A case study examining the relation between community health assessments and primary health access for rural communities: Knights Landing, California

Sarina Rodriguez[1]

Mentors: Dr. Natalia Deeb-Sossa[1,2], Jacklyn Skye Kelty[2], Alfonso A. Aranda[2],
Department of Chicana/o Studies[1] and Center for Health and the Environment[2], UC Davis

Keywords: rural health, access to healthcare, community health assessments, program planning and evaluation, health access disparities, health strategy assessment

Abstract

Normalized standards for community health assessments are currently developing post-ACA, including models that highlight region-specific rural healthcare needs. This study compared various local community health assessment methodologies and described their collective influence on primary healthcare access. Knights Landing, California was a case study for unincorporated agricultural-rural community representation in health assessments and consequent health intervention strategizing. Five expert interviews were conducted with health agency representatives operating in Yolo County. Methodology and intervention development was analyzed through qualitative review of recent assessments conducted in Yolo County and subsequent responsive documentation. A preference for cost-effective health

initiatives and a lack of community participation in decision-making processes were identified causes of lowered prioritization of smaller community health needs. Local decision-making at all institutional levels was preferential to initiatives that was most cost-effective. Volatile state and federal policies changed the availability of funds for special programs customized to serve vulnerable populations in smaller communities. The Knights Landing case study demonstrated that the health needs of unincorporated communities were not reflected nor prioritized in local health assessments. Deeper examination is needed to identify subpopulations lacking adequate primary care services and to develop potential cost-effective solutions for Knights Landing and other small rural communities.

Background

Community Health Assessment Tool

Community health assessments are analytical tools used by health institutions in the U.S. and abroad to measure the needs of communities, populations, and regions via quantitative and qualitative data.[13] In general, health institutions implement these tools to empirically identify and prioritize the needs of communities for effective planning and intervention strategies (see Figure 1). Likewise, health institutions often rely on previously published assessment goals to evaluate the principal objective of reducing local health needs.[13] Figure 1 demonstrates a generalized interpretation of the community health assessment process as described by J. Wright, R. Williams, and J.R. Wilkinson (1998).

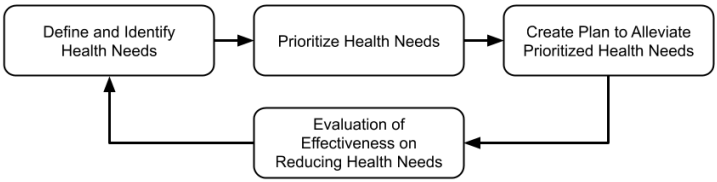

Figure 1: The cyclical process of doing community health assessments over time to define and identify the health needs of a designated region, prioritize those needs based on empirical evidence from community-collected data, and devise a plan to effectively address the highest-priority unmet health needs of said community (Wright, Williams, and Wilkinson, 1998).

Community health assessments are routine and often mandatory for many public health institutions and local governments. Most notably, the 2010 Patient Protection and Affordable Care Act (ACA) requires every not-for-profit hospital to publish a community health assessment every three years to identify and prioritize the significant health needs of the community it serves. Community health assessments currently lack a standardized model of operation which, when amplified by poor data collection, impacts accuracy of results for both rural and urban communities.[1] Current research demonstrates the need for a more objective methodology to be used for communities of varying sizes and compositions, especially to reflect rural-specific health needs accurately.[3,8]

Rural Access to Primary Healthcare

Access to primary healthcare has been demonstrated to reduce the overall negative health outcomes of communities in the U.S.,[10] yet a disparity exists between rural and urban residents and their respective levels of access.[6] Primary healthcare access disparities are magnified when intersected with socioeconomic factors such as income, educational attainment, or race/ethnicity.[2] Important barriers for rural residents include provider shortages, transportation, and health center availability.[10,12]

Despite the expansion of the ACA, significant barriers to rural health access persist at the state and national levels.[4] Moreover, U.S. studies of rural health tend to overgeneralize the definition of rurality, leading to unreasonable conclusions about rural communities.[4] Without a clear definition of a 'rural community' (or subtypes of rural communities), the analysis of rural health remains inconclusive at the expense of millions of rural Americans lacking adequate health access. Even in Canada and Australia – nations with well-established universal healthcare – achieving health access equality for rural communities is still a challenge.[5,9] As such, rural health access remains an internationally-recognized problem for countries across diverse healthcare systems and levels of economic development.

California is no exception. For the agricultural County of Yolo in Northern California, sixteen unincorporated communities differ substantially from incorporated cities in that the former lack municipal services and rely on the county for infrastructure and capital investment. To assess the health needs of urban and rural communities in Yolo County, a number of local government agencies and hospitals have launched community health assessments. This study analyzes the diverse methodologies used in community health assessments conducted in Yolo County and the impact of these assessments on primary healthcare access for residents of rural, unincorporated communities like Knights Landing, CA.

Methods

Knights Landing, CA was selected as case study community given its unincorporated status, low population density, occupational and linguistic attributes, and the lack of public investment for healthcare reported in the vicinity. Of the five assessments published electronically in Yolo County between

2014-2019, qualitative analysis considered those conducted by the following health institutions: Yolo County Public Health Department, Dignity Health Woodland Memorial Hospital, and Sutter Davis. In effect, all three institutions examined a region that completely or almost completely represents Yolo County and included the Knights Landing zip code. Community health assessments conducted by Yolo area hospitals including Kaiser Permanente, UC Davis Health Centers, and Sacramento VA Medical Center were not included in this study either because their assessment tool was not readily available online or due to non-response after initial contact request for an interview (see below). In the case of all three county-level health assessments under review, documentation produced in response to each assessment was also included as part of secondary data analysis (e.g., community health implementation reports and community health budgets).

Although each assessment described the decision-making process behind the prioritization of health needs, reports failed to account for specific decision-making processes that determine resource allocation for health services. Thus, primary data was collected in the form of five expert interviews with representatives of Yolo-area health agencies responsible for implementing community health assessments. Participants were recruited following snowball sampling after initial contact. In this study, a 'health expert' was defined as anyone who holds (or has held) a volunteer or employee decision-making position at a healthcare organization serving Yolo County. All health experts interviewed either worked directly on a community health assessment in Yolo County or used community health assessments in their work.

Each interview consisted of six open-ended questions with follow-up questions. Interview questions examined the participating agency's methodology for producing and

analyzing health assessments, the process of decision-making for resource allocation at each institution, and any perceived impacts of these assessments for rural communities. Each interview was audio recorded and transcribed to ensure accuracy of data collection, and the tapes were transcribed verbatim. Thematic analysis was conducted on all interview data via the identification of recurrent themes across interviews. Analysis was primarily focused on the process used to formulate each community health assessment and strategies for receiving community input.

This study was part of a broader, student-led effort to better understand community health status and access to medical resources in unincorporated communities. All portions of this research were validated and approved by a team of community health workers (or *promotoras de salud*) from Knights Landing trained and compensated by the Knights Landing Environmental Health Project (KLEHP).

Results

Community Health Assessment Methodologies

Each health assessment analyzed in the literature review varied in its methodology, which influenced how each institution distributed resources and services. For example, Yolo County Public Health began its most recent community health assessment in 2013 with a community survey focused on a variety of health topics including community strengths, personal health information, and individual health access barriers. In total, 579 surveys were collected countywide, but concentrated mostly in cities. Once published, county officials shared the health assessment results at 'Road Shows' where community members were encouraged to submit feedback. The Healthy Yolo Planning Committee comprised of Yolo County health department workers and community partners used the

new assessment to decide on health topics to serve as the focus of the 2015-2020 Community Health Implementation Plan (see Figure 2). This subsequent report focused on three health topics and included a five-year outline of health interventions and resources for each topic. These topics were also used to format the County's HHS annual budgets until the end of the 2019/2020 fiscal year. In total, the County's 2014 Community Health Assessment and 2015-2020 Community Health Implementation Plan directly informed over $100 million county dollars and five years of county public health spending.

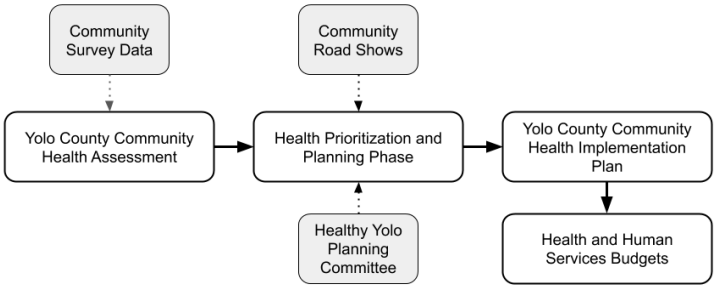

Figure 2: Community health assessment model from Figure 1 adapted to outline the 2014 Community Health Assessment process conducted by Yolo County Public Health over five years. Gray boxes with dotted arrows indicate the various points at which external input influenced the health assessment process.

Besides Yolo County Public Health, sixteen hospitals in Yolo County and the Greater Sacramento region formed a collaborative health assessment team called the Sacramento Region Collaborative Process (SRCP) in which health assessment tools and strategies were shared, but separate assessment reports were published by each respective hospital.

Dignity Health Woodland Memorial Hospital and Sutter Davis Hospital published almost identical reports in 2016 that were used over the next three years for funding and resource

allocation (see Figure 3). The SRCP health assessment process began with qualitative and quantitative data from focus groups in communities identified as being the most vulnerable. Previously published community health assessments were also reviewed with an eye for improvement. Each hospital created an algorithm to rank the eight highest priority health needs based on internal resources, mission statements, and available partnerships. These health needs were included on each hospital's 2016-2018 Community Health Implementation Strategy reports along with suggested health initiatives. Over the next three fiscal years, Community Annual Budget Reports were released to measure the status of implementation for each outlined strategy mentioned in the Community Health Implementation Strategy. Not every hospital publicly released annual budget reports or allowed us to acquire access, but in the example of Dignity Health Woodland Memorial Hospital, the 2016 Community Health Assessment and 2016-2018 Community Health Implementation Strategy informed over $65 million dollars of hospital spending in the Yolo County region.

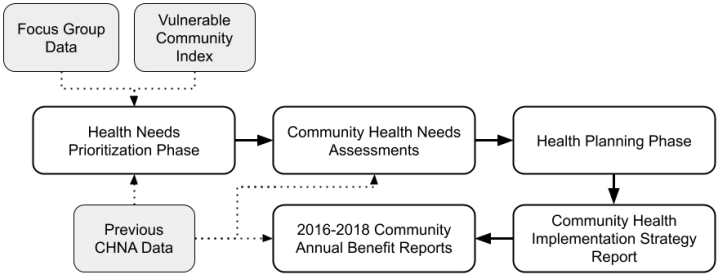

Figure 3: Community health assessment model from Figure 1 adapted to outline the 2016 Community Health Assessment process done by the Sacramento Regional Collaborative Process over three years, including Dignity Health Woodland Memorial and Sutter Davis hospitals. Gray boxes with dotted arrows indicate the various points at which external input influenced the health assessment process.

Community Participation in Community Health Assessments
Community input for the 2014 Yolo County Community Health Assessment occurred during the initial surveying period and again at 'Road Shows'. In an effort to make the data more accessible to the public, results were also divided into seven geographical regions with a corresponding Regional Report published. Although the assessment report was made available only in English, Regional Reports were available online in English and Spanish. During the health expert interviews, interviewee(s) recommended a stronger effort on the part of local governments to engage community members to improve the public's general understandings about local health assessments and the importance of participation. In Yolo County Public Health's assessment, lowest participation occurred in rural regions including Knights Landing and its surrounding areas, severely limiting accuracy of conclusions about rural health needs. Additionally, the 2014 Community Health Assessment did not analyze any data to identify region-specific disparities, instead focusing on social influences on health such as socioeconomic and demographic health disparities. To alleviate this issue for the 2019 Community Health Assessment, Yolo County health expert interviewee(s) stated that they will deliberately implement strategies to make community data more "place-based" and better reflect region-specific disparities in health needs. Interviewee(s) suggested that Yolo County Public Health will continue to look for ways to systematically identify the health needs faced by rural towns to provide more effective rural health initiatives.

Local hospitals based much of the community input for their 2016 Community Health Assessments on focus groups targeting communities facing greater health disparities and worse health outcomes. Given the infeasibility of collecting

survey data in unincorporated towns, focus groups were designed to capture a representative sample of like-communities. Knights Landing was chosen as a 'Focus Community' and a focus group with nine residents was conducted in the town. For hospitals, the inclusion of small, unincorporated communities was a deliberate tactic used to identify place-based needs obscured by county-wide data. The assessment report was only published online in English. The Community Health Assessment was mostly utilized by internal employees of the hospital, some local policymakers, and community partners. Dignity Health Woodland interviewee(s) suggested further improvements for providing feedback to the communities about the results of the Community Health Assessment.

CommuniCare did not conduct a community health assessment but was an active partner in the efforts of both the County and local hospitals on their assessments. As the main Medicare provider for the county, CommuniCare made health decisions throughout the county that affect primary healthcare access. At least 51% of CommuniCare's board consisted of patients from the community to ensure that patient needs guide health decisions. It remains difficult for CommuniCare to recruit a board member from Knights Landing mainly because of the intensity of seasonal farmwork, especially during harvest season when many patients from Knights Landing are unable to participate at board meetings. CommuniCare interviewee(s) said that they are continuing to improve communication and recruitment efforts among their patients, as well as recruitment efforts to better represent the diversity of patient and community experiences across Yolo County.

Influences Beyond the Community Health Assessment on Health Decision-Making

One of the biggest challenges faced by local health institutions – and a major emphasis in every expert interview – was the ability to economically justify the expansion of health services in small, less populous areas such as Knights Landing. Following the conclusion of each health assessment, participating institutions tended to decide on health initiatives in a fashion that created the "biggest bang for your buck". That is, to do the most good per dollar spent. In most cases, "doing the most good" led to the prioritization of health initiatives and interventions to serve the greatest number of people. Unsurprisingly so, larger incorporated communities cities like Woodland (Pop. 60,000) and Davis (Pop. 69,000) were more likely to be recommended areas for new health services on health implementation reports, and thus were more likely to receive resources and funding to improve health primary care access.

An important point made in several interviews was that there was a higher potential efficiency of addressing access needs of small, unincorporated communities with heavier investment in upstream public health initiatives like education and infrastructure. Several top health access barriers faced in Knights Landing are considered upstream barriers and could be reduced with better transportation and language services, for example. Looking at health access as an end result of larger, systemic issues in healthcare spending, along with more funding for preventative healthcare and infrastructure in smaller communities was one theme discussed by many interviewees. Another potential tactic to address small community health needs mentioned was to make smarter partnerships with other health institutions and local non-governmental organizations that already work in small communities. Teaming up and sharing resources was described

to be one path to focusing money and human power toward targeted common goals.

Decision-making in local health institutions happened among a larger matrix of state and federal policies that limited the capacity of local health institutions to create effective region-specific health initiatives. County interviewee(s), for example, detailed many legally mandated public health responsibilities of Yolo County Public Health department beyond the community health assessment. Because the scope of their budget encompassed more than the plans mentioned in the Community Health Implementation Plan, community health spending ended up focusing on downstream "symptom management". Financial investment into prioritized needs from the community health assessment was often downgraded compared to something that was mandated to be funded by state or federal law. Interviews with CommuniCare highlighted a similar balance of responsibilities and priorities based on federal budget mandates and policies influencing funding for projects like rural health initiatives. Swift changes in policy made to national and statewide programs often left the most vulnerable populations without reliable access to healthcare by hampering fiscal sustainability of special health services. CommuniCare, for example, could no longer justify the Knights Landing clinic staying open partially because undocumented and uninsured patients previously covered as a statewide reimbursement program no longer qualified during the Great Recession. CommuniCare shut the Knights Landing clinic down because the costs of the clinic were not reimbursed from a grant and from previously promised reimbursement aid from the state, which put the financial health of the organization at risk and drew resources from other important services.

No new health initiatives or interventions occurred in Knights Landing since the opening of the Knights Landing One Health Clinic (KLOHC). After a review of available health budgets for each institution represented in this study, $0 have been allocated to health strategies specifically targeting the Knights Landing community and its residents. Knights Landing was included as a 'Focus Community' in the assessments performed by local hospitals and was included as a town on the Yolo County Public Health survey collection route and a stop on the 'Road Shows' where local government requested public feedback. Based on surveying completed by KLEHP in Knights Landing, however, there was a discrepancy between the top barriers to care faced by Knights Landing residents and the top prioritized health needs on local community assessments. Local community assessments did not effectively prioritize the needs of nor schedule health improvement strategies for this small, unincorporated rural town.

Discussion

Even though residents of rural unincorporated communities require healthcare, are generally covered by health insurance and pay taxes, the specific needs of these communities are poorly represented and unaccounted for in county-wide community health assessment practices. The restriction of rural voices in local community health assessments for Yolo County is partly due to current methodologies that prioritize the needs of larger population cities with lower thresholds required to overcome barriers to accessing primary health services (e.g., transportation, service provider hours of availability, etc.).

Health experts suggest improvements be made to better understand the efficacy of community health assessments at actually improving health needs. Published assessment reports have power in the local health industry, each responsible for

millions of dollars and several years of health decisions that impact millions of people in the Yolo County area. As is, the implications of a cost-focused model of health services makes it inefficient to prioritize regional health services based on reported health outcomes or health accessibility indices. But the problem goes beyond how health needs are assessed; the problem also lies in how health needs are addressed. Even health groups that inquired Knights Landing residents were not successful in bringing about any sort of change in the community. Local health experts understand the health needs of unincorporated county areas, yet find it difficult to justify the allocation of resources to these communities in a healthcare system that incentivizes economic outcomes over demonstrated health outcomes.

It is the mission of a community health assessments to represent the health needs of an entire community[13] – this should also include rural[3] and unincorporated communities. Nevertheless, despite the best efforts of local health institutions, health need prioritization seems to be determined based on choices. Whether or not a town can secure health funding becomes a matter of meeting certain demographic quotas and who gets invited to the table to make health decisions. A different system should be used to determine which rural communities get included (or not) in health needs prioritization nor health resource allocation.

Rural healthcare can be more challenging and more expensive to provide as opposed to urban healthcare.[5] Thus, creative solutions are required to circumvent economic tensions levied when improving rural healthcare access. For Knights Landing, a non-conventional health provider like the student-run KLOHC has proven to be a more sustainable long-term operation than attempts from other providers who could not sustain the high expenses faced per patient served. Moreover,

expansion of upstream public health spending and technological advancements were mentioned by our health expert interviewees to be realistic, innovative strategies for leveling regional health disparities. Currently, the KLEHP, Yolo County health providers, and the Knights Landing community are partnering to alleviate lack of public transportation via a micro-transit system that specifically serves Knights Landing residents. New collaboration efforts across all levels of health institutions will most likely remain a goal for reducing health need disparities across the county.

One limitation to this study is that the VA Memorial Hospital in Sacramento was not included among the healthcare providers serving the Knights Landing area. Several veterans live in Knights Landing and may face other health access barriers not observed here. Additionally, the results for the newly published 2019 health assessments by both Yolo County Public Health and the SRCP were not included in this report since our interviews with health experts conducted in 2019 and our existing partnerships with their organizations may have influenced the 2016-2019 community health assessment processes. Future research should continue to take a closer examination within Knights Landing to see which subpopulations are most affected by a lack of adequate primary care services. An area of research to explore further could also investigate if similar results are rendered in other unincorporated rural communities similar to Knights Landing.

This study further demonstrates the power of community health assessments as tools for the identification and prioritization of community health needs. In Yolo County, participating institutions considered their own expertise, mission statement, and available resources to draw economically-rational goals to address the results of their assessments. Despite the multiple and simultaneous implementation of community health

assessments in Yolo County, little effort has been attempted to address the primary health service access weaknesses reported by rural unincorporated communities. As such, from the perspective of Knights Landing residents, the current process of implementation may lead to exclusion from health services planning and allocation.

Acknowledgements

This project is financially supported by UCD Jastro Fellowship, UCD George Lee Fellowship, UCD Western Center For Agricultural Health and Safety Fellowship and Rapid Response Grant (NIOSH2U54OH007550), UCD Comparative Lung Biology and Medicine T32 (HL007013), Achievement Rewards for College Scientists, and the UCD Robert E. McNair Scholars Program. Our organizational partners and mentors include the Knights Landing Family Resource Center, UC Davis Knights Landing One Health Center, Empower Yolo, and Yolo County Public Health Department. Personal thanks to the Knights Landing community, our amazing Promotoras de Salud (Ruth, Lina, Peggy, Mida, Melissa, & Paula), and the expert health interviewees. Special thanks as well to Dr. Deeb-Sossa, Jacklyn Skye Kelty, and Alfonso A. Aranda for their guidance and support.

Works Cited

1. Becker, K. L. (2014). Conducting community health needs assessments in rural communities: Lessons learned. *Health Promotion Practice, 16*(1), 15–19. doi: 10.1177/1524839914555887

2. Caldwell, J. T., Ford, C. L., Wallace, S. P., Wang, M. C., & Takahashi, L. M. (2016). Intersection of living in a rural versus urban area and race/ethnicity in explaining

access to health care in the United States. *American Journal of Public Health 106*: 1463-1469. doi: 10.2105/AJPH.2016.303212

3. Diaz, H. J.-M., Ainsworth, D., & Schmidtlein, M. C. (2019). Funding priorities: data-driven approach for prioritizing community health needs in vulnerable communities. *Health Promotion Practice*, 20(4), 616–623. doi: 10.1177/1524839918771977

4. Douthit, N., Kiv, S., Dwolatzky, T., & Biswas, S. (2015). Exposing some important barriers to health care access in the rural USA. *Public Health, 129*(6), 611–620. doi: 10.1016/j.puhe.2015.04.001

5. Preston, R., Waugh, H., Larkins, S., & Taylor, J. (2010). Community participation in rural primary health care: Intervention or approach? *Australian Journal of Primary Health 16*(1): 4-16. doi: 10.1071/PY09053

6. Reschovsky, J.D., & Staiti, A.B. (2005). *Access and quality: Does rural America lag behind?* doi: 10.1377/hlthaff.24.4.1128

7. Ryan-Nicholls K. (2004). Health and sustainability of rural communities. *Rural and Remote Health 2004*, *4*: 242. Retrieved from rrh.org.au/journal/article/242

8. Schuller, K. A., Cronin, C. E., Nicks, S. E., Jing, X., Kingori, C., & Morrone, M. (2019). Development and application of a rubric to compare strategies for improving access to health care in rural communities in the United States. *Evaluation and Program Planning, 74*, 61-68. doi: 10.1016/j.evalprogplan.2019.02.013

9. Sibley, L. M., & Weiner, J. P. (2011). An evaluation of access to health care services along the rural-urban continuum in Canada. *BMC Health Services Research*, *11*(20). doi: 10.1186/1472-6963-11-20

10. Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *The Milbank Quarterly, 83*(3), 457–502. doi: 10.1111/j.1468-0009.2005.00409.x

11. Sweeney, J. M., Zielinska Crook, P., Deeb-Sossa, N., Tu, B., Dear, J. D., & Mazet, J. (2018). Clinical one health: A novel healthcare solution for underserved communities. *One Health (Amsterdam, Netherlands), 6*, 34–36. doi: 10.1016/j.onehlt.2018.10.003

12. Syed, S. T., Gerber, B. S., & Sharp, L. K. (2013). Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health, 38*(5): 976-993. doi: 10.1007/s10900-013-9681-1

13. Wright, J., Williams, R., & Wilkinson, J. R. (1998). Development and importance of health needs assessment. *BMJ, 316*: 1310. doi: 10.1136/bmj.316.7140.1310