The COVID-19 Pan-Syndemic – will we ever learn?

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"A syndemic is defined as an occurrence when two or more epidemics interact synergistically to produce an increased burden of disease in a population" - a term proposed by Merrill Singer in the mid-1990s. The COVID-19 pandemic has become an extreme form of syndemic, a pan-syndemic, where pockets of inequities (not limited to health) have been brought to light by increased disease burden and mortality compressed in a short time period throughout the world.[1] This pan-syndemic is not limited to just the US, indeed higher mortality has been documented in under-served populations throughout the world in both developed and developing countries.[2–4]

Few studies have systematically used geographical information system (GIS) data to interrogate the underlying patterns of COVID-19 incidence, spread and disease outcomes.[5] The study "Beyond the 405 and the 5: geographic variations and factors associated with SARS-CoV-2 positivity rates in LA County" by Vijayan et al in this issue analyzes one important facet in the continuum of the pandemic response – COVID-19 testing. Their study reveals the pervasiveness of inadequate access to testing even in communities such as the LA County. The authors of this study use GIS to integrate information from the LA department of health and US census in order to identify socio-structural determinants that have an effect on the incidence of SARS-CoV-2 test positivity. The authors rightly point out that the interplay between disease and socio-structural processes result in geographically distinct clusters and using GIS to analyze such data gives us important insights into the underlying driving forces of the pandemic. More importantly, such information also gives us actionable data to assist the public health initiative and devise effective socio-structural processes for an effective pandemic response.

Vijayan et al show that low rates of test positivity and high testing were geographically clustered in affluent areas while the converse was found in neighborhoods with high population density and

poverty. Interestingly, their Spatial analysis also identified that one ethnicity, namely Hispanic, by itself was a “risk factor” for higher rates of test positivity.

Data suggests that Hispanics work in essential jobs with lower pay and lack economic safety net that may result in increased exposure compared to other cohorts.[6] A significant proportion of Latino/a population is undocumented which makes them more vulnerable to economic insecurity especially during lockdowns due to being ineligible for federal assistance. Moreover, living in overcrowded areas with multigenerational housing potentially increases the frequency of contact and spread within the community. Language and cultural barriers also compound the difficulty to care due to access issues.[7,8]

It is well known that people living in disadvantaged neighborhoods and minority ethnic groups have unequal exposure to social determinants of health including housing, education, work and job security and access to health-care all of which compound to cause a higher chronic disease burden of hypertension, diabetes, heart disease and obesity.[1,9] That COVID-19 has higher morbidity and mortality with higher chronic disease burden including untreated hypertension and diabetes is also well documented. This unfortunate recurrent theme of higher disease morbidity in the more disadvantaged populations is recapitulated both historically and contemporaneously from 1918 pandemic to the current COVID-19 pandemic.[1,10]

Having worked in underserved communities for the better part of the past decade, I have observed first-hand the high burden of chronic diseases stemming from a multitude of factors, which culminate in inequities, best described as structural violence.[11] Farmer et al. defines the term “structural violence is one way of describing social arrangements that put individuals and populations in harm's way. The arrangements are structural because they are embedded in the political and economic organization of our social world; they are violent because they cause injury to

people". [11] Structural violence, a jarring term, immediately brings to realization the effect this has on the affected communities and populations. By really understanding the structural determinants that impact health equity we can envision structural interventions that are designed to systematically address those health inequities. The success of the Baltimore AIDS study in the 1990s is testament to that fact. Chaisson et al show that when given consistent medical care to HIV patients there was no difference in survival or disease progression between different groups based on race, income or sex.[12]

Unfortunately, neither our medical curriculum nor the clinical training has historically focused on the importance of social forces that alter disease outcomes. It is well known that most disease modifying interventions fail if the social context is not taken into account.[13] Some physicians are likely to dismiss this as a political issue, which although true, we as physicians have a responsibility to our patients to understand their social, economic and cultural circumstances and utilize the tools available in our existing health systems to improve access to care. The political problem of structural violence requires a systematic political commitment to erase such inequities which unfortunately is a long time coming. In addition to other well-known factors, an additional factor stems from the current administration's anti-immigration rhetoric which impels immigrant, esp. Latino/a , people away from receiving care due to the concern for deportations of either themselves or close family. In addition, the specter of child separations in the border do not add to the confidence in "the system".[14] When I see Latino/a patients, I make it a practice to personally reassure patients that healthcare is separate from the government entity and care /testing will be provided irrespective of ability to pay for testing or treatment, a vision that is shared by the hospital system I work at.

Physicians and health systems need to project confidence for vulnerable patients that inclusion and support is a part of their culture. Setting aside divisive rhetoric and embracing all of humanity as worthy of equitable care is the only way forward from this pandemic to a new post COVID-era. Systemic inequities have become invisible through decades of accepted threads of nativism, racism, sexism and elitism but the pandemic has shined a spot light by amplifying these inequities into a pan-syndemic. It is time that we take action to mitigate and in time hope to erase such inequities. A commitment to the assertion that healthcare is a basic human right irrespective of race, wealth, creed or citizenship is vital. Para-phrasing MLK Jr – "No one is healthy unless we all are healthy" rings true particularly in the light of the current COVID-19 pan-syndemic.

The author doesn't have any potential conflicts of interest to disclose.

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