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Commentary

Integration of the preventive medicine specialty in the rural and Tribal public health workforce

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ABSTRACT

The majority of the U.S. American Indian and Alaska Native (AI/AN) population live in rural areas, and are thus disproportionately affected by rural health issues. In addition, the AI/AN population has unique health characteristics resulting from a distinct cultural and sociopolitical history. A public health approach to both rural and Tribal health should include the medical specialty of preventive medicine, a unique physician specialty that combines both direct patient care and public health skills. To best prepare preventive medicine physicians for rural and Tribal practice, medical schools could recruit students from rural and Tribal areas and encourage them to pursue the specialty of preventive medicine. Additionally, preventive medicine residency training programs could establish clinical and public health practicum rotations in rural and Tribal areas, and develop curricula that address rural and Tribal health issues. Currently very few preventive medicine residency programs expressly state a mission to train physicians in rural or Tribal settings.

No discussion about rural public health in the U.S. can be complete without consideration of the health of American Indians and Alaska Natives (AI/AN) and Tribal public health. Whereas only 19% of Americans live in rural areas, 54% of the U.S. AI/AN population live in rural areas, (Deweese and Marks, 2017) and are thus disproportionately affected by rural health issues. Here, the authors argue for integrating the medical specialty of preventive medicine within the public health workforce to better address rural and Tribal health issues.

1. Rural health

The evidence for poor health in rural areas compared to urban metropolitan areas is well-documented. Compared with urban communities, rural communities have higher mortality rates for all the leading causes of death (heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke) (Moy et al., 2017). The cause for this gap is likely a combination of structural and behavioral differences between populations. Economic and demographic differences between rural and urban areas are a driver of health disparities (Spencer et al., 2018). Additionally, adults in rural areas report higher rates of smoking, obesity, and failing to meet physical activity recommendations (Matthews et al., 2017). From a public health perspective, compared to urban counterparts, rural residents are more likely to be exposed to occupational vapor-gas, dust and fumes, (Doney

et al., 2017) worse water quality, (Strosnider et al., 2017) and are less likely to use seat-belts. (Beck et al., 2017)

2. American Indian/Alaska Native health

In addition to general health characteristics related to rurality, the AI/AN population has further, unique health characteristics that are worth examination in this context. For example, within rural populations, AI/ANs suffer additional disparate health outcomes. Age-adjusted death rates are higher among rural adults compared with urban populations across all racial and ethnic groups, but are highest in the AI/AN population (Probst et al., 2019). Premature death rates, after adjusting for sociodemographic and economic conditions, were the highest for counties with majority AI/AN populations at 15,774 per 100,000 people (Henning-Smith et al., 2019). American Indian and Alaska Native populations have substantially higher mortality rates due to largely preventable issues, including alcohol, chronic liver disease and cirrhosis, diabetes mellitus, unintentional injuries (including motor vehicle accidents), assault (homicide), (Indian Health Service, 2019) and infant mortality (Danielson et al., 2018).

3. The public health imperative

Health professional shortages in Indian country are well

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documented (Government Accountability Office, 2018), and efforts like the Indian Health Service (IHS) Scholarship and Loan Repayment Programs as well as the National Health Service Corps exist to mitigate these deficits (Tobey et al., 2019). However, health professional workforce shortages alone are not responsible for poor health outcomes. American Indian and Alaska Native health issues result from the synergistic interplay between rural life and the social determinants of health resulting from a distinct cultural and sociopolitical history (National Advisory Committee on Rural Health and Human Services, 2017). Given this welter of complex, multitudinous factors, a public health approach to both rural and Tribal health is likely a sound investment (McCullough, 2018).

Efforts to improve public health in both Tribal lands and in rural areas are well-documented (Association of State and Territorial Health Officers, 2017; Tribal Public and Environmental Health Think Tank, 2018). However, one aspect of public health investment that has not received significant attention is the medical specialty of *preventive medicine* and its potential role in rural and Tribal public health, specifically in their utilization within rural and Tribal public health systems.

4. The specialty of preventive medicine

Preventive medicine is one of the 24 recognized physician specialties of the American Board of Medical Specialties; preventive medicine specialists are licensed and board-certified physicians trained in both direct patient care and in population health, and they obtain a Master of Public Health (or equivalent) degree as part of their residency. No other medical specialty provides such training. As of January 2020, there are 73 accredited preventive medicine residency programs in the U.S. and approximately 6431 board-certified preventive medicine physicians currently in the U.S (AMA Physicians by TOPS, n.d.).

It is important to draw a distinction between the medical specialty of preventive medicine and preventive medicine services such as immunizations, breast cancer screening, and blood pressure testing. While the two overlap in that preventive medicine physicians can provide preventive medical services, they are not the same. While any clinician may provide or recommend preventive medical services, the specialty of preventive medicine is unique in combining both direct patient care clinical skills and public health expertise. Preventive medical services are not provided exclusively by preventive medicine physicians, and preventive medicine physicians are not limited to the provision of preventive medical services. In this paper, the authors specifically want to promote the specialty of preventive medicine in rural and Tribal areas.

Although preventive medicine is the medical specialty of public health and preventive medicine specialists naturally fit within health departments (Jung and Lushniak, 2017), that is not by any means the only type of practice where preventive medicine physicians practice the specialty of public health. Any system that is truly interested in improving population health would benefit from the expertise of a preventive medicine physician. Tribal health delivery is a multifaceted, complex undertaking, of which rurality is merely one aspect. In Alaska, population density is as low as 1.1 people per square mile, with some villages only accessible by boat or airplane (Health Care in the Last Frontier: Rural Challenges/Alaska Innovations, n.d.). There are 573 federally recognized Tribes in 37 states, served by 116 federal IHS facilities and 498 Tribal facilities, 41 Urban Indian Organizations, (IHS Profile, n.d.) and 11 Indian Health Boards. (National Indian Health Board, n.d.) Given this wide array of health systems, there should be ample opportunity for preventive medicine physicians to engage in rural and Tribal health activities.

5. What preventive medicine specialists contribute

As physicians trained in public health, preventive medicine specialists can participate and lead all the standard functions of a public

health program, such as leading epidemiologic investigations, collecting data and performing statistical analyses, making judgements on how best to apply the results of those analyses, identifying hazards and implementing harm reduction and risk mitigation strategies.

In addition, as licensed physicians, preventive medicine specialists can also provide direct patient care and be involved in clinical activities such as quality improvement, ongoing and focused professional practice evaluation, etc. This can occur at public health clinics like a tuberculosis control clinic or a maternal-child health clinic, or it can occur within clinical health systems, presumably those interested in maintaining or improving public health.

The COVID-19 pandemic has revealed the fragility of rural and Tribal health. (Kovich, 2020; Rodriguez-Lonebear et al., 2020) It is precisely for situations such as this that the preventive medicine specialty should be integrated within health systems, linking patient care and population health in the context of public health to prevent disease and promote health.

In short, preventive medicine physicians can ensure both that clinical activities are meeting standards of care, that public health activities are informed by clinical information, and vice-versa. It is exactly this ability to straddle both worlds that makes the Preventive Medicine physician unique.

However, merely parachuting a brigade of preventive medicine physicians into a rural or Tribal area alone cannot guarantee that they will immediately integrate well into those communities.

6. Is preventive medicine ready for rural or tribal health?

Just as standard clinicians may not be well-prepared for rural or Tribal practice, a parallel question could be asked of the preventive medicine specialty: Are preventive medicine physicians prepared for rural or Tribal practice? Simple measures can be taken to assess the state of preventive medicine in rural and Tribal public health.

Although voluminous references direct attention to rural health and AI/AN health, the authors could find no publications related to the search terms “preventive medicine physician” along with either “American Indian” or “Rural” in PubMed. This evident lack of publications describing the rural or Tribal practice patterns of preventive medicine physicians precludes the opportunity to identify the number of preventive medicine physicians who practice with rural or Tribal populations. Unfortunately, there is no reason to believe that preventive medicine physicians currently practice with rural or Tribal populations at higher rates than other clinicians. As an aside, one difficulty in assessing the effect of preventive medicine physicians may be that, unlike direct-patient care providers, a preventive medicine physician's practice location may not necessarily rule out rural or Tribal practice (e.g., a health department located within a city, but focused on large rural geographic areas surrounding the metropolitan area), so a descriptive measure of the population being addressed is likely a better gauge of rural or Tribal practice than the physical location of the preventive medicine physician's activity.

Similarly, the authors could find no publications identifying the number of preventive medicine physicians who identify as AI/AN. Given that minority physicians are more likely to serve medically underserved communities, (Cantor et al., 1996) physicians of AI/AN background are more likely to serve Tribal populations. This propensity should also apply to the specialty of preventive medicine. But again, there is unfortunately no reason to believe that the 0.3% of U.S. physicians who identify as AI/AN (AAMC, 2018) have chosen preventive medicine as a specialty in greater numbers than any other medical specialty.

Given the unknown, likely paucity, of preventive medicine physicians working in rural and Tribal communities, opportunities should be taken to increase the number of such practitioners. Of course, one way to increase the number of preventive medicine physicians with rural and AI/AN backgrounds is to recruit them into medical school and into

the specialty of preventive medicine. In addition, since preventive medicine residencies are unique in that their final year of training is spent in practicum rotations, residency programs can be encouraged to develop rotations addressing health issues in rural and Tribal populations. Ideally, these rotations would also take place in rural and Tribal communities for an immersive experience. (Sundberg et al., 2019) With their long-standing connection to the US Public Health Service, Tribal health programs and IHS facilities would make excellent opportunities for preventive medicine practicum rotations given an appropriate educational experience focused on population health. Other placements can include rotations at medical organizations providing direct patient care services in rural areas, public health organizations addressing population health issues, or even state or federal offices of rural health.

Of course, low numbers of preventive medicine physicians in rural and Tribal areas poses difficulties in having adequate faculty or preceptors for rotations. However, not all rotations must be led by a board-certified preventive medicine specialist, and a good educational experience isn't necessarily dependent on this factor.

Preventive medicine residency programs could also provide concerted focus on rural and Tribal health in their residency curricula to produce specialists geared toward entering such practice. The clinical portion of preventive medicine residencies could provide opportunities for immersion in rural and Tribal clinical work. The academic segment of their residency training can also focus on rural and Tribal health issues. Medical schools and/or schools of public health with academic partnerships to facilities in rural areas could easily provide the expertise and infrastructure for such programs.

The authors are not proposing a required pivot toward rural and Tribal health for all preventive medicine training. Rather, whereas others have advocated for “focused” preventive medicine residencies, (Miller, 2020) the authors simply suggest opening currently underutilized practice avenues where the specialty can be successfully applied, namely in rural and Tribal areas.

Furthermore, preventive medicine residency programs could be specifically created for an explicit focus on rural and Tribal population health. Some primary care residency programs have been created especially for the purpose of training their graduates for rural practice; there is no reason why preventive medicine residencies could not do the same. If mission statements are a yardstick, currently, of the 73 accredited preventive medicine residency programs, only two mention “underserved” in their online mission statements, (Meharry Medical College Public Health and General Preventive Medicine Program, n.d.; Cook County Health and Hospitals System/Northwestern Feinberg School of Medicine Public Health and General Preventive Medicine Program, n.d.) only one mentions “Tribal,” (Centers for Disease Control and Prevention Public Health and General Preventive Medicine Program, n.d.) and only one mentions “rural” (West Virginia University, n.d.).

7. Conclusion

Rural and Tribal health issues are unique and require direct attention. A public health approach to these health issues is likely to result in the most sustained improvements to health. The paths of public health and preventive medicine are inextricably linked. The pursuit of improved health status through public health programming would benefit from specific and active recruitment and inclusion of preventive medicine specialists. If public health and population health are the mechanism by which rural and Tribal health are to be addressed, as the authors believe it should be, preventive medicine physicians should have a role in these efforts. Training programs for preventive medicine physicians specially tailored to addresses the public health needs of rural and Tribal populations may be the best way to prepare and develop preventive medicine specialists for this critically important work.

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