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Health Research and Surveillance Potential to Partner with 2-1-1

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For more than 50 years, information and referral professionals across the U.S., working in United Ways and a variety of nonprofit organizations and government agencies, have responded to people with unmet health and human service needs by offering a compassionate ear, skillfully assessing callers' needs, and referring to myriad community-based services. In 2000, the Federal Communications Commission (FCC) recognized the value of information and referral (I&R) services by assigning the three-digit dialing code 2-1-1 for authorized use by information and referral providers. In their report and order, the FCC underscored the public need that exists for an easy-to-use, easy-to-remember N11 code to efficiently bring community information and referral services to those who need them, providing a *national safety network* for persons to get access readily to assistance.[1]

Today, more than 200 programs operating in all 50 states, the District of Columbia, and Puerto Rico have been authorized by their respective state executive, legislature, or public utility commissions to use the 2-1-1 dialing code to accelerate access to the broad network of community, government, and faith-based services. United Way operates roughly 40% of the 2-1-1 program, and 60% are operated by a variety of nonprofit and municipal agencies. In 2011, more than 16,000,000 calls resulted in connections to programs and services.

There are approximately 1.5 million nonprofit organizations in the U.S. plus scores of government agencies and programs, and 2-1-1 providers maintain comprehensive databases of the myriad services available to meet the needs of callers and online inquiries. Resource database records include eligibility factors, application processes, days and hours of service delivery, and specific service/site locations, as well as fees charged, where applicable. Additionally, 2-1-1 information specialists collect information on the callers' demographics, which may include ZIP-code, destination where services are needed, problems or needs expressed, gender, age, race/ethnicity, language spoken, and special situations such as veteran or active military status, homeless, pregnant, or recently unemployed, as well as follow-up contact information as appropriate. Although the data collected by different 2-1-1 systems can vary, these rich data paint a dramatic and unique picture of real-time needs and a community's health.

These 2-1-1 data can play a significant role in surveillance activities. Community-based data reviewed in the aftermath of Katrina show how migration patterns affected the health and human service needs of host communities that welcomed the evacuees. Surveillance data based on calls inquiring about the severe acute respiratory syndrome (SARS) in Toronto and H1N1 across the U.S. in 2009–2010 led to focused health messaging. In fact, the economic recession that began in 2008 was forecast in the reviews of 2007 data. That year, 2-1-1 systems in United Way for Southeast Michigan and Greater Cleveland Ohio began to notice that call trends for utility assistance continued to rise. But more importantly, a significant number of calls for low-cost housing search assistance, foreclosure counseling, and bankruptcy were on the rise as well. The surveillance provided by these 2-1-1 systems led to conversations with county and state coalitions. The looming crisis was identified and prevention strategies were launched. The early intervention by the Cuyahoga County coalition reported saving 600 families from housing foreclosures. Thus, future surveillance partnerships and activities of 2-1-1 systems may lead to more efficient and outcome-oriented prevention strategies and allocation of resources.

As you will read in this supplement to the *American Journal of Preventive Medicine*, 2-1-1 information and referral programs offer a rich environment for partnerships with researchers, media, and policymakers. The articles[2–18] demonstrate inspiring possibilities for ways in which 2-1-1 systems and their partners can cooperate and collaborate to influence vulnerable populations by encouraging healthy behaviors, by raising awareness of preventive services, and by breaking down barriers that prevent access. In addition, 2-1-1 data and research results have the potential to greatly enhance the national dialogue about how we achieve healthier and more resilient communities. Although these projects inspire, they also raise questions for 2-1-1 practitioners and researchers alike.

In several cases, the projects detailed in this journal issue have led callers to avail themselves of services be-

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yond presenting needs. For example, a low-income mother seeking rental assistance also was able to access preventive cancer screenings and assistance, because additional questions were infused into the assessment process. The 2-1-1 systems and researchers will need to assess carefully the value of the add-on assessment questions to ensure the appropriateness of communications with the caller as we work together to achieve positive health outcomes. Thus, 2-1-1 systems will need to ensure that additional assessments are aligned with the 2-1-1 mission.

The infusion of a research or pilot project into 2-1-1 operations will require additional capacity and/or a specialized skill set of competencies for program staff if they are expected to effectively deliver research-related questions and outcomes. This means that 2-1-1 providers will need to increase their capacity to continue to provide quality services for all callers, even as program staff work to integrate research initiatives into their operations. Researchers will need to conduct advanced planning with 2-1-1 staff to include the cost of increased staffing capacity into project budgets. For example, typical calls today average 5–6 minutes. Additional call time needs to be accounted for as additional assessment questions are built into a research script.

Partners also may have to anticipate what will happen to the research project if or when a natural or man-made disaster strikes a community and call volume surges. Would the research project temporarily be placed on hold? The findings from Eddens and colleagues[13] in this supplement demonstrate that this is a real, not hypothetical, scenario. Might a technologic solution be established to enable staff with a special skill set to continue to answer non–disaster-related calls while the research project moves ahead as planned? What relationships must be nurtured and/or systems developed for successful future partnerships, particularly when research is involved?

How effectively will the 2-1-1 network strive to standardize data management practices in order to provide researchers with a common environment for research projects across jurisdictions? As the paper by Hall and colleagues[18] correctly points out, though 2-1-1 programs collect information about callers and their problems or needs, the current 2-1-1 network lacks standardization on specific data sets. To be full partners, the 2-1-1 network will need to standardize on a minimal set of data elements with standard definitions to facilitate comparative analyses. In addition, 2-1-1 systems will need to agree to a consistency of practice in how and what data are collected as well as for what purposes. Moreover, they will need a means to aggregate and share data across geographic regions.

Finally, how will 2-1-1 leadership and our partners assess whether or which research or pilot projects are truly scalable? What functionality and capabilities will be necessary? Will a program that works in St. Louis or Detroit be replicable in Connecticut, Omaha, Atlanta, or Houston? How can we use the examples shared in this journal to promulgate best practices for working in partnership with the research community?

The 2-1-1 network provides a rich environment in which diverse groups of people in a variety of vulnerable states call to access help. Together with our partners, the 2-1-1 network will be able to expand access to services, even as it provides a rich laboratory to inform future policies, programs, and investments in healthy communities.

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References

1. Federal Communications Commission. Guides. www.fcc.gov/guides/dial-211-essential-community-services
2. Linnan LA. Research collaboration with 2-1-1 to eliminate health disparities: an introduction. Am J Prev Med 2012; 43(6S5):S415–S419.
3. Kreuter MW. Reach, effectiveness, and connections: the case for partnering with 2-1-1 to eliminate health disparities. Am J Prev Med 2012;43(6S5):S420–S421.
4. Shank NC. A review of the role of cost–benefit analyses in 2-1-1 diffusion. Am J Prev Med 2012;43(6S5):S497–S505.
5. Shah DV, McLeod DM, Rojas H, et al. Public broadcasting, media engagement, and 2-1-1: using mass communication to increase the use of social services. Am J Prev Med 2012;43(6S5):S443–S449.
6. Bame SI, Parker K, Lee JY, et al. Monitoring unmet needs: using 2-1-1 during natural disasters. Am J Prev Med 2012;43(6S5):S435–S442.
7. Paradis A. Managing Toronto citywide health crises through 2-1-1 services. Am J Prev Med 2012;43(6S5):S464–S468.
8. Cortinois AA, Glazier RH, Caidi N, Andrews G, Herbert-Copley M, Jadad AR. Toronto's 2-1-1 healthcare services for immigrant populations. Am J Prev Med 2012;43(6S5):S475–S482.
9. Savas LS, Fernández ME, Jobe D, Carmack CC. Human papillomavirus vaccine: 2-1-1 helplines and minority parent decision-making. Am J Prev Med 2012;43(6S5):S490–S496.
10. Roux AM, Herrera P, Wold CM, Dunkle MC, Glascoe FP, Shattuck PT. Developmental and autism screening through 2-1-1: reaching underserved families. Am J Prev Med 2012;43(6S5):S457–S463.
11. Rodgers JT, Purnell JQ. Healthcare navigation service in 2-1-1 San Diego: guiding individuals to the care they need. Am J Prev Med 2012;43(6S5):S450–S456.
12. Kreuter MW, Eddens KS, Alcaraz KI, et al. Use of cancer control referrals by 2-1-1 callers: a randomized trial. Am J Prev Med 2012;43(6S5):S425–S434.

13. Eddens KS, Alcaraz KI, Kreuter MW, Rath S, Greer R. A 2-1-1 research collaboration: participant accrual and service quality indicators. Am J Prev Med 2012;43(6S5):S483–S489.
14. Alcaraz KI, Arnold LD, Eddens KS, et al. Exploring 2-1-1 service requests as potential markers for cancer control needs. Am J Prev Med 2012;43(6S5):S469–S474.
15. Oberlander J, Perreira K. Navigating healthcare reform: a role for 2-1-1. Am J Prev Med 2012;43(6S5):S506–S508.
16. Bennett GG. Connecting eHealth with 2-1-1 to reduce health disparities. Am J Prev Med 2012;43(6S5):S509–S511.
17. Eddens KS. Guiding principles for collaborative research with 2-1-1. Am J Prev Med 2012;43(6S5):S512–S517.
18. Hall KL, Stipelman BA, Eddens KS, et al. Advancing collaborative research with 2-1-1 to reduce health disparities: challenges, opportunities, and recommendations. Am J Prev Med 2012;43(6S5):S518–S528.