National Advisory Committee
On Rural Health and Human Services

Mortality and Life Expectancy in Rural America: Connecting the Health and Human Service Safety Nets to Improve Health Outcomes over the Life Course

Policy Brief October 2015

Editorial Note: *During its May 2015 meeting in Slade, Kentucky, the National Advisory Committee on Rural Health and Human Services (the Committee) examined recent findings on increasing mortality and decreasing life expectancy in rural America, with Appalachia as a focus region. The problem of declining life expectancy is a broad-reaching issue that involves not only health care services but also many human services. The Committee met with government officials, rural experts, and service providers from both the health and human services sectors. Subcommittee meetings were held at the Center of Excellence in Rural Health in Hazard, Kentucky, and the Marcum & Wallace Memorial Hospital in Irvine, Kentucky.*

RECOMMENDATIONS

1. *The Committee recommends the Secretary support research projects that examine behavioral health and primary care integration in rural communities to expand the evidence base for these efforts (see page 7).*

2. *The Committee recommends that the Secretary direct the National Institute on Drug Abuse to conduct research into the rural-urban implications of opioid use and overdose, including the use and/or potential use of heroin (see page 8).*

3. *The Committee recommends that the Secretary increase funding for training for primary care providers and all levels of emergency medical providers on the use of opioid overdose treatment drugs including naloxone (see page 8).*

4. *The Committee recommends that the Secretary include key programs from the Health Resources and Services Administration, the Administration for Children and Families, the Substance Abuse and Mental Health Services Administration, and the Centers for Disease Control and Prevention in future Promise Zone competitions (see page 8).*

5. *The Committee recommends that the Secretary enhance the departmental assessment, evaluation, and lessons learned from existing Community Health Worker projects in a manner that makes the findings easily accessible by the public (see page 9).*

6. *The Committee recommends that the Secretary consider a budget request for funding under Title XII of the PHS Act to support trauma system training and designation for small rural hospitals in high mortality areas (see page 10).*

INTRODUCTION

Life expectancy at birth for the population as a whole has been increasing for over a century. In the past few decades, urban-rural disparities in mortality and life expectancy have been increasing. However, rural counties overall have seen smaller increases and some have seen actual *declines* in life expectancy during that period. The largest disparities in mortality and life expectancy can be found in Appalachia, long a region of persistent rural poverty.[1] In the state of Kentucky, the Appalachian region includes less than one-third of the state's population, and it is more than 70 percent rural.[2] In addition, Appalachian Kentucky has higher rates than non-Appalachian Kentucky in disability, diabetes, obesity in adults, and smoking prevalence in adults, among others.[3] Individuals living in Appalachian counties have lower life expectancies than the national average or those living in non-Appalachian counties in Kentucky. The life expectancy of women in Appalachia has declined from 1990 to 2011.[4] Gopal K. Singh, PhD, of the Health Resources and Services Administration's Maternal and Child Health Bureau, calculated life expectancy for males and females in the Appalachian and non-Appalachian regions of Kentucky. In the period of 1990-1992, life expectancy at birth for females in the Appalachian region of Kentucky was 77.9 years. By 2007-2011, life expectancy at birth for females in the Appalachian region of Kentucky had declined by 13 months. Females in the non-Appalachian region had seen an increase in life expectancy of nearly 11 months in the same period. Other calculations by Dr. Singh, and data from the Institute for Health Metrics and Evaluation, indicate that there are other areas of the nation seeing similar declines.[5,6] Though this brief has a focus on the Appalachian region, it will offer information and recommendations on the topic of rural mortality and life expectancy that are relevant across the nation.

The Committee is deeply concerned about the gaps between rural and urban life expectancy and mortality that has largely gone unnoticed in the larger discussion about health disparities that tend to focus solely on populations and ignore the geographic aspects of this issue. The Committee urges the U.S. Department of Health and Human Services (HHS) to focus much more directly and broadly on this issue and to identify strategies to reverse these trends by rethinking how HHS allocates its resources and targets it programs. Addressing this issue should be front and center in the Department's ongoing focus on delivery system reform efforts around improving health outcomes and bringing more value to health care delivery. This brief examines many of the driving factors behind the rural disparities and recommends a number of initial steps HHS could take to begin addressing these challenges.

Life expectancy and mortality are key health indicators, but there are a variety of factors that contribute to both outcomes, health care is only one of them. Others include human services

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[1] Singh, Gopal K. Unpublished data. 2015.

[2] Singh, Gopal K. Unpublished data based on data from the 2008-2012 American Community Survey and the 2009-2011 Behavioral Risk Factor Surveillance System (BRFSS).

[3] *Ibid.*

[4] Singh, Gopal K. Unpublished data. 2015.

[5] *Ibid.*

[6] Institute for Health Metrics and Evaluation. "Girls born in 2009 will live shorter lives than their mothers in hundreds of US counties." April 12, 2012. Accessed May 15, 2015. http://www.healthdata.org/news-release/girls-born-2009-will-live-shorter-lives-their-mothers-hundreds-us-counties

components, socioeconomic status, and the fragmentation between health services, human services, and mental health services.[7] All of these sectors are linked and play a role in the disparities seen in Kentucky and other rural areas.

BACKGROUND

LIFE EXPECTANCY

The all-cause death rate for the U.S. population declined over the last century.[8] Yet recent research has called attention to the growing rural-urban disparities in both mortality and life expectancy.[9,10] In the last several decades, rural and urban life expectancy and mortality have diverged, and rural communities are not keeping pace with urban communities on these indicators (see Figures 1 and 2).

The Limitations of This Brief

The Committee recognizes that mortality and life expectancy are issues of concern to many local, state, and federal entities. This brief is limited to those policy levers at the federal level that are under the purview of the Secretary and the Department.

However, under a cooperative agreement with the Federal Office of Rural Health Policy, the Rural Policy Research Institute (RUPRI) will be writing a companion brief that addresses more broadly the social determinants of health. This second brief will examine approaches in challenged counties including SOAR programs, family resource centers and wraparound services at schools, and community driven collective impact innovations.

As seen in the graph below, while total-population mortality has been decreasing since 1990, non-metropolitan mortality rates have declined at a much slower rate than metropolitan mortality rates.[11] From 2005-2009, the mortality rate in rural (non-metro) counties was 13 percent higher than in metro counties. Similarly, rural-urban disparities in life expectancy widened over time, and life expectancy showed an inverse relationship with level of rurality.[12] In 2005-2009, metro and non-metro life expectancies were two years apart (78.8 years and 76.8 years, respectively). In addition to rurality, life expectancy is associated with poverty. At the county level, as poverty rates increase, life expectancy decreases. However, non-metro life expectancy declines more rapidly with increasing poverty than does metro life expectancy.[13]

There are likely several aspects to this rural-urban gap in mortality and life expectancy rates. In

[7] Compton, Michael T., Ruth S. Shim, and American Psychiatric Publishing. *The Social Determinants of Mental Health*. First edition. Washington, DC: American Psychiatric Publishing, Inc., 2015.
[8] National Center for Health Statistics. *Health, United States, 2013: With Special Feature on Prescription Drugs.* Hyattsville, MD. 2014. Accessed March 24, 2015. http://www.cdc.gov/nchs/data/hus/hus13.pdf.
[9] Singh, G. K., and M. Siahpush. "Widening Rural-Urban Disparities in All-Cause Mortality and Mortality from Major Causes of Death in the Usa, 1969-2009." *J Urban Health* 91.2 (2014): 272-92. Accessed March 24, 2015. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3978153/
[10] Singh, G. K., and M. Siahpush. "Widening Rural-Urban Disparities in Life Expectancy, U.S., 1969-2009." *Am J Prev Med* 46.2 (2014): e19-29.
[11] Singh and Siahpush. "Widening Rural-Urban Disparities in All-Cause Mortality" *J Urban Health* 91.2 (2014): 272-92.
[12] Singh and Siahpush. "Widening Rural-Urban Disparities in Life Expectancy, U.S., 1969-2009. *American Journal of Preventative Medicine*, 46, no. 2 (2014): e19-e29.
[13] Poverty level measured as percent of 2000 Census county population below the Federal poverty level. Based on updated data reported by Singh GK, Siahpush M. *American Journal of Preventive Medicine*. 2014;46(2):e19-e29.

general, rural America is older, poorer, and sicker than urban America, all of which contribute to the rural-urban mortality gap. Because rural Americans are on average older than their urban counterparts they are disproportionately represented in the Medicare population.[14] In rural areas, 18 percent of the population is living below the poverty threshold as compared to less than 16 percent of the urban population.[15] In addition, many chronic diseases affect rural residents at higher rates than their urban counterparts. For example, the death rates for ischemic heart disease and COPD are both higher in rural areas than in urban areas.[16] Quality of life is lower in some rural areas. More of the rural population reports limited activity due to chronic health conditions than the urban population (17.8 percent rural versus 13.2 percent urban).[17]

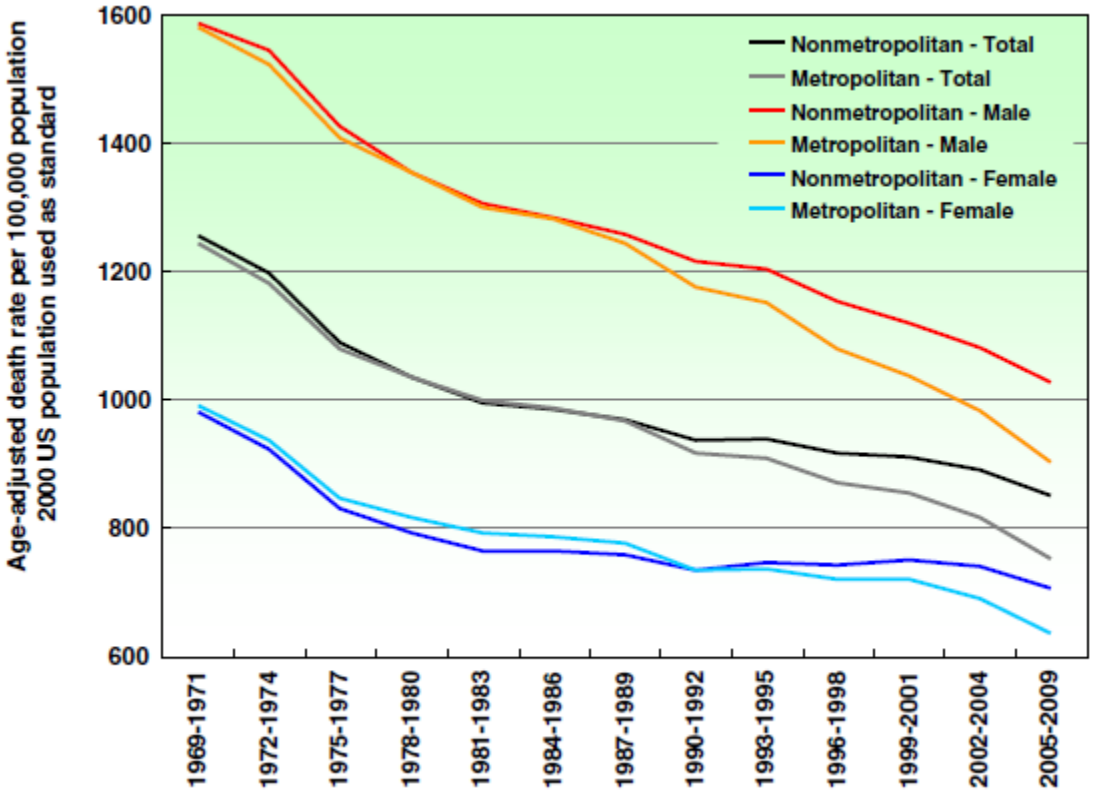

Figure 1: Urban and rural mortality[18]

[14] MedPAC. "Chart 2-5: Characteristics of the Medicare population, 2010", *Healthcare Spending and the Medicare Program*. Washington, DC: Medicare Payment Advisory Commission, 2014. http://medpac.gov/documents/publications/jun14databookentirereport.pdf

[15] U.S Department of Agriculture, Economic Research Service. "Poverty Overview." Last updated April 27, 2015. Accessed online May 7, 2015. http://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/poverty-overview.aspx

[16] Meit, Michael, et al. *The 2014 Update of the Rural-Urban Chartbook*. Grand Forks, ND: Rural Health Reform Policy Research Center, 2014. Accessed May 15, 2015. https://ruralhealth.und.edu/projects/health-reform-policy-research-center/pdf/2014-rural-urban-chartbook-update.pdf

[17] *Ibid*.

[18] Figure from Gopal K. Singh and Mohammad Siahpush. "Widening Rural-Urban Disparities in All-Cause Mortality and Mortality from Major Causes of Death in the USA, 1969-2009." *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 91, no. 2 (2013): 272-292.

Year	Metro area Both genders	Nonmetro area Both genders	Metro area Males	Nonmetro area Males	Metro area Females	Nonmetro area Females	Metro and nonmetro difference in life expectancy		
							Both genders	Males	Females
1969–1971	70.9	70.5	67.2	66.6	74.7	74.8	0.4	0.6	–0.1
1972–1974	71.8	71.3	68.0	67.3	75.6	75.7	0.5	0.7	–0.1
1975–1977	73.1	72.8	69.3	68.8	77.0	77.2	0.3	0.5	–0.2
1978–1980	73.8	73.7	70.0	69.7	77.6	78.0	0.1	0.3	–0.4
1981–1983	74.5	74.5	70.9	70.5	78.1	78.5	0.0	0.4	–0.4
1984–1986	74.8	74.8	71.2	71.0	78.3	78.6	0.0	0.2	–0.3
1987–1989	75.1	75.0	71.5	71.4	78.5	78.7	0.1	0.1	–0.2
1990–1992	75.8	75.5	72.3	71.9	79.2	79.1	0.3	0.4	0.1
1993–1995	76.0	75.5	72.6	72.2	79.3	79.0	0.5	0.4	0.3
1996–1998	76.9	76.0	73.9	72.9	79.7	79.1	0.9	1.0	0.6
1999–2001	77.2	76.2	74.5	73.3	79.8	79.0	1.0	1.2	0.8
2002–2004	77.8	76.3	75.1	73.5	80.3	79.2	1.5	1.6	1.1
2005–2009	78.8	76.8	76.2	74.1	81.3	79.7	2.0	2.1	1.6

Figure 2: Urban and rural life expectancy[19]

In Kentucky, the disparity in life expectancy is worse than in the nation as whole. Data from 2007-2011 show that, while the nationwide metro versus non-metro gap in life expectancy was 2 years, the Appalachian versus non-Appalachian gap in Kentucky was 3 years.[20] The diseases accounting for most of this difference included heart disease, cancer, and unintentional injuries.

Research shows that social circumstances and behavior have an impact on mortality and are believed to contribute to over half the determining causes of premature deaths.[21] Additionally, creating positive behaviors and helping individuals and families improve their social circumstances can be an effective means of preventing and addressing chronic health conditions outside of the health care system. The Robert Wood Johnson Foundation phrases it simply: "Health starts where we live, learn, work, and play."[22] When discussing mortality and life expectancy—inextricably linked to population and individual health—it is also necessary to examine aspects outside of health care that both lead to poor health and can be used to improve it. This includes factors in households, schools, places of employment, transportation, and physical environments.

[19] Figure from Singh and Siahpush. "Widening Rural-Urban Disparities in Life Expectancy, U.S., 1969-2009." *American Journal of Preventative Medicine*, 46, no. 2 (2014): e19-e29.
[20] Based on updated data reported by Singh GK, Siahpush M. *American Journal of Preventive Medicine*. 2014;46(2):e19-e29, and separate estimates for Kentucky counties.
[21] Booske, Bridget C., et al. *County Health Rankings Working Paper: Different Perspectives for Assigning Weights to Determinants of Health*. University of Wisconsin, Population Health Institute, February, 2010. https://uwphi.pophealth.wisc.edu/publications/other/different-perspectives-for-assigning-weights-to-determinants-of-health.pdf
[22] The Robert Wood Johnson Foundation. "A New Way to Talk about the Social Determinants of Health." Vulnerable Populations Portfolio (2010): 2.

The Culture of Appalachia: "Helpless but not Hopeless"

At the meeting, the Committee learned of the generalized depression of the local population from presenters and community site visit participants. This stems from a vicious cycle: high poverty and reduced employment from coal mining contribute to feelings of low self-worth; because there is "nothing to do," residents turn to drugs; making finding employment more difficult. There are few resources that fully address these problems and work to shift the destructive cycle. Policy suggestions must acknowledge this added layer of complexity.

DISCUSSION AND RECOMMENDATIONS

Site visit hosts and participants recognized and stressed the entangled variety of elements that contribute to health and life outcomes in Appalachian Kentucky. The Committee urges the Secretary to consider these issues when creating rural health and human services policies in the future. At the same time, the Committee recognizes that addressing mortality and life expectancy is a multi-faceted and long run challenge. While the Department of Health and Human Services (HHS) programs and resources can address a number of the challenges, the attempt to reduce these disparities must go beyond HHS to education, economic development, and employment. Collaboration among programs and resources in other federal departments is a necessary component, including but not limited to Education, Labor, Housing and Urban Development, Commerce, and Agriculture. The Committee also acknowledges that federal resources are just one part of a complicated policy puzzle that also involves state, local and private sector involvement. The Committee is encouraged by the potential of Kentucky's SOAR initiative with its focus on regional opportunities for collaboration. (Shaping Our Appalachian Region, see text box).

The Committee believes addressing the association between health outcomes and socio-economic status requires programs that address the multiple social determinants of health. Particularly in rural communities, where the infrastructure for health and social services is limited, there is a need to provide incentives to better integrate health and human services programs. Access to health care continues to be a challenge in rural America, but even in areas where access is no longer as much of a barrier—as seen in Hazard, Kentucky—health outcomes are still poor. This is likely driven by a broad range of issues that go far beyond the usual health-specific interventions. Addressing these long-standing disparities will require more than the traditional solutions of finding clinicians, building more facilities, and expanding clinical services. Many of these communities are dealing with the impact of multi-generation poverty exacerbated by limited economic opportunities and education challenges. The situation is made more challenging due to a growing problem with drug abuse. The Committee believes that HHS could take further steps to help rural communities address some of the elements driving disparities related to life expectancy and mortality and suggests the Department consider the multi-sectorial approaches to these challenges currently underway in Kentucky.

BEHAVIORAL HEALTH AND SUBSTANCE ABUSE

Behavioral health and drug use concerns were priorities of stakeholders at both site visits. The population in Kentucky and Appalachia faces challenges of economics and poverty as coal mining jobs disappear and household incomes decline. Unemployment and underemployment contribute to the mental health problems of individuals, which in turn may affect drug and substance use and abuse.

Rural areas continue to face significant challenges in recruiting and retaining behavioral health providers. The expansion of behavioral health services in community health centers over the past 10 years has begun to have a limited effect, but significant service gaps remain.

SOAR Kentucky – Shaping Our Appalachian Region[23,24]

In 2013, Kentucky Governor Steve Beshear and Congressman Hal Rogers created SOAR, an initiative to address eastern Kentucky's prolonged difficulties in many sectors. A Summit in December of that year focused on regional opportunities including economics, infrastructure, collaboration and identity, leadership, and learning, among others.

The citizens and stakeholders of Kentucky are ready to act to improve the future of the state. Focusing on community and social development through collaboration, the work resulting from SOAR will focus on wraparound services at schools and other integrative programs.

While there has been an increased emphasis on integrating behavioral health and primary care, the bulk of the evidence base for this work is focused on urban models. Many rural areas face difficulties attracting and retaining behavioral health providers. (Telehealth, as the Committee pointed out in its recent Policy Brief, can be a useful means to provide this service.) In other cases, primary care providers in rural areas may be providing behavioral health services despite having had little training in the field. **The Committee recommends** that the Secretary support research projects that examine behavioral health and primary care integration in rural communities to expand the evidence base for these efforts. The Committee believes that the currently available evidence base holds little value for rural replication because it fails to take the specific and unique difficulties of rural health care delivery into account.

Surpassing motor vehicle accidents for the first time in 2008, poisoning was one of the two leading causes of death by accidental injury in the United States.[25] Nearly 90 percent of poisonings are caused by drugs, including opioids. As use increases, so do potentially deadly overdoses. The Committee heard from health, education, and public officials who shared additional concerns about the current opioid epidemic and the rise of heroin use.[26,27] To fully understand this new epidemic and how it is affecting rural areas, **the Committee recommends** that the Secretary direct the National Institute on Drug Abuse to conduct research into the rural-

[23] Shaping Our Appalachian Region. "Progress Report: The First 90 Days." Accessed online July 8, 2015. http://66.147.244.86/~appalaf7/soar-ky/wp-content/uploads/2014-3-24-90-day-report2.pdf
[24] Shaping Our Appalachian Region. "About SOAR." Accessed online July 8, 2015. http://soar-ky.org/about-us/
[25] Centers for Disease Control and Prevention. "Drug Poisoning Deaths in the United States, 1980-2008." *NCHS Data Brief* no 81, (2011). Accessed online July 7, 2015. http://www.cdc.gov/nchs/data/databriefs/db81.htm#poisoning
[26] Cicero, T. J., M. S. Ellis, and H. L. Surratt. "Effect of Abuse-Deterrent Formulation of Oxycontin." *N Engl J Med* 367.2 (2012): 187-9.
[27] National Institute on Drug Abuse. "DrugFacts: Heroin." Revised October 2014. Accessed August 11, 2015. http://www.drugabuse.gov/publications/drugfacts/heroin

urban implications of opioid use and overdose, including the use and/or potential use of heroin. Additionally, **the Committee recommends** that the Secretary increase funds for the training of primary care providers and emergency medical providers at all levels on the use of opioid overdose treatment drugs, including naloxone, a medication used to reverse the effects of opioids especially in overdose situations. In rural areas, the opioid overdose rate is 45 percent higher than in urban areas.[28,29] However, likelihood of naloxone administration was only 23 percent higher in rural areas.[30] One reason for the lower likelihood of naloxone administration may be State scope of practice rules regarding prescription authority for nurse practitioners and physician assistants

POPULATION HEALTH

Studies of population health, the health outcomes of a group of individuals, including the distribution of such outcomes within the group, often are based on the general population, rather than subsets of the population, such as rural. Thus, the evidence base upon which federal policy is founded is a poor indication of the health conditions in rural areas of the country. There is a need to develop the evidence base for communities that have low life expectancies, not only in Appalachian Kentucky but also in other geographic areas with similar outcomes, in order to accurately understand the health outcomes of these unique communities.

Because much of available research and data are not rural specific, potential solutions in the form of policies or programs may not be applicable to the communities visited by the Committee in Kentucky and others like them. The National Institutes of Minority Health and Health Disparities (NIMHHD), as well as, the Agency for Health Research and Quality (AHRQ) list rural residents as a priority population. The Committee believes that they could contribute more research about what interventions would begin to address the gaps in life expectancy and mortality.

The Committee visited a Promise Zone in Hazard, Kentucky and believes this collaborative multi-Departmental approach merits expansion. **The Committee recommends** that the Secretary include programs from HRSA, the Administration for Children and Families (ACF), the Substance Abuse and Mental Health Services Administration (SAMHSA), and the Centers for Disease Control and Prevention (CDC) in future Promise Zone competitions. Programs from HRSA, ACF, SAMHSA and CDC could provide important tools for Promise Zone communities to leverage federal resources to address many of the causes driving rural disparities related to life expectancy and mortality.

Community health workers (CHWs) projects have long been used as a way to coordinate care on a local, culturally-relevant level and have the potential to contribute greatly to efforts to improve public health. As one of the strongest tools for care coordination, CHWs work with patients to

[28] Faul, M., et al. "Disparity in Naloxone Administration by Emergency Medical Service Providers and the Burden of Drug Overdose in Us Rural Communities." *Am J Public Health* 105 Suppl 3 (2015): e26-32.
[29] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. "Prescription Painkiller Overdoses in the US." November 2011. Accessed online July 7, 2015. http://www.cdc.gov/vitalsigns/painkilleroverdoses/
[30] Faul et al. "Disparity in Naloxone Administration" *American Journal of Public Health, 105, issue S3* (2015): e26-e32.

manage their health care. [31] In Hispanic communities across the United States, particularly along the U.S.-Mexico border, *promotoras* work to bridge the populations they serve and the health care system, including migrant and seasonal workers and their families.[32] During the site visit the committee learned about, the Homeplace program, administered by the University of Kentucky's Center of Excellence in Rural Health. Serving eastern Kentucky, the program employs community members to address the communities' high levels of chronic diseases.[33]

The Committee believes that a more coordinated effort across HHS related to CHWs could also provide needed assistance to rural communities seeking to address population health. HHS currently invests in CHW projects within several of its agencies and more could be learned from these investments. **The Committee recommends** that the Secretary enhance the departmental assessment, evaluation, and lessons learned from all of its CHW projects in a manner that makes the findings easily accessible by the public.

There is a continual policy dilemma related to education/training, certification, and financing of CHWs. Any efforts to set new standards have to be weighed against reducing the ability of grass-roots CHW efforts to meet local need. Therefore, the Committee urges HHS to also exercise caution in its ongoing work with CHWs to preserve their effectiveness and culture while working towards standardization of training and qualifications.

TRAUMA CARE

Unintentional injuries account for approximately 27 percent of the life expectancy gap between rural and urban areas.[34] While mortality due to motor vehicle accidents (MVAs, including all-terrain vehicles, or ATVs) has been decreasing over recent decades, unintentional motor vehicle crashes were still the leading cause of injury deaths in the United States in 2010.[35] In a 2013 brief, the Patient-Centered Outcomes Research Institute (PCORI) examined rural trauma outcomes.[36] In general, rural health care providers are less prepared to treat trauma, and access to advanced (Level I-III) trauma care is lower in rural areas, with approximately one-third of rural residents living more than an hour away from an advanced trauma center. Further, risk factors for trauma—including occupations, drinking and driving, and access to firearms—are greater in rural areas, and rural residents are more likely to die or have major disease burden from trauma. Title VII of the Public Health Service Act (PHS) provides the authority to support trauma system development and includes a rural set-aside, though this program has not been funded in more

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[31] Alaska Community Health Aide Program. "About the Alaska CHAP Program." Accessed online July 8, 2015. http://www.akchap.org/html/about-chap.html

[32] Health Resources and Services Administration Federal Office of Rural Health Policy. *Community Health Workers Evidence-Based Models Toolbox*. August 2011. Accessed online July 8, 2015. http://www.hrsa.gov/ruralhealth/pdf/chwtoolkit.pdf

[33] UK Center of Excellence in Rural Health. "About Kentucky Homeplace." Accessed July 8, 2015. https://ruralhealth.med.uky.edu/about-kentucky-homeplace

[34] Singh and Siahpush. "Widening Rural-Urban Disparities in Life Expectancy, U.S., 1969-2009." *American Journal of Preventative Medicine*, 46, no. 2 (2014): e19-e29.

[35] Centers for Disease Control and Prevention. "10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2010." Accessed online July 7, 2015. http://www.cdc.gov/injury/wisqars/pdf/10LCID_Unintentional_Deaths_2010-a.pdf

[36] Patient-Centered Outcomes Research Institute. "Rural trauma care." Research Prioritization Topic Brief: Topic 10. Prepared for PCORI by the University of North Carolina at Chapel Hill (2013). Accessed online July 7, 2015.

than 10 years. Because rural areas are high-risk for trauma, **the Committee recommends** that the Secretary consider a budget request to restore funding under Title XII of the PHS Act to support trauma system training and trauma center designation of small rural hospitals in high mortality areas.

TRANSPORTATION

The Committee heard from site visit participants about the challenges of transportation in the mountains of eastern Kentucky, but this is true across many rural communities. Transportation affects health when patients cannot travel to providers for the care they need. Transportation funding, as the Committee has examined several times in the past, is fragmented and limited. HHS does not have dedicated transportation funding but can support transportation in its programs such as Head Start. In addition, states can include transportation as a cost under Medicaid.

CONCLUSION

Through the past 25 years HHS has focused on the problem of access to health care in rural America through expanding programs such as Community Health Centers and developing differential reimbursement for low-volume, rural providers. However, access to care alone is not enough to fully address complex health outcomes including mortality and life expectancy of populations. Approaches must strengthen the health care delivery system while increasing integration of primary, specialty, substance abuse, and mental health services with human services including economic development, employment, housing, transportation, and education. There are policy levers that the Secretary and HHS can use to support this integration, while building on its collaborative work with other federal departments. For example, HHS can make additional efforts to increase and improve the treatment of both opioid overdose and injuries from motor vehicle accidents. A significant impact on community health can be made through CHW programs. Behavioral health and corresponding challenges—including substance use and abuse—are areas where further research on effective provision of rural services is needed.

The Committee recognizes the larger challenge HHS faces in allocating resources. Although, rural communities face higher levels of health disparities, the funding to address this disparity is allocated on a population basis, leaving rural programs significantly underfunded. The Committee suggests that HHS consider need as a significant factor in future allocation of public health and prevention funding. Such emphasis would provide the means to begin addressing these disparities. HHS devotes a significant amount of resources treating the effects of disparities for rural residents but could benefit from a more targeted approach to rural prevention and health promotion research that could inform how best to target future resources.