-Obusan: I will say anecdotally that when I kind of looked specifically at the self-inflicted category, I noticed that a lot of those patients have a date of death within weeks to weeks to months of their hospitalization. When I look at a few of those charts, they had a subsequent successful suicide. It wasn’t captured in our hospital or encounter data because you’re exactly right. They were found at home and they were already dead. I think another piece of this puzzle will be sort of looking at either 30-day mortality or sort of longer term mortality and seeing what’s actually happening to these individuals.

David Atkins: Well could you use the national death index to capture those people

Cynthia Lucero-Obusan: That definitely would be one source of data that we’re looking into. Thank you. [applause]