

National Benefit/Cost Analysis of Three Digit-Accessed Telephone Information and Referral Services

Final Report

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December 2004



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This report was prepared with funds provided by Agreement Number UTA04-160 from the United Way of America to the Ray Marshall Center for the Study of Human Resources. The views expressed here are those of the authors and do not represent the positions of the funding agency or of The University.

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ACKNOWLEDGEMENTS

This was a challenging research project on an ambitious schedule. As researchers, we have benefited from contact with the structures and procedures in the arena of three-digit accessed information and referral, an arena full of prospects and striving to attain its full promise. Numerous individuals have helped us.

We would like to particularly thank Kelly Levy, Director, 2-1-1 United Way of America, for her patience, understanding, and support as we worked to bring this project to closure. Kelly kept this effort from straying too far off the path. We are also thankful for the constructive insights and knowledge that Peter Bishop, Manager, 2-1-1 United Way of America, shared with this project. Trisha M. Ferrell, Lead Associate 2-1-1, United Way of America, also participated in formative project meetings and helped to recruit sites for the research. Administrators at the Alliance of Information & Referral Systems (AIRS) provided comments on the research approach, instruments, and products as well.

None of this research would have been possible without the help of the administrators and staff of the 2-1-1 sites who volunteered their time and data to move this project forward. We would especially like to acknowledge the contributions of site directors and lead contact persons who made themselves available to our research requests including Mary Hogan (Connecticut), David Jobe (Houston/Texas Gulf Coast), Bob Arnold (Jacksonville/NE Florida), Josh Pedersen (Salt Lake City), Caty Jirik (Greater Twin Cities/Minnesota), Betty Hanacek (Atlanta), Bob McKown (Grand Rapids), Mike Swisher (Albuquerque), Havinne Anderson (Hawaii), Pat Williams, Sally Zive, and Deb Krum (Idaho), and Janet Kittams-Lalley (Sioux Falls). We send our thanks as well to the administrators and staff of the agencies/community collaborators who shed light on their relationship to the 2-1-1 systems and the actual, as well as potential, benefits that 2-1-1 brings to their area. A complete list of field contacts is contained in Appendix A.

Many of the insights that have influenced this report are derived from conversations held with nearly 240 anonymous individuals who have called 2-1-1 for services. They remain nameless, but this research would have been less comprehensive without their input.

We would also like to thank Burt Barnow, Associate Director of the Institute for Policy Studies at Johns Hopkins University, Susan Golonka, Program Director for Human Services at the National Governors Association Center for Best Practices, and Nancy Shank, University of Nebraska Public Policy Center, who agreed to become part of an advisory panel. These individuals provided comments that helped to refine the research approach and to shape the final report.

Our final acknowledgements go to staff and colleagues at the Ray Marshall Center, in particular Susie Riley and Karen White, both Senior Administrative Associates. Susie and Karen provided invaluable assistance with travel logistics and other forms of administrative support. Susie also took the lead role in preparing the interim and final reports. Sarah Looney, Research Associate, provided additional technical assistance.

EXECUTIVE SUMMARY

The Ray Marshall Center for the Study of Human Resources at The University of Texas at Austin's Lyndon B. Johnson School of Public Affairs has developed estimates of the benefits, costs, and net value created by public and private investments in a national, three-digit-accessed (2-1-1) information and referral (I&R) network for health and human services in a study conducted for the United Way of America.

RESEARCH APPROACH

Ray Marshall Center researchers collected fiscal (e.g., budget and expenditure reports) and operational data (e.g., call volume, service requests, and referral data); conducted site visits and interviews with program administrators and staff of eleven state and local 2-1-1 information and referral call centers; and interviewed 239 individuals, including professionals and members of the general public who have used 2-1-1 to address health and human service needs. The information, data, and observations regarding benefits and costs gathered through this research provided the basis for an *ex ante* estimation of the net value of a national 2-1-1 I&R network.

The analysis is presented from the perspectives of participants (individuals and organizations), taxpayers, and society as a whole, the latter arguably the most important perspective for public investments. Benefits and costs have been projected for a ten-year period and discounted to net present value. Net value to society is presented as the difference between the benefits accrued and the costs incurred by participants and taxpayers, less taxes and transfers between them.

RESULTS

Benefits, costs, and net value of a national 2-1-1 information and referral network have been estimated under four scenarios. The principal one is a mixed model scenario, in which each state is assigned one of three organizational models that the statewide 2-1-1 effort has adopted or appears likely to adopt—the national estimate is based on the combined results of states operating under three models simultaneously. Under the three single model scenarios, the national estimates are based on all states operating under only one of the three models: a centralized administration/single call center model, a decentralized administration/multiple call center model, and a hybridized centralized/decentralized call center model that incorporates features of both. The three single model scenarios may be more illustrative for states electing to pursue one of these approaches for their statewide organization.

Under three of the four 2-1-1 scenarios examined, the estimated net value to society is positive. Only the scenario of a single model/decentralized system produced a negative net value. The mixed model scenario—which most closely conforms to the current distribution of approaches among states—produces an estimated net value to society of more than \$530 million over ten years in net present value. Net values to society for the centralized and hybrid models, ranging from \$430 million to \$1.1 billion over ten years in present value terms, indicate that these merit serious consideration. The generally positive estimated net value of a national 2-1-1 I&R network is supported by observations drawn from

conversations with call center administrators and staff, as well as local health and human services professionals and individuals from the general public who have used 2-1-1.

Under the *mixed model scenario*, investing in national 2-1-1 access to I&R services is strongly supported by the net value estimates.

- The net value to society of 2-1-1 I&R access approaches \$69 million in the first year, and benefits exceed costs by \$530 million over ten years, discounted to net present value. The benefit/cost ratio for society over ten years is 1.36.

The net value estimates for society resulting from the *centralized model scenario* also support investing in national 2-1-1 access to I&R services:

- The net value to society of 2-1-1 access approaches \$58 million in the first year. Net value is well above \$490 million over ten years and more than \$432 million, discounted to net present value. The benefit/cost ratio is 1.27 for ten years.

The net value estimates for society under the *hybrid model scenario* also lend strong support for investing in national 2-1-1 access to I&R services.

- The net value to society of national 2-1-1 access to I&R services approaches \$130 million in the first year alone and nearly \$1.1 billion over ten years when discounted to net present value. The benefit/cost ratio for society is 2.26 over ten years.

The *decentralized model scenario*, because of its negative net value estimates, should be pursued with caution.

- The net value of 2-1-1 I&R access to society is negative. Costs exceed benefits by nearly \$47 million in the first year and by about \$527 million over ten years when discounted to net present value.

Research also indicates that:

- The viability of maintaining and expanding a standards-based, national 2-1-1 information and referral network is dependent on the infusion of additional funds.
- Several promising prospects and practices are available to further offset costs in favor of enhanced net value, including improving access to basic needs assistance, public health information, employment and training services, volunteer placements and donations, and public information about special initiatives and events.
- The national 2-1-1 effort is ripe for enhanced public/private sector collaboration as the entities that operate the 2-1-1 call centers and the public agencies that administer the vast majority of health and human services resources recognize the complementary features of their service delivery systems.

SECTION ONE: INTRODUCTION

Some states and localities have been advocating for a national, three-digit telephone number for information and referral (I&R) services for several years in order to both simplify access to information about and expand the availability of health, human and related services for individuals and families. As interest in and support for such a national number has grown, concerns have also been raised about the associated benefits and costs and the net value of such action.¹ This report seeks to address these concerns.

Several events have helped build support for the development and implementation of 2-1-1 telephone access to I&R services. The United Way of Atlanta developed and implemented a 2-1-1 number in 1997, followed soon after by related actions taken by several regional associations and other states, notably Connecticut and North Carolina. Recent tallies indicate that an estimated 100 million Americans are now served by some 139 active 2-1-1 systems in 28 states.²

Expansion of 2-1-1 I&R services was boosted significantly in July 2000 when the Federal Communications Commission (FCC) set aside 2-1-1 as the national dialing code for health and human services information and referral.³ It was further encouraged when on June 12, 2002, President Bush signed into law the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188), authorizing state block grants and establishing 2-1-1 as an allowable use of funds. The “Calling for 2-1-1 Act,” which is still pending in Congress, would earmark \$200 million annually from the U.S. Department of Commerce — with a required 50 percent local match — to develop and operate 2-1-1 I&R systems nationwide.⁴

United Way of America (UWA) contracted with the Ray Marshall Center for the Study of Human Resources at The University of Texas at Austin’s Lyndon B. Johnson School of Public Affairs to estimate the benefits, costs and potential net value created by public and private investments in a national, three-digit-accessed (2-1-1) information and referral (I&R) network. Researchers have collected data from eleven state and regional programs between March and August 2004 as the basis for producing these estimates. Research tasks included requesting and assessing fiscal and operational data; site visits and interviews with program administrators and staff; and conversations with professionals and individuals across the

¹ Human service and other agencies had often mounted their own efforts to make information and services more accessible through the provision of toll-free 800 numbers and other means. As the enormous and complex problems facing families — and facing caseworkers and employer-based groups attempting to assist them — became increasingly recognized, local providers and organizations such as the United Way began to take notice, pushing for more structured I&R systems. The Congress and state legislatures have also taken action.

² According to the 211.org Website (<http://www.211.org/status.html>).

³ National and local affiliates of United Way, the Alliance for Information and Referral Systems (AIRS), and an array of collaborators placed a national petition before the FCC to dedicate 211 as the single *national* telephone access number for health and human services.

⁴ Appendix B provides a snapshot of key legislation features.

general public who have used 2-1-1 to address health and human service needs.⁵ The information, data, and observations regarding benefits and costs gathered through the research provided the basis for developing *ex ante* national benefit/cost estimates of a comprehensive 2-1-1 I&R system.

The Ray Marshall Center had conducted a prospective benefit/cost analysis of a comprehensive I&R system for Texas in the late 1990s, concluding that the net present value to society of the proposed system over ten years would range from \$11-\$12 million in 1998 dollars.⁶ The Texas Health and Human Services Commission subsequently pressed ahead with implementing 2-1-1 access in 25 regions of the state with funding provided from the Texas Legislature. The University of Nebraska's Public Policy Center also conducted a benefit/cost analysis of an I&R system, publishing its findings in the Spring 2000. The Nebraska study derived many of its estimates of benefits and costs from the Texas study, as well as detailed analysis on ongoing I&R efforts by Nebraska public agencies and private organizations with three different models, and found that "*the quantifiable benefits outweigh the costs in all three models with sufficient call volume*" (p. 3, emphasis in the original). Policymakers are seeking updated estimates of the net value of national, three-digit accessed I&R services via 2-1-1 to justify the proposed appropriation of funding to support such a system.

This report presents the results of the Ray Marshall Center's efforts to estimate the benefits, costs, and net value from operating a national 2-1-1 system. The report is organized into six major sections. Section 2 briefly summarizes the benefit/cost analysis methodology utilized for the report. Section 3 explains the process for selecting sites for inclusion in the study and describes some of their more important features. Each of the next three sections presents results from the perspective of participants, taxpayers, and society under four scenarios for a national 2-1-1 information and referral network. Section 4 presents the major benefits of operating a 2-1-1 I&R network, after which Section 5 presents the costs of the network. Section 6 then presents estimates of the net value — that is, benefits minus costs — of a 2-1-1 national network. Estimates are presented for the first year of operations, projected ten years out, and then discounted back to present value. Several appendices accompany the report, providing supportive materials and ancillary analyses.

⁵ Appendix C contains the Site Visit Interview Guides. Appendix D contains the instrument and results of the 2-1-1 user interviews that have helped to assess benefits.

⁶ See King et al., (1998).

SECTION TWO: APPROACH

A preferred approach to estimating the value of a 2-1-1 number for information and referral services is benefit/cost analysis. Benefit/cost analysis quantifies the benefits and costs associated with a particular action to the extent possible and presents them in a form policymakers can use to assess whether or not to move forward with a particular action or set of actions. It is important to note that policymakers may decide to proceed with the action in question even in the face of negative results (i.e., net *costs* to society), especially where some of the more important anticipated benefits could not be readily quantified or where extra-economic considerations are paramount.

This section briefly describes the methods used for this analysis. Benefit/cost analysis techniques are relatively standard.⁷ Yet, few studies have attempted to analyze the benefits and costs of information and referral (I&R) networks that are proposed or operating. As mentioned, researchers at the University of Texas at Austin's Ray Marshall Center estimated positive net benefits for Texas' comprehensive I&R network of \$11-\$12 million (in 1998 dollars) over a ten-year time frame, discounted to net present value.⁸ And, the University of Nebraska's Public Policy Center subsequently estimated total benefits from a statewide 2-1-1 system at \$7.4 million, expressed in 2000 dollars.⁹

For this report, researchers have employed standard methodologies to estimate benefits and costs based on information provided by national, state, and local I&R network collaborators in selected sites, as well as insights gained from the literature on information and referral services and related areas, available administrative and expenditure data, and telephone interviews with individuals who have accessed 2-1-1 services. Researchers also consulted with experts in health and human services information and referral delivery.

The key figure of interest for benefit/cost analysis is the estimated total net value to society, expressed in terms of discounted present value. Other things being equal, policymakers should pursue those interventions that maximize net societal benefits, that is, those for which the present value of societal benefits minus societal costs is greatest. Participant and taxpayer perspectives are also important.

For this study, researchers have focused on states and regions that have had fully operational 2-1-1 systems for a minimum of 12 months. Doing so provides the opportunity to assess established benefits and costs of more "mature" systems and ensures access to data in which there may be greater confidence. The key to understanding comprehensive I&R systems and their potential value to society is the introduction of the 2-1-1 number that allows the I&R network to enhance the community's awareness of and access to information and referral services.

The value of the benefits and costs of a national three-digit telephone I&R system has been identified and estimated from three key perspectives, i.e., participants, taxpayers (or

⁷ See Boardman et al. 2001 and Gramlich, 1990.

⁸ See King et al. (1998).

⁹ See University of Nebraska Public Policy Center (2000).

government), and society. Researchers have established national benefit/cost ranges based on the data from four (4) states and seven (7) regions/localities that have chosen different 2-1-1 I&R models, including the centralized administration/single call center model, the decentralized administration/multiple call center model, and the centralized administration/multiple call center model.¹⁰ Study sites have been selected that operate in varying contexts (e.g., rural/urban/large metropolitan, single/multi-county) and with diverse funding schemes, e.g., differing combinations of federal, state, and local funding, as well as private corporate and non-profit organization support.

Perspectives

Three primary perspectives for gauging both benefits and costs are relevant for this analysis, as follows:

- *Participants*, including individuals and families, employers, and local information and referral centers, as well as health and human services providers;
- *Taxpayers (or government)*, primarily state and local public funds, but including federal, as well; and
- *Society* as a whole, which is simply the sum of participants and taxpayers, net of any taxes and/or transfers between them.

The first perspective addresses benefits and costs of 2-1-1 information and referral for participants, including individuals, families and employers seeking health and human services information, as well as those non-profit agencies and personnel who use such information. The taxpayer perspective is concerned with public costs and government benefits associated with the development, implementation, and operations of a 2-1-1 network and can be viewed as the non-participants. Finally, the analysis is concerned, first and foremost, with the net value to society as a whole.

Time Period

2-1-1 has been introduced at different points in time over a six year span across the study sites (1997-2002), and the length of time for which they have been “fully operational” varies accordingly from two to five years. Expenditure data used for the cost and net value analyses is that reported for the most recently completed fiscal year of each site as of July 1, 2004. For most this was FY 2003; for two sites FY 2004 ended before that date. The ten-year time period for projecting results is Fiscal Years (FYs) 2005 through 2014. The ten-year time span is somewhat arbitrary. There are arguments for using both shorter and longer periods. The brief lifespan of communications technology might dictate using an even shorter period, e.g., three to five years. However, a period of 15-20 years would be sufficiently long for more of the benefits to be realized and could be justified as well. Researchers have adopted the ten-year period for the analysis as a practical compromise.

¹⁰ See Cunningham, Pelletier, and Strover (2003) for details of this classification.

Discount Rate

Since the benefits and costs from operating 2-1-1 systems accrue over time and are expected to vary from year to year, it is necessary to discount both benefits and costs to present value to render them comparable. Discounting benefits and costs accounts for the fact the people value current dollars more than they do future dollars and allows such benefits and costs to be compared appropriately in *net present value* terms.

There are two leading choices for discount rates to use with general public investments.¹¹ First, Congressional Budget Office (CBO) guidelines call for applying a 2 percent discount rate as an estimate of the real yield on Treasury debt. Second, Government Accountability Office (GAO) guidelines recommend applying a rate approximating the expected average yield on Treasury debt maturing between one year and the expected life of the proposed project (i.e., ten years), minus the forecasted rate of inflation, resulting in a 3.5 percent rate.¹² The research has adopted a *3 percent discount rate* for this analysis as a practical compromise. Alternative discount rates also could be utilized to provide a *range* of estimated net benefits for policymakers and practitioners to consider.

Valuation Formulas

Researchers have developed a series of formulas to estimate the key benefits of a national 2-1-1 network from the participant, taxpayer, and society perspectives. Researchers have selected those benefits for which monetization by means of a valuation formula is feasible. The valuation formulas are based on standards and practices documented in the benefit/cost literature, the interviews with clients and I & R professionals, and assumptions regarding magnitude, frequency, and attribution developed by the researchers. As suggested by an advisory group, the benefit valuation formulas are constructed around more cost effective practices that were encountered during the field work and applied nationally. Their use is dependent upon the availability of supportive data.

Ideally, all relevant benefits and costs associated with operating a comprehensive 2-1-1 system would be both known and quantifiable, so that they could be factored into the analysis for consideration by policymakers, practitioners, and researchers. In fact, this is rarely the case in such analyses. Instead, typically much more is known and measurable for costs than for benefits. This clearly is the case for state/local 2-1-1 systems and the estimation of benefit and costs for such systems nationwide.

Table 1 displays an array of potential 2-1-1 benefits. Ray Marshall Center researchers, in consultation with practitioners and participants, thoroughly scrutinized this list of potential benefits, identifying and setting aside those whose connection to 2-1-1 operations were either too indirect, too imprecise, or too ambiguous. Benefits that appeared to be attributable to 2-1-1 operations, but which could not be easily quantified, were retained but placed “below the line” for consideration once all of the possible approaches to quantification had been exhausted. Specific valuation formulas were prepared for the others.

¹¹ See Boardman et al. (2001).

¹² Researchers have not done so here, in part because, with such small variation in the rates that might be used — say 2-4 percent — and over such a short time period, the resulting benefit and cost estimates would not vary that much.

Quantifiable v. Non-Quantifiable Benefits and Costs

Table 1: Potential Benefits from a National 2-1-1 Information and Referral System

Perspective	Potential Benefit
PARTICIPANTS	
Individual/ Family	<p>Expanded coverage, particularly counties not currently served by I&R system.</p> <p>Improved coverage by types of services in expanding database.</p> <p>One-stop call centers. Serves broader range of age/income groups/needs.</p> <p>Access to information about nearest and most appropriate resources available in adjacent or nearby locales.</p> <p>24-hour access.</p> <p>Multilingual support and hearing-impaired services.</p> <p>Quality referrals eliminates or reduces unwarranted travel time and expenses.</p> <p>Reduced emotional costs of seeking help to overcome hardship; prevents attrition, loss of hope, particularly among challenged subpopulations.</p> <p>Trained staff to help prioritize needs and match them with availability.</p> <p>Prompt information about changes in state or local programs.</p> <p>Ease of a single number (as opposed to 7 or 11 digit number local calls increasingly commonplace in large urban areas) for personal memory and sharing/communication.</p>
Local I&R Centers & Service Providers	<p>Additional marketing of services at call centers.</p> <p>Volunteer recruitment/donations tool.</p> <p>Shared data collection and management responsibilities/technical support.</p> <p>Reduced I&R burden for local staff, particularly misdirected calls.</p> <p>More effective matching of services with needs by type and location.</p> <p>Improved monitoring of referrals for services thru call centers.</p> <p>Planning/fundraising tool for individual providers and system.</p> <p>Enhanced information for community planning and collaboration.</p>
Employers	<p>Reduced absence from work in pursuit of services; may indirectly support income and workplace productivity.</p>
TAXPAYERS	
	<p>Enhanced visibility (marketing) for 2-1-1 system statewide.</p> <p>Reduced burden on 911 emergency system.</p> <p>Reduced I&R burden for local/state agency staff, particularly misdirected calls, leads to cost avoidance.</p> <p>Improved delivery of core services through redirection of government I&R staff effort to service provision.</p> <p>Redirection of clients to more appropriate services. More effective matching of services with needs by type and location.</p> <p>Improved planning information based on more extensive monitoring of comprehensive demand for services.</p> <p>Preclusion of public assistance by timely connection with appropriate intervening services.</p> <p>Public sector assistance with transition to market-based social- and self-sufficiency.</p> <p>Broad communication network for public dissemination of information about changes in state/local programs.</p>
SOCIETY	
	<p>Better and more efficient response to human needs, effectively helping to improve the general quality of life.</p> <p>Increased social capital/civic engagement.</p> <p>Provides structured opportunities for networking among stakeholders, including citizens, public sector and community-based health and human services.</p> <p>Reinforces social safety net.</p>

Fiscal and Service Delivery Data

Ray Marshall Center researchers requested and assessed fiscal (revenue flows) and service delivery (call activity) data from each site. Revenue data has been drawn from the accounting records of each site and efforts have been made to assure that public and private funding sources, as well as cost centers, have been equitably identified across sites. Only those expenditures associated with an *ongoing* 2-1-1 information and referral system are considered for cost estimation purposes.¹³

Each site was asked to provide reports covering the year prior to the introduction of 2-1-1 access, the first year of 2-1-1 access, and Fiscal Year 2003, or the latest year for which data were available. The reports provided were:

- *Budget reports* indicating the annual source of funds and allocations.
- *Expenditure reports* indicating the detailed annual expenses incurred operating the I&R service.
- *Call reports* indicating the total call volume, the volume and types of I&R requests, the volume and types of referrals, and the sources of the requests, as available.
- *Telephone reports* indicating call volumes, “phantom” or “static” calls, average response time, and average time per call, and other data, as available.

Researchers from the Ray Marshall Center collected data between March and August of 2004. Researchers sought to compile comparable expenditure data across all sites that included:

- Salaries and fringe benefits of call center administrators and staff;
- Professional fees and services, e.g. Website development, legal consultation, the preparation of operational business plans;
- Staff training and memberships, particularly cross-program training and “hand-off” procedures between 2-1-1, 3-1-1, and 9-1-1 systems;
- Database management and updates;
- Capital outlays, e.g., computers and software purchases and upgrades; and
- Communications and utilities expenditures, including spending for local exchange carriers (or LECs), tariffs, and monthly recurring, line, or per call charges.

¹³ Implementation costs, which have a high likelihood of non-comparability, have been excluded. For some sites, all 2-1-1 required was switching the phone lines, and perhaps hiring a few new staff to handle anticipated increases in call volumes. Others found it necessary to purchase new hardware and software, construct an extensive resource database, as well as to upgrade telecommunications processes and staffing capacity. Pricing structures for computer hardware/software and advances in telecommunications technology, e.g. voice over internet protocol (voIP), suggest that the timing of implementation also affects costs.

Site Visits and Other Requests for Assistance

Ray Marshall Center researchers visited the eleven participating sites between April and July 2004. The purpose of these visits was to acquire a clear understanding of the administration and operations of their 2-1-1 programs, review their data, identify all sources of expenditures, elicit perceptions of benefits, collect information to support benefit valuation formulas, and gain insights that help to explain cost variations between the several 2-1-1 information and referral programs in the analysis.

In addition to the fiscal and service delivery data, researchers requested program descriptions, management reports, organization charts, and any other available documentation about the organization and operations of the call center prior to the visit. Researchers scheduled individual interviews of 45-60 minutes with the 2-1-1 chief administrator, the site director, the fiscal officer, database manager, technology director, and information and referral specialists, among others.¹⁴

In order to further explore and justify the benefits of 2-1-1 I&R services in the community, researchers also requested the site director to identify 3-4 key organizations that either referred individuals to the call center or received referrals from the call center that would be willing to participate in a 30-40 minute on-site conversation about their relationship to 2-1-1 services. These included emergency assistance providers, homeless shelters, food banks, and other non-profit organizations, as well as state and county human service agencies, workforce centers, and other public entities that may provide better services or avoid unnecessary costs by using the 2-1-1 I&R program.

Finally, researchers asked each site to randomly solicit a first name and phone number from 60-75 callers that used 2-1-1 who were willing to participate in a voluntary and confidential, 10-15 minute telephone conversation about their experiences with 2-1-1 I&R.

Organizational Models

2-1-1 benefits and costs have been estimated under three common organizational models.¹⁵

- A *centralized* administration/single call center model in which a single call center provides I&R for the entire state and bears responsibility for system administration, telecommunications, and database management.
- A *decentralized* administration/multiple call center model in which each call center serves a defined substate area and administers service delivery structures and functions independently.
- A *hybridized centralized /decentralized* call center model in which multiple call centers serve substate areas as in a decentralized approach, but another entity has responsibility for other features of a comprehensive network as in a centralized model.

¹⁴ Researchers anticipated that knowledge and responsibility for these functional areas may reside in one or more persons, depending on the size and organizational structure of the site. Appendix A identifies site contacts.

¹⁵ This typology draws from models developed by the Telecommunications and Information Policy Institute or TIPI (see Cunningham et al. 2003).

The *centralized model* is more common in relatively small states. All calls are routed to single call center and the call center develops and maintains its own resource database. Because this model reduces duplication of service delivery, database and administrative costs, economies of scale may be more readily attained. The centralized model is represented by the state 2-1-1 efforts in Connecticut, Idaho, and Hawaii in this analysis.

The *decentralized model* is more common in larger states. Calls are routed to multiple call centers that are administered independently and serve distinct substate areas. Each call center also maintains its own database. No single entity has taken responsibility for statewide administration of 2-1-1 or its service delivery components, e.g., telecommunications structure, operating the call centers or maintaining a central database. There exists varying degrees of capacity for database sharing and call transferring between sites, for instance, forwarding of evening and week end calls or rollover capability when call capacity has peaked at a center. The decentralized model supports strong “local presence,” i.e., facilitates communication and information sharing between the call centers and community resources that are more likely to be located in the proximity. It fosters the continuation of regional call centers that have historically served substate areas, helping them to sustain their community involvement and local identity. The decentralized model is represented by Atlanta, Albuquerque, Sioux Falls, Grand Rapids, and Jacksonville in this analysis.

The *hybrid model*, which is also more likely to be found in larger states, is a combination of the centralized and decentralized models. Its efficiencies are captured by centralizing some service delivery, database, and administrative functions — generally reducing duplication and lowering costs — while sustaining local presence in the community. Call centers serve a substate area as in the decentralized model, but the state or another entity has taken administrative responsibility for other features of a comprehensive network, e.g., telecommunications structure or a statewide database, as in a centralized model. Minneapolis/St. Paul, Minnesota, Salt Lake City, Utah, and Houston/Gulf Coast, Texas represent the hybrid model in this analysis.

Scenarios

Researchers have estimated the benefits, costs, and net value of a national 2-1-1 information and referral network under four scenarios: a mixed model estimate and three single model estimates (i.e., centralized, decentralized, and hybrid). The principal scenario for estimating a more realistic national costs, benefits, and net social value is the mixed model. Under this scenario, each state is assigned to one of the three models, and the aggregate benefits and costs of all states operating under one of the three models simultaneously are the basis for a national net value estimate. The assigned model may be the model that they are presently pursuing, one that they are poised to adopt, or one that they may likely choose in the future based on potential efficiencies. Table 2 shows the models assigned to the states and the District of Columbia to generate the national mixed model estimates.

Under the three single model scenarios, each model was applied to all states and the District of Columbia, and the national estimates are based on all states operating under only one of the three models. The three single model scenarios may be more illustrative for states electing to pursue one of these approaches for their statewide organization.

Table 2: State Model Assignments

State	Model Assignments	Basis
Alabama	hybrid	TIPI: Volunteer & Information Center planning statewide database with Web access
Alaska	hybrid	TIPI: State and UW developed statewide Web accessed database
Arizona	hybrid	Governor's Council on 2-1-1 (4/2004)
Arkansas	hybrid	Assumption
California	decentralized	TIPI & LA Infoline conversations at RMC
Colorado	decentralized	TIPI
Connecticut	centralized	Fieldwork & common knowledge
Delaware	centralized	TIPI
Florida	decentralized	Fieldwork: FL is mosaic and likely to remain so.
Georgia	decentralized	Fieldwork: GA is mosaic and likely to remain so.
Hawaii	centralized	Fieldwork & common knowledge.
Idaho	centralized	Fieldwork
Illinois	hybrid	Assumption
Indiana	hybrid	TIPI: IN 2-1-1 looking at state telecom system.
Iowa	hybrid	TIPI: IA looking at central telecom and database
Kansas	hybrid	TIPI: likely central administration and decentralized delivery
Kentucky	hybrid	TIPI: KY developing statewide database
Louisiana	decentralized	Fieldwork: Preliminary analysis during recruitment phase
Maine	centralized	TIPI: One call center fed by regional resource centers
Maryland	hybrid	TIPI: Decentralized call centers, centralized administration and database
Massachusetts	hybrid	TIPI: Regional centers using statewide database and telecom/computer support.
Michigan	decentralized	Fieldwork and TIPI
Minnesota	hybrid	Fieldwork and TIPI: Centralized database and regional delivery
Mississippi	hybrid	Assumption
Missouri	hybrid	Assumption
Montana	hybrid	Assumption
Nebraska	hybrid	Nebraska PPC "Real Choice" Report
Nevada	hybrid	TIPI & 211.org: Web update

Table 2: State Model Assignments (cont.)

State	Model Assignments	Basis
New Hampshire	hybrid	211.org: Web update
New Jersey	hybrid	TIPI & 2-1-1 UWA
New Mexico	hybrid	TIPI: Regional centers using statewide administration, database and telecom/computer support
New York	hybrid	TIPI: Regional centers using statewide administration, database and telecom/computer support
North Carolina	hybrid	TIPI: Decentralized call centers; planned use of common software (Iris) and statewide web-based database
North Dakota	centralized	211.org: Web update
Ohio	decentralized	RMC: Local contact
Oklahoma	decentralized	RMC: Local contact
Oregon	hybrid	OR 2-1-1 Business Plan (5/2004) identifies state level office for oversight, TAG, database management
Pennsylvania	hybrid	RMC: Local contact
Rhode Island	centralized	TIPI identifies one call center.
South Carolina	hybrid	RMC: Local contact
South Dakota	hybrid	Fieldwork: Leaning towards hybrid model
Tennessee	decentralized	RMC: Local contact
Texas	hybrid	Fieldwork and local RMC knowledge
Utah	hybrid	Fieldwork: State has developed central database for regions
Vermont	centralized	TIPI
Virginia	hybrid	TIPI: Statewide database and DSS contracts with CSS, which administers the statewide system and subcontracts to regional call centers
Washington DC	centralized	TIPI
Washington State	hybrid	WA 2-1-1 Business Plan (2/2004) identifies central Db, shared statewide telecommunications network, and small state office
West Virginia	centralized	TIPI
Wisconsin	hybrid	TIPI: Anticipate statewide database
Wyoming	centralized	TIPI

SECTION THREE: STUDY SITE SELECTION CRITERIA AND FEATURES

This section describes the process used for selecting the sites to participate in this national 2-1-1 benefit/cost study. It also presents some of the key features of the eleven (11) participating states and regions/localities.

Site Selection

The United Way of America and the Ray Marshall Center jointly established a number of criteria for selecting sites to include in the 2-1-1 analysis, as shown in Table 3.¹⁶ Sites targeted for inclusion in the study generally were to include:

- A mix of statewide and local/substate programs to represent the three common I&R models.
- Sites abiding by the operational standards of the national Alliance for Information and Referral Systems (AIRS) and committed to achieving full AIRS accreditation.
- Sites in which 2-1-1 access had been fully operational for at least 18 months, i.e., more “mature” sites whose service delivery arrangements, “footprint” in the community, and data collection systems were reasonably well-established.
- Sites operating in varying contexts (e.g., rural/urban/large metropolitan, single/multi-county) and with diverse funding schemes, e.g., varying combinations of federal, state, and local funding, as well as private corporate and non-profit organization support.
- Sites whose administrators were fully committed to participating in the study, including responding to data requests and cooperating with site visits.

In return for their cooperation, the Ray Marshall Center offered to prepare discrete benefit/cost estimates for each site, which might subsequently help them market the value of their services in their communities, while contributing to the development of the national benefit/cost estimate. None were requested or produced.

Five of the original twelve sites chosen for inclusion in the study declined to participate, mostly because of limited staff availability in a period of organizational transformation and severe budget constraints. Alternate sites were then contacted. Eventually, eleven sites — four (4) state and seven (7) substate/regional programs — agreed to participate.¹⁷ All participating study sites are AIRS members and ostensibly committed to attaining operational standards and full accreditation at some point. A few of the sites had only introduced 2-1-1

¹⁶ The Alliance of Information and Referral Systems (AIRS), a national membership organization of I&R providers, was also a stakeholder in the site selection process.

¹⁷ Texas is an anomaly. The 2-1-1 coverage is statewide, but Houston was selected as the study site.

Table 3: Site Selection Criteria Matrix

Site	Site Administrator	Statewide Model	Site Catchment	Population (2003)	Funding Configuration (2003)
Hawaii	Aloha United Way	Centralized	Statewide. Honolulu, Oahu County is the core population area with more dispersed populations on three-county outer islands.	1,257,608 (State Population)	About 85% comes from UW and donations; the remainder is primarily from state agency contracts.
Idaho	Idaho Department of Health and Welfare/UW/ Mountain States Group Partnership	Centralized	Statewide. Majority of population is concentrated in Boise area, the location of the call center.	1,366,332 (State Population)	DHW operates 2-1-1 Idaho and Idaho Careline at call center. UW is the 501c3 that administers the 2-1-1 Idaho Project. MSG secured private grants that provided about 37% of resources; state and federal funds provided nearly all of the rest.
Connecticut	United Way of Connecticut	Centralized	Statewide. Four larger urban areas dominate geographically small state.	3,483,372 (State Population)	Almost completely supported by state/federal dollars (about 85% of funds).
Texas, Houston	United Way of the Texas Gulf Coast	Hybrid Centralized/ Decentralized	Substate region part of Statewide program. 13 counties with Houston/Harris County as the core population area, surrounded by smaller urban/rural counties.	5,213,931 (13 County Area)	One of 25 Area Information Centers that cover the state. TIRN, housed at state agency, administers telecommunications “backbone” for AICs and shares state resources for Db Mgmt. w/AICs. Most of funding comes from United Way; about 1/5 comes from the public sector.
Minnesota	Greater Twin Cities United Way/ First Call Minnesota Partnership	Hybrid Centralized/ Decentralized.	Statewide. GTCUW service area has grown from 9 to 39 counties. Outside GTC, small urban and prevailing rural across state.	3,374,966 (Greater Twin Cities Region)	Currently five outer hubs; former 10 have collapsed due to fiscal constraints. Federal/state funds previously supported mix of non-profits but has been severely reduced. Increasingly dependent on UW funding. GTCUW supported by UW (about 65%), state/county government (about 25%), and miscellaneous provides remainder. Shares resources w/hubs.

Site Selection Criteria Matrix (cont.)

Site	Site Administrator	Statewide Model	Site Catchment	Population (2003)	Funding Configuration (2003)
Utah, Salt Lake City	2-1-1 Info Bank – Community Services Council	Hybrid Centralized/ Decentralized.	Substate. Over 43% of the state population lives in service area.	1,005,232 (3 County Area)	CSC is an independent non-profit agency formed in 1904. Over 40% of resources are from government grants; UW contributes about 15%; the remainder are mainly grants and donations.
New Mexico, Albuquerque	United Way of Central New Mexico	Decentralized	Substate. Serves a 75- mile radius, excluding Santa Fe w/60-65% of state population.	764,869 (7 County Area)	UWCNM provides 100% of the call center ongoing funding.
Michigan, Grand Rapids	Heart of West Michigan United Way	Decentralized	Substate. Several small urban areas like Grand Rapids/ Kent County dispersed throughout state. Detroit metro is core population area.	590,417 (Kent County)	United Way provides about 75% of the resources, with state/local government agencies, foundations, and non-profits providing almost all of the remainder.
Georgia, Atlanta	United Way of Metropolitan Atlanta	Decentralized	Substate. 13 counties surrounding, Metro Atlanta, the core population area.	3,204,640 (13 County Area)	Almost completely funded by UW; receives about 15% of revenue from government.
South Dakota, Sioux Falls	HELP!Line Center (40-45% of funding from UW)	Decentralized	Substate. Sioux Falls is the core population area for state. May be on track for statewide coverage.	183,919 (2 County Area)	Independent nonprofit receives funds from UW (40-45%); fed/state/local government (30-35%), and the remainder from local donations and special events.
Florida, Jacksonville	United Way Northeast Florida	Decentralized	Substate. Vast majority of the population live in Jacksonville/ Duval County.	1,412,525 (10 County Area)	About 61% of the revenues are federal/state/local government grants. The rest is mostly UW.

access within the past twelve months, requiring an adjustment of the 18-month criterion. As a group, the sites span the nation geographically and exhibit considerable variation in terms of the remaining selection criteria.

For example, Hawaii, Idaho, and Connecticut all operate a centralized statewide model, but exhibit different population concentrations and rural/urban distribution patterns. The Connecticut program is run by a private non-profit, United Way of Connecticut, which receives the majority of its funding from the public sector. In Idaho, the call center is operated as an office of a state agency, yet has received assistance from private non-profit organizations and foundations.

Minnesota has been operating under a hybrid model with state support for ten substate “hubs,” organized as First Call Minnesota, and a “flagship” 2-1-1 administrative entity, the Greater Twin Cities United Way. However, the state is reducing its support (and federal dollars it directs), the number of hubs have been consolidated to five, and call centers seem to be increasingly turning to United Way for support. In Texas, the state provided the United Way Gulf Coast, the Houston 2-1-1 entity, as well as the other 24 Area Information Centers (AICs), considerable assistance at start-up. (AICs are designed to operate the local sections of the comprehensive statewide network.) Although resources for ongoing operation are largely a local responsibility, the state continues to provide resources for database management, as well as direct administration of the statewide “backbone” of the telecommunications system for the Texas Information and Referral Network.

All of the other substate sites are currently part of decentralized statewide systems or are located in areas where statewide systems have not yet developed. They represent an array of sites with large and small catchment areas (in terms of counties served), rural/urban/ metropolitan settlement patterns, and a variety of funding streams. All are non-profit organizations. Four of them (Atlanta, Jacksonville, Grand Rapids, and Albuquerque) are local United Way affiliates; the remaining two (Salt Lake City and Sioux Falls) are independent non-profit organizations. All receive funding from United Way, ranging from about 15 percent of the budget in Salt Lake City to 100 percent in Albuquerque. Except for Albuquerque, all receive some funding through government grants and contracts, from a minimal amount in Atlanta up to more than 60 percent in others.

Site Overview: Key Features

The following provides a brief overview of the study sites, focusing on key features relevant to the benefit/cost analysis. These features are summarized in Table 4.

Connecticut. 2-1-1 Infoline is the centralized health and human services information and referral provider for the state of Connecticut. Administered by the United Way of Connecticut (UWC), approximately 85 percent of the more than \$3.7 million annual funding comes from contracts with state government. An early implementer of 2-1-1 — three digit access was introduced in January 1999 and fully operational by March of that year — Infoline enjoys widespread support of state government leadership. In fact, the governor dedicated state general revenue funds for initial implementation costs and the Department of Public Utility Control assigned 2-1-1 to Infoline prior to its reservation for health and human services by the Federal Communications Commission. Official support and a centralized call center have facilitated cooperation from telephone companies, which includes statewide cellular access.

Table 4: Site Features

Site	Call Volume	Total Expenditures	Government Share of Cost	Cost per Call	FTE IRS	FTE to Call Volume Ratio	Population	Call Volume/Population	Call Data Source/Organization Model
Albuquerque, NM	8,400	\$168,242	0%	\$20.03	1.65	1: 5,091	764,869 (Albuquerque Region)	1.10%	Refer/Decentralized
Atlanta, GA	268,260	\$3,479,979	5%	\$12.97	33	1: 8,123	3,204,640 (13 County Area)	8.36%	Alliance (adj.)/ Decentralized
Connecticut	281,188	\$3,733,390	85%	\$13.28	35	1: 8,053	3,483,372 (State Population)	8.09%	Refer/ Centralized
Grand Rapids, MI	46,293	\$586,459	9%	\$12.67	6	1: 7,716	590,417 (Kent County)	7.84%	Refer/Decentralized
Houston, TX*	129,984	\$693,502	22%	\$5.34	21	1:6,190	5,213,931 (13 County Area)	2.49%	Alliance/ Hybrid**
Idaho*	83,726	\$486,760	59%	\$5.81	7	1: 11,961	1,366,332 (State Population)	6.13%	IRis/Centralized
Jacksonville, FL	61,453	\$797,036	61%	\$12.97	13	1: 4,727	1,412,525 (10 County Area)	4.35%	Service Point/ Decentralized
Minneapolis, MN	297,591	\$1,104,221	22%	\$3.71	21	1: 14,171	3,374,966 (Greater Twin Cities Region)	8.82%	ODM First Call Net/Hybrid**
Salt Lake City, UT	43,417	\$290,250	40%	\$6.69	6	1: 7,236	1,005,232 (3 County Area)	4.32%	UtahCares (resources)/ Access (calls)/Hybrid**
Sioux Falls, SD	33,645	\$478,818	35%	\$14.23	7.63	1: 4,410	183,919 (2 County Area)	18.29%	IRis/Decentralized** *

*Data from FY 2004; the rest are FY 2003. Fiscal Years vary between sites. **The States of Utah and Texas each support a central resource database in a decentralized delivery model. Minnesota has a statewide resource database that emerged as a public/private collaboration in a decentralized system. ***Sioux Fall's Help Line Center has statewide special services, but provides general I&R in only two counties. Note: New Mexico, Utah, and Idaho 2-1-1 services are not available after hours. New Mexico's Population (includes parts of counties) and Call Volume are estimates.

Infoline provides both specialized and generalized services and is particularly adept at providing public information regarding special state initiatives and changes in program policies, benefits, or eligibility requirements. Infoline has a professional staff of 35 FTEs and a six-member team dedicated to expanding and managing its high quality resource database. Additionally, UWC has four regional staff that maintain a high visibility local presence and help to identify new resources, as well as market 2-1-1 services. Infoline has provided technical assistance to emerging 2-1-1 operators nationwide and manages the 211.org Web site. The center was to receive full AIRS accreditation in 2004.

Jacksonville, Florida. When the FCC ruling designating 2-1-1 for community information and referral was issued in 2000, United Way of Northeast Florida (UWNEF) applied to be the 2-1-1 provider in the area soon thereafter. Because the organization was already providing I&R services 24/7, becoming a 2-1-1 program was a natural progression. In January 2002, they began operation of 2-1-1 in Jacksonville. After a six-month trial period, marketing and promotion of the service officially began in July 2002 with a citywide announcement to community members and the press. Jacksonville is part of a decentralized statewide emergent system.

United Way of Northeast Florida's 2-1-1 program continues to operate 24 hours a day, serving ten counties in Northeast Florida. Florida Senate Bill 1276 (SB 1276) helped to wire outlying counties in the UWNEF service area to set up operations of a 2-1-1 eligibility pilot project for state social services. UWNEF has become a focal point for community collaboration, bringing together public and private non-profit entities to better address the needs of residents. Of the 1.4 million people in the Jacksonville 2-1-1 catchment area, about 800,000 live in the City of Jacksonville (Duval County). The 2-1-1 call center currently handles about 64,000 calls per year. Annual expenditures are nearly \$800,000 to operate the system, about 61 percent of which is public funding.

Atlanta, Georgia. At a cost of nearly \$3.5 million dollars, United Way of Metropolitan Atlanta 2-1-1 fields more than 265,000 calls per year while serving a 13-county area with a population of approximately 3.2 million. About 5 percent of total funding comes from the public sector. The 2-1-1 call center began operating in June of 1997 leading the way in three-digit accessed I&R, and experienced a notable increase in call volume after introducing 2-1-1. Georgia is poised to follow a decentralized path to statewide I&R services, although Atlanta is already taking after-hours calls for other sites as an efficiency measure. The site offers specialized as well as general services and recently served as a backstop for Florida I&R centers that were overwhelmed and incapacitated during the 2004 hurricane season.

Hawaii. Hawaii has a centralized call center that covers the four counties of the state. 2-1-1 became operational in July 2002. The Aloha United Way 2-1-1 system went to 24-hour service six months after becoming 2-1-1. The project enjoys strong relations with state agencies, including the Hawaii Department of Civil Defense, as well as the Departments of Health and Human Services. The relationship to 9-1-1 is significant, since 2-1-1 has been serving as a diverter for non-emergency calls, allowing 9-1-1 staff to focus on true emergencies. Unfortunately, Aloha 2-1-1 changed databases in December

2003 and is unable to retrieve historical call data. Aloha 2-1-1 serves roughly 1.25 million residents at a cost of \$364,323 per year.

Houston/Gulf Coast Area, Texas. 2-1-1 Texas-United Way Helpline in Houston serves more than 5.2 million residents in the 13-county Gulf Coast region. The majority of the residents live in Houston/Harris County metropolitan area with the remainder residing in small urban/rural areas of south east Texas. The call center provides specialized and general services and is deeply involved in the planning and resources management of health and human services in the area. About 22 percent of the nearly \$660,000 annual expenditures come from public sources. The call center provides after-hours services for approximately 80 percent of Texas; currently only the Dallas area maintains its own after-hours services. The site is one of 25 area information centers (AICs) that cover the entire geography of Texas. The state model is hybrid. The Texas Information and Referral Network, an office in the Texas Health and Human Services Commission, administers a statewide database of resources and provides the telecommunications “backbone” for the statewide system.

Idaho. Idaho was one of the early implementers of a centralized 2-1-1 statewide program, having built upon the state Department of Health and Welfare’s Idaho CareLine in a project that evolved as a public/private venture. Idaho 2-1-1 service was implemented in September 2002. In 2000, initial discussions began and an advisory board was formed with representatives from the United Way of Treasure Valley (UWTV), the Boise Junior League, St. Alphonsus Regional Medical Center, and the Mountain States Group. The State of Idaho became part of the planning process in 2001. Mountain States Group is a non-profit that provides mostly rural health services, and their expertise in grant writing was a catalyst for locating the 2-1-1 Idaho Project within their office. In 2001, they transferred the locus of services to the Department of Health and Welfare (DHW) that was already operating the Idaho CareLine in order to avoid duplication. The Idaho CareLine had been functioning since 1990, and its focus had expanded to include all health and human services by 1998. A Memorandum of Understanding (MOU) between 2-1-1 Idaho and Idaho CareLine established the latter as the 2-1-1 call center. Within this unique public/private partnership, the 2-1-1 Idaho Project administered the implementation and activation. The center serves more than 1.3 million residents at a cost of approximately \$487,000. UWTV operates a volunteer hotline accessed through the 2-1-1 Idaho CareLine call center or via the Internet. The Mountain States Group recently concluded its participation. There are no after-hours services available through the call center; the 2-1-1 database is available on line.

Grand Rapids, Michigan. The Heart of West Michigan United Way’s 2-1-1 is focused on building community connections and promoting collaboration among social service providers in their region. Planning for 2-1-1 in Grand Rapids began in January 2001, and the center was fully operational by mid-November 2002. There has been comprehensive I&R in this region since 1964. 2-1-1 in Grand Rapids serves the approximately 590,417 residents of Kent County. Annual call volume is about 46,000 at a cost of just over \$586,000. The center has strong relations with state and local agencies, and roughly 9 percent of its funding comes from public sources.

Michigan appears to be pursuing a decentralized, primarily county-based model of 2-1-1 call centers. There is a possibility that Michigan United Way may begin a 2-1-1 non-profit to create a centralized point of contact for the state to assist in raising additional funds for smaller centers and to help promote supportive legislation. Maintaining a strong local presence in 2-1-1 is highly valued.

Minnesota. Minnesota has pursued a hybrid model for statewide 2-1-1 coverage. Greater Twin Cities United Way (GTCUW) operates the central 2-1-1 call center in the Minneapolis/St. Paul metroplex as the anchor of a network of 2-1-1 regional “hubs” that cover the entire state of Minnesota. State/local government and the non-profit sector have built a state resource database. The GTCUW 2-1-1 fields nearly 300,000 calls, both specialized and general, annually at a cost of about \$1.1 million (adjusted for volunteer efforts). About 22 percent of GTCUW’s funding comes from public sources.

First Call Minnesota (FCMN) is a distinct organization coordinating the efforts of 2-1-1 providers outside of the Minnesota/Saint Paul area. (GTCUW is not a part of FCMN.) The regional hubs provide 2-1-1 coverage statewide in all other counties, although only approximately eighty percent of the Minnesotans have 2-1-1 access due to telecommunications holes in the network of certain regional telephone service providers. The five regional hubs have consolidated down from nine former hubs due to economic inviability related to the reduction of public funding. In this state of about five million people, approximately 3.4 million live in the Minneapolis/Saint Paul metropolitan region. In rural parts of the state, 2-1-1 providers prefer to keep the name FCMN, rather than re-branding their service as 2-1-1, because FCMN is well-known in their communities. The remainder of state entities take about 180,000 calls at a cost of approximately \$1.3 million annually.

Central New Mexico. United Way of Central New Mexico (UWCNM) has been in operation as an I&R call center for 20 years, but began operating in September of 2001 as a 2-1-1 call center. The smallest of the study sites, UWCNM serves a population of about 765,000 and fields fewer than 8,500 calls per year at a cost of approximately \$168,000. The 2-1-1 service area includes parts of 7 counties: The 2-1-1 call center serves a widely diverse population, including ranching communities, the poorest parts of the state, and the city of Albuquerque. The site has no after-hours services and is concerned about inundating providers and staff if it were to market services. The center receives no public funding.

Sioux Falls, South Dakota. The Help!Line Center, which has been in operation for over ten years serving as an information and referral resource for the Sioux Falls community, has been a 2-1-1 call center since October of 2001. The call center provides specialized and general I&R services from their office 24 hours per day, seven days per week. The center takes about 34,000 calls at a cost of approximately \$480,000 per year. Sioux Falls is the largest city in the state, and the Help!Line center is the only 2-1-1 program serving the two counties in the Sioux Falls area, Minnehaha and Lincoln counties, which have a population of nearly 185,000. The state model is under development, and three approaches have been suggested: a centralized plan based in Sioux Falls, a Connecticut-

like model with a central call center and regional community representatives, and a two call center model with call centers based in Rapid City and Sioux Falls.

Salt Lake City, Utah. 2-1-1 Info Bank provides I&R services that are closely aligned with the Department of Workforce Services (DWS), which also provides some human services at its One-Stop Employment Centers. DWS and the Department of Human Services (DHS) have cooperated in developing UtahCares, a statewide, Web-based resource directory for health, workforce, and human services. The Community Services Council (CSC), formed in 1904 as the first non-Mormon social service agency in Salt Lake City, operates the Info Bank, the 2-1-1 Information and Referral Call Center and the Volunteer Center.

The initial statewide goal for 2-1-1 was to have one call center in Salt Lake City to serve the entire state. Many rural communities opposed this plan, and there are now four 2-1-1 call centers in a hybrid model for Utah. The 2-1-1 Info Bank call center serves Salt Lake County, Tooele County, and Summit County; 43 percent of Utah residents live in this three-county service area. Serving a total population of just over 1 million residents, the center fields about 44,000 calls at a cost of \$290,000 annually. About 40 percent of its funding is from the public sector.

SECTION FOUR: BENEFITS

From the range of potential and commonly articulated benefits associated with 2-1-1 information and referral, researchers from the Ray Marshall Center have selected those for which monetization by means of a valuation formula is feasible. Several other benefits have also been identified that have a tangible association with call center services, but at this time elude monetization. The valuation formulas for the benefits are based on established standards and practices documented in the literature of benefit/cost estimation, interviews granted by clients and I & R professionals, and assumptions regarding magnitude, frequency, and attribution developed by researchers at the Ray Marshall Center. The benefit valuation formulas are constructed around cost effective practices that were encountered during the fieldwork and upon the availability of reasonably supportive data.

The actual call volume, sources of the call (e.g., individual, agency, or other), types of services requested, and the types of referrals made are important factors that are used to identify and estimate the types and quantities of benefits yielded by a projected national 2-1-1 information and referral network. These factors “seed” the benefit valuation formulas. Benefits are presented from the perspectives of participants, taxpayers, and society as a whole under four scenarios: the mixed model scenario and the three single model (i.e., centralized, decentralized, and hybrid) scenarios. Since the population, its I&R needs, and the operational context are constant for each model, there is little variation in total benefits estimated.

Estimating Call Volume

Call volume is a critical parameter in estimating costs and benefits. To estimate benefits, Ray Marshall Center researchers modeled anticipated call volume nationally as a function of call volume to population rates (or penetration rates) in the more “mature” 2-1-1 sites selected for this analysis, the assumption being that the penetration rate would be equivalent in a fully operational national 2-1-1 network. Data on total calls and population for each of the sites were used to calculate a rate of 6.09 percent (Table 5).

These data can be understood visually with the aid of the Figure 1. There is considerable variation in call volume/population ratios among the sites. Although Sioux Falls and Albuquerque are outliers, the populations that they serve are relatively small and their penetration rates very minimally influence the weighted average.¹⁸

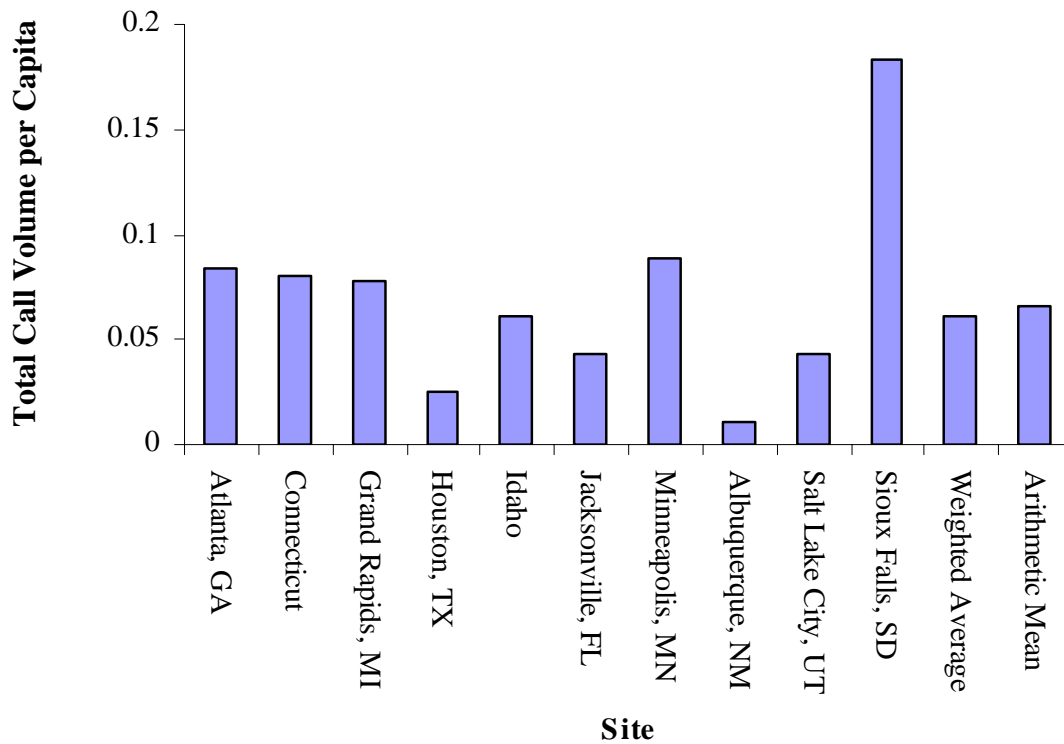
Researchers have also estimated an after hours call volume to population rate of 0.56 percent for use in the valuation formulas. Details regarding the estimation method are found in Appendix E.

¹⁸ Note that call volume to population is a proxy for true penetration since anonymous individuals may make more than one call.

Table 5: Call Volume and Population

Site	Call Volume	Population	Call Volume/ Population
Atlanta, GA	268,260	3,204,640	0.0837
Connecticut	281,188	3,483,372	0.0807
Grand Rapids, MI	46,293	590,417	0.0784
Houston, TX	129,984	5,213,931	0.0249
Idaho	83,726	1,366,332	0.0613
Jacksonville, FL	61,453	1,412,525	0.0435
Minneapolis, MN	297,591	3,374,966	0.0882
Albuquerque, NM	8,400	764,869	0.0110
Salt Lake City, UT	43,417	1,005,232	0.0432
Sioux Falls, SD	33,645	183,919	0.1829
Sum	1,253,957	20,600,203	
Weighted Average			0.0609
Arithmetic Mean			0.0698

Figure 1: Call Volume per Capita



Conversations with 2-1-1 Customers

Researchers conducted guided conversations about 2-1-1 I&R experiences with a convenience sample of 239 individuals, including members of the general public and employees of local human service providers. These individuals had voluntarily agreed to talk with researchers, and ten of the eleven participating sites provided contact information.¹⁹ The responses generally reinforced the commonly perceived positive attributes of 2-1-1 and, perhaps more germane to this analysis, have helped to estimate the benefits that accrue to those who call. (Appendix D contains complete results.) Additionally, the results indicate that callers appear to be very satisfied with the quality of services provided.

Among the benefits identified that influenced the valuation formulas are:

- *Time-saving.* Forty-four percent of the respondent acknowledged saving time, including time at work or avoiding time off work, minimally of about 15 minutes because of 2-1-1.
- *Misdirected calls.* 2-1-1 redirects inappropriate calls to emergency assistance and avoids the cost of directory assistance. Eight percent had called 9-1-1 for services that they now know 2-1-1 can provide, and seven percent had previously used 4-1-1 to locate services.
- *After hours access.* Twenty-one percent of the respondents had used 2-1-1 on weekends and in the evenings.
- *Employer services.* Eight percent of the respondents had been told about 2-1-1 by their employer (Figure 2). (I&R Specialists interviewed also indicated that employers themselves often call 2-1-1 seeking assistance for employees.)
- *Ancillary Services.* Public agencies (17 percent) and non-profit agencies (12 percent) are regularly informing and referring clients to 2-1-1 for assistance.

Benefits commonly attributed to 2-1-1 were also validated in these interviews. When asked how they benefited most from 2-1-1, respondents mentioned that they valued:

- Speed, ease of access (43%)
- Reliable and accurate information (25%)
- Quantity of information (17 %)

The importance of human contact was recognized (12%), though there were those (12%) who felt that they did not benefit at all. Researchers also found that within this sample of callers:

- Most (93%) had received the information they sought, thought 2-1-1 made it easier to find help (93%), and would use the services again (97%).

¹⁹ One site was unable to assist because of their confidentiality policy.

Figure 2: Where Callers Learned About 2-1-1

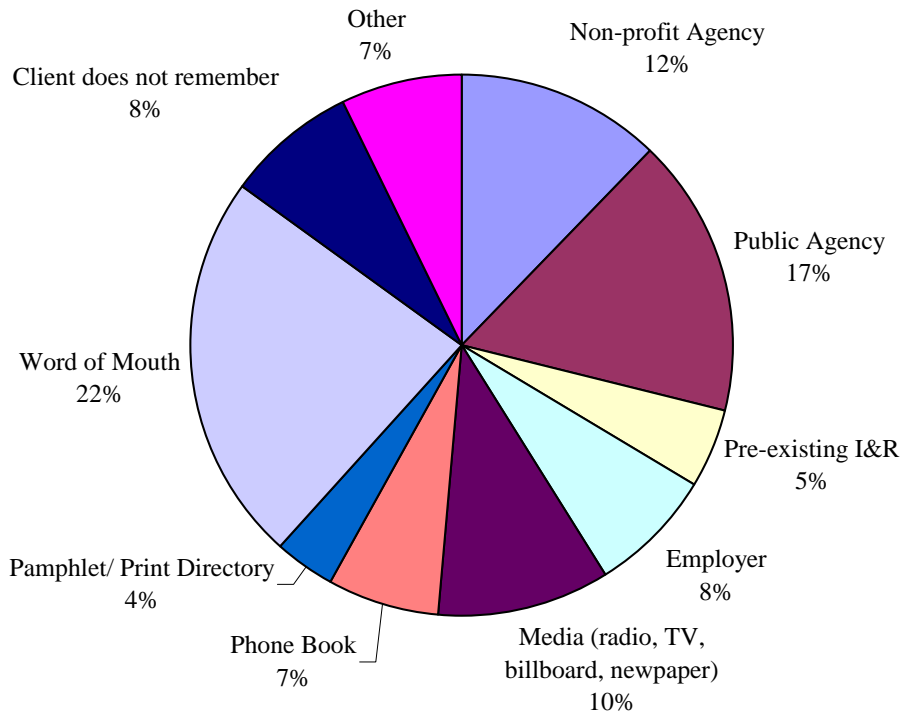
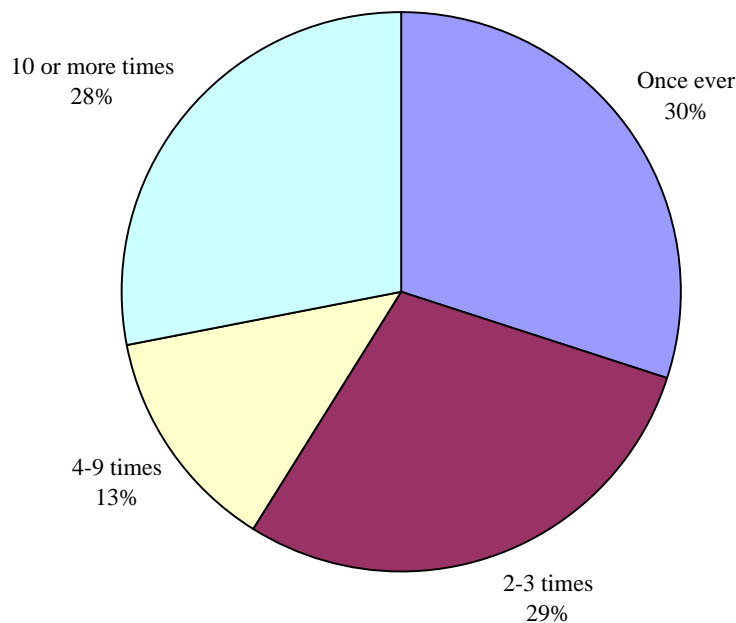


Figure 2 also suggests that “Word of Mouth” may be a more common marketing tool than “Pamphlet/Directory” or “Media.”

One final influence on the valuation formulas is the factoring of multiple callers into the estimates based on call volume. As Figure 3 indicates, most had called 2-1-1 just once (30%) or two to three times (29%), but many (28%) had also called more than ten times.

Figure 3: Caller Frequency



Measurable Benefits

Measurable benefits include:

The value of the time saved by human service or other professionals and members of the general public who use 2-1-1 to address their needs. Professionals in the field who use 2-1-1 to better serve their clients and individuals who access the system for personal requests firmly established the time and effort saving quality of 2-1-1. The number is simple to remember, accessible to everyone at no cost, multilingually accessible, and can support general as well as specialized services.

Forty-four percent of the individuals who have used 2-1-1 and participated in a telephone interview as part of this study, noted that its accessibility saved them time, including time at work, ranging from fifteen minutes to two days (in an exceptional case requiring extensive travel). The valuation formula is: total call volume * 0.44 (the number of callers)* .25 hours (time saved)* \$13.00 (a modest wage for a mix of professionals and individuals from the general public who use 2-1-1).

The value of this benefit is an estimated at nearly \$25 million in the first year, over \$270 million for ten years, and approaches \$240 million over ten years reduced to net present value.

The value of the time and costs saved by individuals referred to volunteer income tax assistance, as well as the marginal increase in the value of the dollars recovered by the individuals to the community. 2-1-1 sites play an active role in providing eligibility information and referrals to individuals who have limited or moderate incomes, limited English skills, or are elderly or disabled to voluntary tax assistance programs. Such efforts have helped thousands of people capture millions of dollars in tax returns, Earned Income Tax Credits, Child Tax Credits, and other transfers to their households and communities. 2-1-1 facilitates access to no-cost tax assistance and this capture of revenue; it is reasonable to attribute a small share of these as benefits to the participants. The value of tax returns however is a transfer from the public sector to participants and is removed (“netted out”) in the calculation of total benefits to society.

Based on the average number of tax assistance referrals in three sites and the number of referrals that completed returns in one-site, researchers estimated the percent of calls resulting in tax assistance at .009. The value of the tax return and the value of the tax preparation have been estimated as a function of the proportionate effort to making the referral and filing the return. Based on conversations with tax professionals, researchers estimated that the average return may take less than 30 minutes to prepare using tax software and that the minimum time for screening the caller for eligibility and making the referral is two minutes or about 1/15 of the tax preparation time. For estimation purposes, researchers halved this amount to be conservative and used 1/30 as the proportionate effort variable. The average tax return has been estimated from reports from voluntary tax providers provided by sites or reported on the Web site.

Thus, the value of taxes returned attributed to 2-1-1 is estimated by the following valuation formula: the value of tax returns equals the total call volume*.009 (referrals served) * \$44.44 (or 1/30 of the average return).

Similarly, the value of the tax assistance is estimated at \$5.30 (or 1/30 of the average filing fee in the private sector according to tax professionals and reported by voluntary tax assistance providers) * the number of returns filed.

Using these parameters the value of taxes recovered is just over \$7.2 million in the first year, nearly \$76 million over ten years, and \$66.4 million over ten years reduced to net present value. The value of tax assistance is approximately \$862,000 in the first year, just above \$9 million for ten years, and \$7.9 million over ten years reduced to net present value.

One I&R call center documented 741 referrals who qualified for and received free income tax preparation services. This assistance encourages individuals to file, simplifies filing, and eliminates tax preparation fees. By making referrals, the 2-1-1 call center contributed to the return of over \$940,000 in credits and refunds to the community.

The value to individuals, as well as public and non-profit agencies, of 24/7 access to I&R services. After-hours accessibility is convenient for individuals, particularly those with daytime obligations or those who are having difficulty or seeking assistance when most social services are not available. Providers in the community can rest assured that prospective clients can receive some assistance at times when they are not available. Some have calls forwarded to 2-1-1 for a fee; others suggest calling 2-1-1 in their recorded telephone message.

The valuation formula for 24/7 access is based on the number of estimated after-hours calls * the median price of after-hours calls for individuals and agencies in two sites that contract for after-hours service (\$3.60 for individuals and agencies). In effect, this is a premium value above the cost of a regular hours call.

The value of after-hours calls is estimated at approximately \$6 million in the first year and \$55 million over ten years reduced to net present value for individuals and \$8.6 million in the first year and nearly \$80 million for agencies over ten years.

Volunteer referrals and placements through 2-1-1 make it easier for individuals to match opportunities with their interest. One call center's referrals facilitated nearly 65,000 volunteer staff hours worth an estimated value of over \$1,066,000.

The value of quantifying unmet needs and mapping resources as a community assessment and planning tool. Almost all of the sites use the information regarding requests and referrals to assess community needs. Tracking of unmet needs provides a basis for assessing the lack of resources.

The valuation formula is based on a conservative estimate for producing one report in each of the 370 MSAs in the nation per year at a cost of \$15,000 for the report for a total of \$5.5 million in the first year, above \$55 million for ten years, and nearly \$49 million over ten years reduced to net present value.

The value of 2-1-1 as a broker of volunteer opportunities and placements. Similarly, 2-1-1 is increasingly active in the arena of volunteer/donor matching. 2-1-1 provides the opportunity to “give back” to the community. Thousands of volunteer hours are facilitated by 2-1-1, and material donors are directed to locations where their gifts may be most needed and appropriate.

Based on the number of volunteer placements and volunteer hours in one site that has closely tracked these referrals, researchers have estimated a prospective volunteer placement rate of .2 percent of call volume for an average of 16.53 hours per year at the rate of \$17.19 an hour (in line with independent sector.org calculations). At this rate, the value of volunteer referrals is nearly \$103 million in the first year and approximately \$943 million over ten years reduced to net present value.

The value of time-saved from the avoidance of misdirected phone calls to or redirected phone calls from public and private health and human service agencies. The availability of simple 2-1-1 access for health and human services information and referral diverts calls from other potential I&R providers saving them time and freeing staff to provide better services. Eleven percent of the callers in the telephone survey indicated that they used to call a public agency for information prior to using 2-1-1, and an additional 4 percent called a non-profit agency.²⁰

Researchers conservatively estimated the value of time saved from avoiding misdirected calls as 2.5 percent of call volume multiplied by cost per call. Since cost per call varies under the different models, this benefit ranges from \$2.7 million to \$7.1 million in the first year and between nearly \$22 million and \$66 million over ten years reduced to net present value.

The value of information regarding eligibility and documentation requirements of public health and human services. The object event is the marginal reduction of cases “pending” during eligibility determination for public assistance, including Food Stamps, TANF, and

²⁰ The Bureau of Economic and Business Research at the University of Florida reports that up to 30 percent of I&R calls in some areas come from public human services agencies. Civil Society Consulting Group, et al. (December 2003).

Medicaid, because of inadequate documentation or other avoidable circumstances, given the proper information in advance. Repeat trips to the human services office can be eliminated for the client, and providers can avoid rescheduling. This is just one small way in which 2-1-1 I&R provides support to the public sector.²¹

Based on an agency referral rate of 8 percent, an average pending case turn around time of 1.5 hours (in Texas), and a conservative staff wages and benefits estimate of \$15 per hour or \$30,000 per year, researchers estimate that pre-certification information can save agencies over \$32 million in the first year and nearly \$300 million over ten years reduced to net present value.

The value of non-reimbursed public service to state and local government. 2-1-1 I&R centers regularly provide pro bono service for special projects and announcements for state and local government, such as "Beat the Heat" programs which distribute air conditioners to low income residents and other special initiatives. They can quickly become sources of information regarding events of immediate public concern like Asian bird flu or West Nile disease. Some have argued that 2-1-1 is more flexible and capable than government for putting new information and opportunities in public focus.

Based on the level of effort leading-edge sites have reported, the support provided to agencies that is not reimbursed has been estimated at 5 percent of total call volume multiplied by the cost per call. Since cost per call varies under the different models, this benefit ranges from \$4.7 million to \$14.3 million in the first year and between nearly \$43.5 million and \$131 million over ten years reduced to net present value.

The value of reducing duplicative call centers and associated database set-up, maintenance, and staffing among public and private non-profit entities. The nation is prepared to make considerable investments in public safety and disaster relief infrastructure and capacity in response to events of natural or human emergency. From hurricanes and floods to bioterrorism, 2-1-1 call centers that operate 24/7 year round appear to be the logical platform for building emergency response communication capacity for occasional events.²² On a daily basis, 2-1-1 reduces the need for other entities to develop, maintain, and operate I&R systems for purposes that can be effectively addressed at the call center.

Based on the array of total start-up costs for the sites and the cost avoidance data provided by a few agencies and individuals, researchers estimate that developing and maintaining an alternate call center for emergency purposes would cost \$300,000 per state to start and at least \$50,000 per year to operate. The value to the nation potentially provided through

²¹ While conducting research for a proposed integrated eligibility system, the Texas Health and Human Services Commission noted that 72 percent of the eligibility determination appointments that they observed were "pending" for additional verification (Texas HHSC, 2004).

²² According to pending legislation, "the 108th Congress recognized the value of 2-1-1 telephone service in community preparedness and response by including use of that telephone number for public information as an allowable use of funds under grants for preparedness and response to bioterrorism and other public health emergencies under section 319C-1 of the Public Health Service Act (42 U.S.C. 247d-3a), as added by section 131 of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188)." See HB 3111 and SB1630. Several sites have begun negotiations to secure supplemental funding for the provision of such services.

existing call centers thus would be \$15.3 million in the first year and \$35 million over a ten year period reduced to net present value.

In 1997, a county social services agency—only one of well over a dozen served by a single 2-1-1 I&R center—invested \$265,000 in a comprehensive resource data base for statewide use. The county estimates that it is saving more than \$106,000 a year in database maintenance and personnel costs for the I&R system that it no longer operates.

The value of redirecting inappropriate phone calls from 9-1-1 to 2-1-1. Although field work suggests that collaboration between these three-digit access lines is minimal in several sites, it is nonetheless promising and effective in some sites. Eight percent of the callers surveyed said that they had previously called 9-1-1 for service that they now know they can access through 2-1-1. Assuming that this is a one-time change in caller behavior, researchers have estimated that 5 percent of callers would avoid calling 9-1-1 annually as the system rolls-out. At the conservative cost of \$13.59 for a 9-1-1 call, the estimated savings is more than \$12 million in the first year and nearly \$113 million over ten years. This does not consider the effect of freeing emergency responders to address significant human needs.

Below-the-Line Benefits

There are other site specific benefits that have been identified related to special programs and community relationships that we have not placed a value on. For instance, one site has an “Ask a Nurse” line that gives access to free medical consultation, a process which reportedly has diverted unnecessary trips to the emergency room and calls to emergency medical services. In a few sites, the 2-1-1 call centers regularly facilitate the packaging of emergency cash assistance; they actually advocate the cases and advance the money to individuals and families in need while local foundations and other funders process the requests through their bureaucracies.

A few of the other obvious benefits that we have not been able to monetize include the:

- Value of rapid, humane response to individuals and families in need of assistance with basic subsistence. The offer of hope, the speed with which an option or solution can be provided at a time of distress is immeasurable.
- Value of local collaborations in which 2-1-1 served as the nexus for attracting resources and providers in the community to deliberate and respond to human needs.
- Value to high school counselors and instructors, who in some school districts regularly use 2-1-1 to identify resources appropriate to the situations of their students.

- Value of early intervention, particularly in crisis situations involving mental health and suicidal tendencies or in housing assistance that may prevent a spiral into homelessness and destitution.
- Value of 2-1-1 as a resource for employment entry and retention. 2-1-1 call centers regularly make referrals to public job training and employment services that are likely resulting in job placement rates at least equivalent to those of the general public that seek assistance from One-Stop Career Centers. Once employed, 2-1-1 may also help retain employment by facilitating access to ancillary services that support the work effort, ranging from rent and housing assistance to child care.

Benefit Estimates for National 2-1-1 Information and Referral Network

Researchers have estimated the benefits of a national 2-1-1 information and referral network from the perspectives of participants, taxpayers, and society under four scenarios: a mixed model estimate and three single model estimates (i.e., centralized, decentralized, and hybrid). The principal scenario for estimating more realistic national costs, benefits, and net value is the mixed model. Under this scenario, each state is assigned to one of the three models. This may be the model that they are presently pursuing, one that they are poised to adopt, or one that they may likely choose in the future based on potential efficiencies, as described earlier. The three single model scenarios may be illustrative for states electing to pursue one of these approaches for their statewide organization.

Mixed Model Benefits. Under the mixed model scenario nearly 65 percent of the benefits for which a monetary value has been estimated accrue to participants, i.e., the individuals, families and organizations who access 2-1-1 assistance.

Table 6 presents the *mixed model benefit estimates* and indicates that:

- The benefit to participants is above \$150 million in the first year. The benefit is nearly \$1.6 billion over ten years and converts to about \$1.4 billion, discounted to net present value.
- The benefit to taxpayers is above \$86 million in the first year. The benefit is above \$780 million over ten years and converts to about \$686 million, discounted to net present value.
- The benefit to society approaches \$230 million in the first year. The benefit is nearly \$2.3 billion over ten years and converts to about \$2 billion, discounted to net present value.

Table 6: Mixed Model Benefit Summary

	First Year Benefit	Ten Year Total Benefits	Present Value of Benefits
Participants			
Individuals/Families			
Value of Time Saved	\$24,839,870	\$271,989,646	\$237,822,578
Value of Tax Assistance	\$861,963	\$9,036,547	\$7,919,361
Value of Taxes Recovered	\$7,228,203	\$75,778,175	\$66,409,735
Value of 24/7 Access	\$5,981,961	\$62,712,972	\$54,959,780
Organizations			
Volunteer recruitment	\$102,694,946	\$1,076,621,070	\$943,518,629
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Participants Subtotal	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Taxpayers			
Planning and Management	\$5,550,000	\$55,500,000	\$48,762,905
Misdirected calls (time saved)	\$4,009,567	\$42,191,568	\$36,968,138
Certification Readiness	\$32,526,913	\$341,001,787	\$298,843,806
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Eliminated I&R Duplication	\$15,300,000	\$38,250,000	\$35,154,578
Non-Reimbursed Services	\$8,019,134	\$84,383,135	\$73,936,275
911 Redirection Benefit	\$12,278,910	\$128,728,174	\$112,813,537
Taxpayers Subtotal	86,325,134	780,640,068	685,865,588
TOTAL BENEFITS TO SOCIETY	\$229,344,484	\$2,291,585,708	\$2,009,472,286
(Less taxes and transfers)			

Single Model Benefits. There is little variation in the value of benefits among the three single model scenarios. The slight variation that exists is caused by the cost per call variable used in two of the taxpayer benefits: 1) the benefit of time saved by calls that go to 2-1-1 for information and referral rather than to health and human service providers; and 2) the benefit derived by the public sector for non-reimbursed services provided by 2-1-1. Participant benefits remain constant across these scenarios.

As shown in Table 7, under the *centralized model scenario*:

- The benefit to participants exceeds \$150 million in the first year. The benefit is nearly \$1.6 billion over ten years and converts to about \$1.4 billion, discounted to net present value.

- The benefit to taxpayers exceeds \$87 million in the first year. The benefits exceed \$789 million over ten years and convert to about \$694 million, discounted to net present value.
- The benefit to society exceeds \$230 million in the first year. The benefit is over \$2.3 billion over ten years and converts to about \$2 billion, discounted to net present value.

Table 7: Centralized Model Benefit Summary

	First Year Benefit	Ten Year Total Benefits	Present Value of Benefits
Participants			
Individuals/Families			
Value of Time Saved	\$24,839,870	\$271,989,646	\$237,822,578
Value of Tax Assistance	\$861,963	\$9,036,547	\$7,919,361
Value of Taxes Recovered	\$7,228,203	\$75,778,175	\$66,409,735
Value of 24/7 Access	\$5,981,961	\$62,712,972	\$54,959,780
Organizations			
Volunteer recruitment	\$102,694,946	\$1,076,621,070	\$943,518,629
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Participants Subtotal	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Taxpayers			
State and Local Government			
Planning and Management	\$5,550,000	\$55,500,000	\$48,762,905
Misdirected calls (time saved)	\$4,312,284	\$45,208,615	\$39,619,484
Certification Readiness	\$32,526,913	\$341,001,787	\$298,843,806
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Eliminated I&R Duplication	\$15,300,000	\$38,250,000	\$35,154,578
Non-Reimbursed Services	\$8,624,569	\$90,417,231	\$79,238,967
911Redirection Benefit	\$12,278,910	\$128,728,174	\$112,813,537
Taxpayers Subtotal	87,233,286	789,691,211	693,819,625
TOTAL BENEFITS TO SOCIETY (Less taxes and transfers)	\$230,252,637	\$2,300,636,852	\$2,017,426,323

As shown in Table 8, under the *decentralized model scenario*:

- The benefit to participants is above \$150 million in the first year. The benefit is nearly \$1.6 billion over ten years and converts to about \$1.4 billion, discounted to net present value.
- The benefit to taxpayers is nearly \$96 million in the first year. The benefit is above \$878 million over ten years and converts to about \$772 million, discounted to net present value.

- The benefit to society approaches \$239 million in the first year. The benefit is nearly \$2.4 billion over ten years and converts to nearly \$2.1 billion, discounted to net present value.

Table 8: Decentralized Model Benefit Summary

	First Year Benefit	Ten Year Total Benefits	Present Value of Benefits
Participants			
Individuals/Families			
Value of Time Saved	\$24,839,870	\$271,989,646	\$237,822,578
Value of Tax Assistance	\$861,963	\$9,036,547	\$7,919,361
Value of Taxes Recovered	\$7,228,203	\$75,778,175	\$66,409,735
Value of 24/7 Access	\$5,981,961	\$62,712,972	\$54,959,780
Organizations			
Volunteer recruitment	\$102,694,946	\$1,076,621,070	\$943,518,629
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Participant Subtotal	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Taxpayers			
Planning and Management	\$5,550,000	\$55,500,000	\$48,762,905
Misdirected calls (time saved)	\$7,135,218	\$74,803,352	\$65,555,429
Certification Readiness	\$32,526,913	\$341,001,787	\$298,843,806
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Eliminated I&R Duplication	\$15,300,000	\$38,250,000	\$35,154,578
Non-Reimbursed Services	\$14,270,436	\$149,606,703	\$131,110,858
911Redirection Benefit	\$12,278,910	\$128,728,174	\$112,813,537
Taxpayers Subtotal	\$95,702,087	\$878,475,420	\$771,627,461
TOTAL BENEFITS TO SOCIETY	\$238,721,438	\$2,389,421,061	\$2,095,234,159
(Less taxes and transfers)			

As shown in Table 9, under *the hybrid model scenario*:

- The benefit to participants is above \$150 million in the first year. The benefit is nearly \$1.6 billion over ten years and converts to about \$1.4 billion, discounted to net present value.
- The benefit to taxpayers exceeds \$81.4 million in the first year. The benefit is nearly \$730 million over ten years and converts to slightly more than \$640 million, discounted to net present value.

- The benefit to society approaches \$225 million in the first year. The benefit is over \$2.2 billion over ten years and converts to nearly \$2 billion, discounted to net present value.

Table 9: Hybrid Model Benefit Summary

	First Year Benefit	Ten Year Total Benefits	Present Value of Benefits
Participants			
Individuals/Families			
Value of Time Saved	\$24,839,870	\$271,989,646	\$237,822,578
Value of Tax Assistance	\$861,963	\$9,036,547	\$7,919,361
Value of Taxes Recovered	\$7,228,203	\$75,778,175	\$66,409,735
Value of 24/7 Access	\$5,981,961	\$62,712,972	\$54,959,780
Organizations			
Volunteer recruitment	\$102,694,946	\$1,076,621,070	\$943,518,629
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Participants Subtotal	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Taxpayers			
Planning and Management	\$5,550,000	\$55,500,000	\$48,762,905
Misdirected calls (time saved)	\$2,368,891	\$24,834,701	\$21,764,392
Certification Readiness	\$32,526,913	\$341,001,787	\$298,843,806
Value of 24/7 Access	\$8,640,610	\$90,585,404	\$79,386,349
Eliminated I&R Duplication	\$15,300,000	\$38,250,000	\$35,154,578
Non-Reimbursed Services	\$4,737,783	\$49,669,402	\$43,528,784
911Redirection Benefit	\$12,278,910	\$128,728,174	\$112,813,537
Taxpayers Subtotal	81,403,107	728,569,468	640,254,350
TOTAL BENEFITS TO SOCIETY	\$224,422,457	\$2,239,515,108	\$1,963,861,048
(Less taxes and transfers)			

SECTION FIVE: COSTS

Ray Marshall Center researchers prepared national estimates of the costs for operating comprehensive 2-1-1 I&R systems across all states and the District of Columbia. Cost estimates are derived from expenditure and call volume data provided by the eleven study sites. These sites were selected as fully operational 2-1-1 call centers whose data could be used to estimate the costs of a fully operational national network.

Total expenditures at each site have been divided by total call volume to produce an average cost per call for each site. Average cost per call for the centralized, decentralized, and hybrid models have also been produced by aggregating call volume and expenditure data for those sites pursuing the same model and by performing the same basic calculation, i.e., dividing total expenditures by total call volume.

Four approaches have been used to develop the national cost estimates. The first approach assigns to each state one of the three models based on the present status or intent regarding which model will be implemented or, in the event that no statewide approach has yet been formulated, the most efficient and likely model. The three remaining approaches assume that a single model (i.e., centralized, decentralized, or hybrid) is adopted nationwide and estimate national costs on that basis. Before revealing these cost estimates, this section discusses some of the variation in total expenditure patterns among sites and probes different factors that may be associated with variation in cost per call.

Expenditures by Site

Total expenditures per site range from a low of around \$168,000 in Albuquerque to more than \$3.7 million in Connecticut. Figure 4 portrays the magnitude of expenditure differences across sites. Whereas this array is to be expected, given the catchment, population, and specialized or contracted services variations between sites, it is instructive to look at the distribution of expenditures within and across sites.

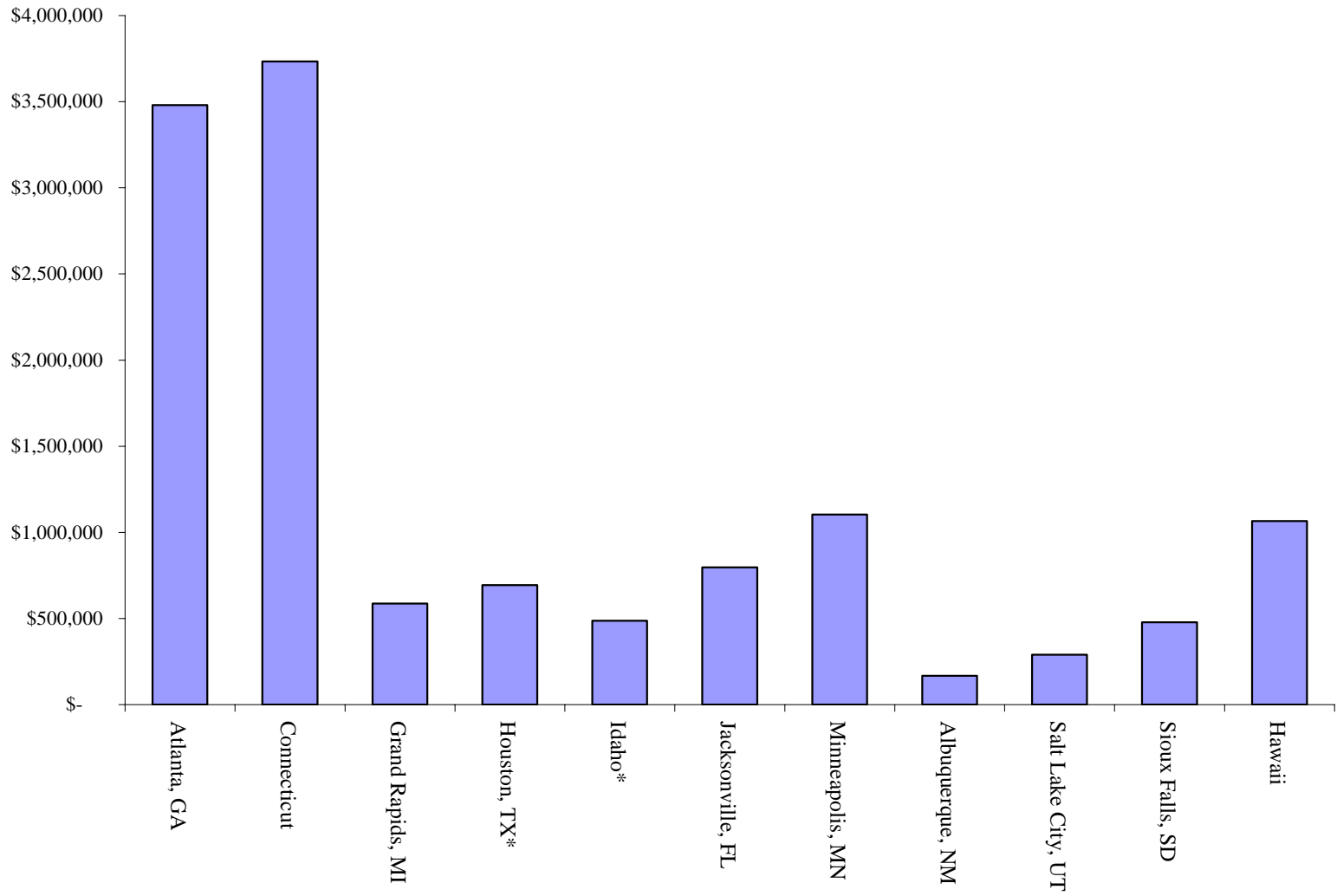
The average wage for I&R specialists is one source of variation. The average wage earned per FTE worker ranges from \$18,680 to \$32,000.²³ The median wage is \$25,527; the highest average wage exceeds the median by 25 percent and the lowest wage falls 27 percent below the median. Figure 5 portrays the distribution of I&R specialists' wages.

Figure 6 summarizes the proportion of I&R specialists' payroll costs, other staff payroll costs, administrative costs, and communications costs for each site.²⁴ Payroll costs include wages, benefits, and taxes. I&R specialists' payroll costs includes only the cost of employing those individuals whose primary work assignment is to respond to caller inquiries.

²³ Site administrators either estimated the average wage for their I&R specialists or provided a range within wages fell. In the latter instance, researchers based the estimate on the mid-point of the range. Two sites provided an hourly wage that was converted to an annual salary.

²⁴ Two sites have been eliminated from this graph because of data comparability issues.

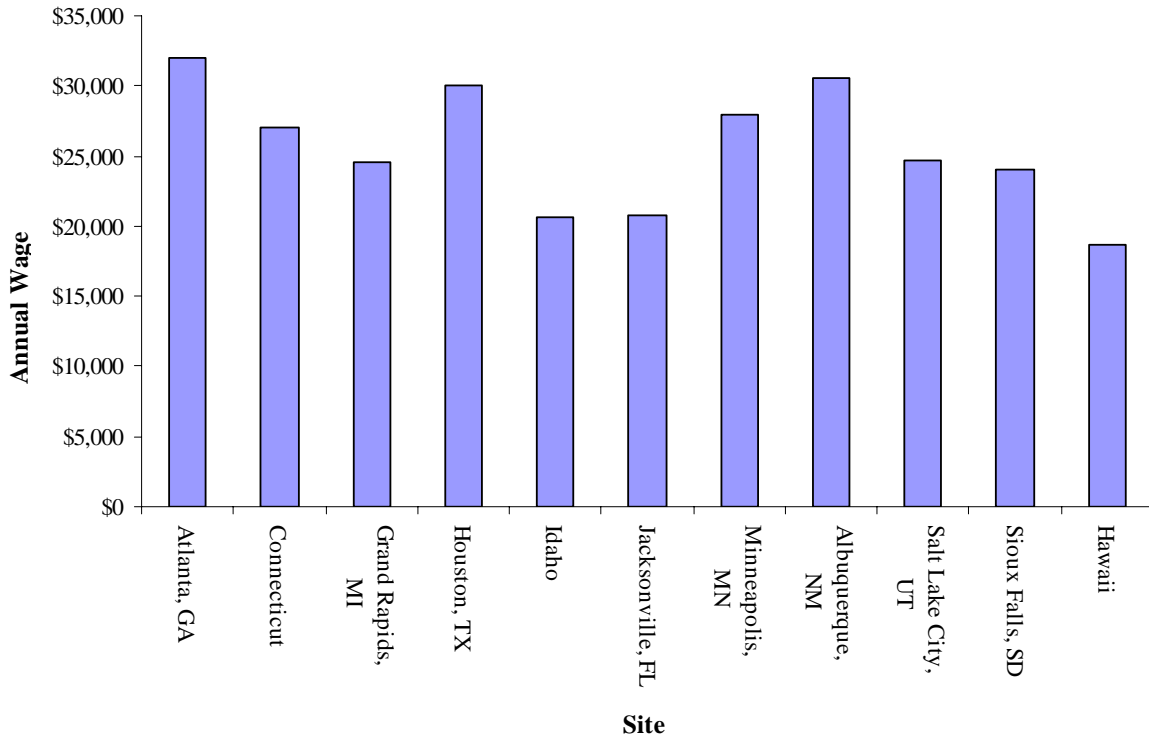
Figure 4: Total Expenditures per Site



* Expenditures in Houston and Idaho are for FY 2004; expenditures from the remaining sites are for FY 2003.

The number of FTEs is multiplied by the average salary for these workers, plus an adjustment for the fringes and taxes for the site, to estimate total payroll costs for I&R specialists. The fringe and tax multiplier varies considerably among sites, ranging from just under 10 percent to just over 30 percent, once again demonstrating the considerable variance in practices among sites.

Figure 5: I&R Specialists' Annual Wages

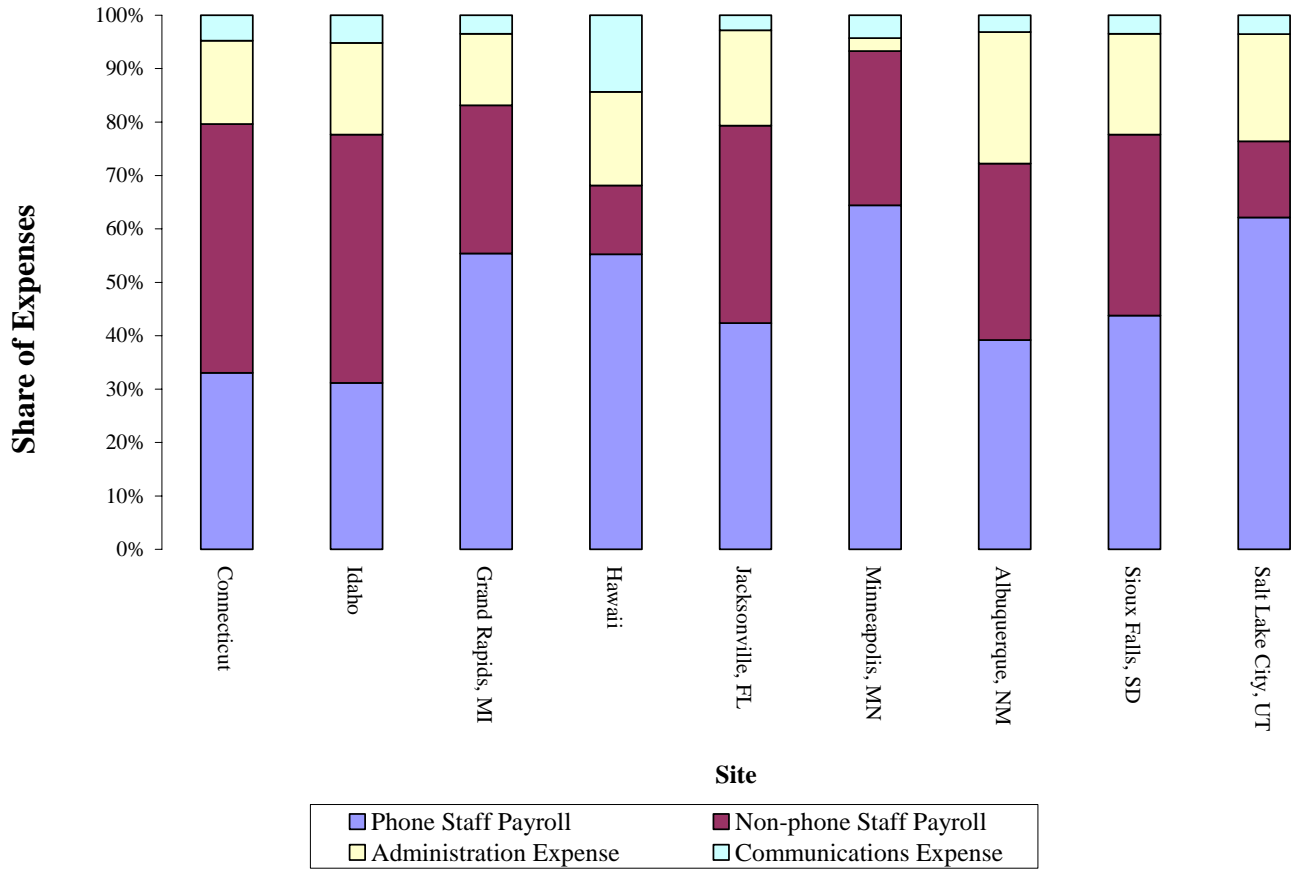


Total other payroll costs equals total payroll minus the payroll for I&R specialists. This includes administrative, professional, support staff, and (occasionally) consultant fees.

Administrative expenditures include rent, utilities (other than telecommunications expenses), supplies, printing, travel, conferences, and other ongoing operational costs.

Communications expenses include telecommunications charges — both usage- and non-usage-based — such as monthly fees for T1 lines or switching and per-line, per-minute, or per-call charges. Postage is included in this category as well.

Figure 6: Comparison of Expenses by Site



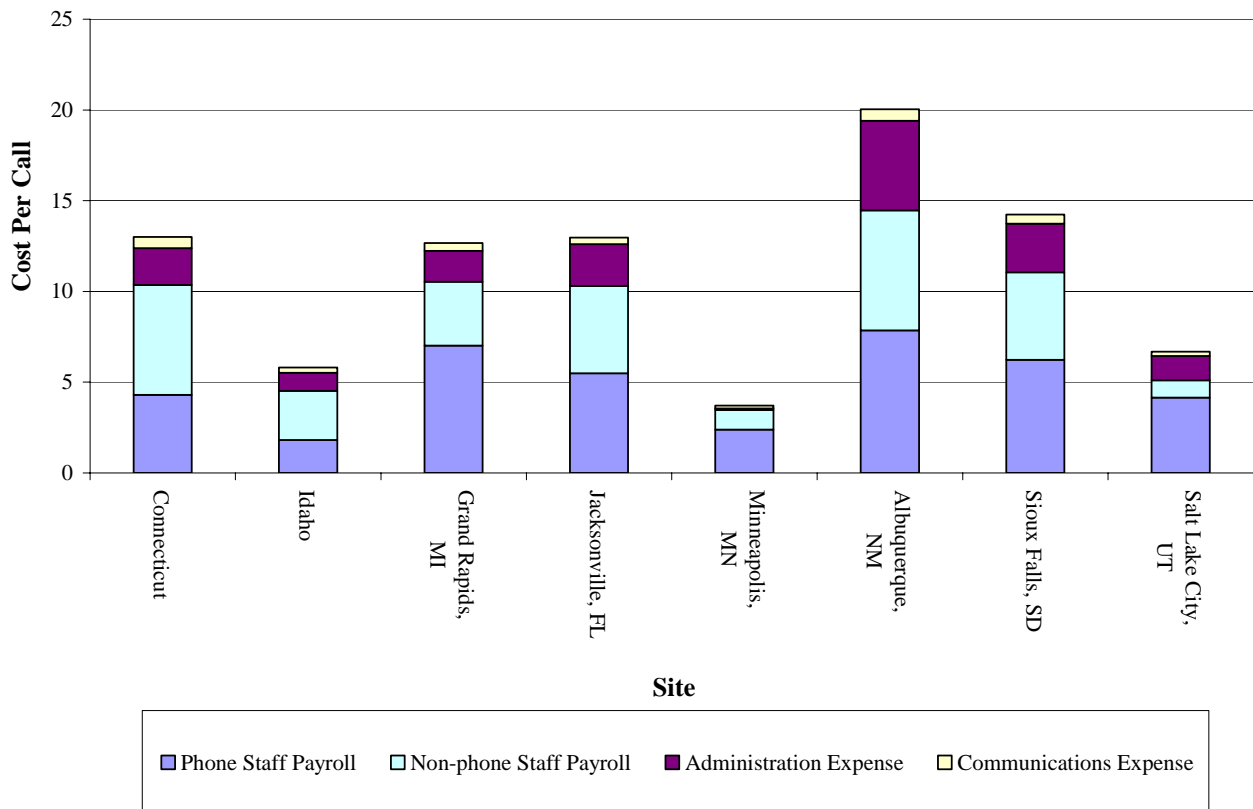
Personnel, by far, accounts for most costs in each site. The share of personnel costs ranges from 68 to 93 percent with a mean of 80 percent. Interestingly, one of the largest sources of variation in cost is the share of I&R specialist staff costs of total staff costs, which ranges from a low of 28 percent to a high of 81 percent with a mean of just over 65 percent. Administration expenses varied noticeably by site, but in no case did they comprise more than 25 percent of the total. Contrary to expectations, communication costs were a relatively small proportion of costs for most of the sites and tend to be higher in statewide sites and sites that provide after hours services for other sites.²⁵

²⁵ During field work, most administrators held the opinion that telecommunications costs could be lower. Several indicated concern that their center is charged a per call fee for phantom or static calls. Although a relatively minor share of all costs according to the analysis herein, marginal savings in telecommunications expenses could allow centers to hire additional staff to answer phones or perform other tasks, such as resource database maintenance or follow-up activities, both of which are limited in some sites due to funding and staffing constraints.

Cost per Call by Site

Cost per call at the individual sites, as noted earlier, range from \$3.71 at the Minneapolis site to just over \$20 in Albuquerque; the average cost per call is \$11.38. Continuing the approach of the previous section, it is instructive to look at the distribution of expenditure shares for the cost per call unit within and across sites, shown in Figure 7.

Figure 7: Cost per Call



This graph again demonstrates the predominance of personnel costs, in this case as a share of unit-of-service costs. It also clearly reveals the variation in shares of I&R specialists' costs and non-phone, administrator and staff costs. In one site for example, the cost of non-I&R personnel is 53 percent of the total cost of the call. I&R specialist personnel cost per call was about \$5 per call, except in two sites where it was low in comparison to other sites.²⁶

Overall, the variation in cost per call caused by salary differences is small compared with the variation that is induced by the variation of calls per FTE I&R specialist. For example, note that Minnesota has a slightly above average salary, yet has one of the lowest per-call costs

²⁶ At these two sites, the data indicate that the I&R specialists would have to be handling more than 12,000 calls per year or 47 percent more calls than workers at the next busiest site handle. This equates to 10 minutes per call consistent through every one of the 120,000 working minutes per year (assuming 2000 hours per year, and 60 minutes per hour or 120,000 available minutes divided by 12,000 to arrive at 10 minutes per call). Although this seems to be extraordinary, most sites set a calls per shift target at 60-80 calls and the University of Nebraska Public Policy Center (2000) found an average call required ten minutes.

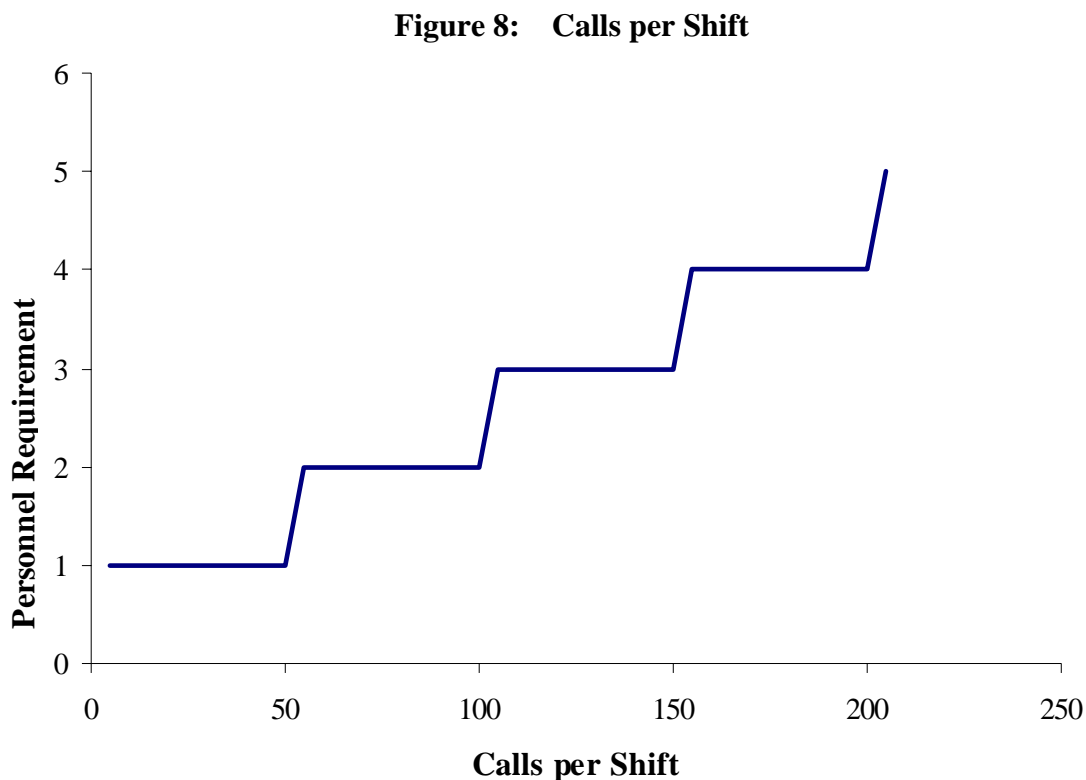
based on their high call volume. Alternatively, Jacksonville is at the low end of the annual wage range — its annual wage was third from lowest — yet their cost per call is slightly above the average.

Sources of Variation

To further probe causes of variation in cost per call among sites, researchers investigated three further influences: economies of scale, the type of organizational structure, and the workload of the I&R specialists.

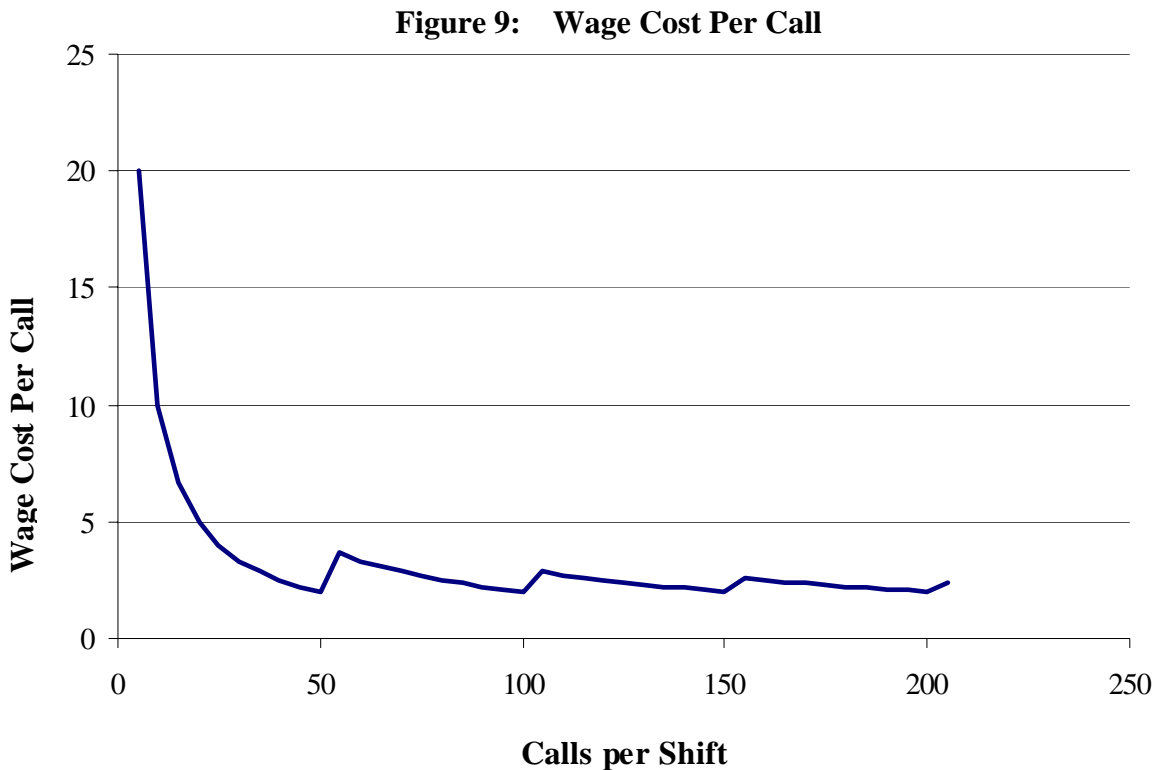
Economies of Scale. Economies of scale suggest that costs might be lower at higher levels of output (i.e., I&R call volume). The following discussion suggests how economies of scale can affect cost per call in an I&R setting.

Assume that during an 8 hour shift an I&R specialists will handle 50 calls. Issues related to peak call periods, queuing, or other prospective “lumpiness” related to call volume are disregarded, assuming instead that calls are distributed smoothly over the shift.²⁷ According to this approach, whenever call volume exceeds 50 calls per specialists, additional staff need to be recruited and hired. The relationship between call volume and the human resource requirement for the shift is demonstrated by Figure 8.



²⁷ Several sites employ their ACD data to track peak call hours and arrange staffing accordingly.

Assuming further that the cost for a shift are \$100 per I&R specialist and disregarding other cost components, cost per call can be calculated by multiplying the number of specialists times \$100 and dividing by call volume. Figure 9 shows the cost of I&R specialist wages per call calculated this way.



The minimum cost of \$2 per call occurs at call volumes that are multiples of 5 (100, 150, etc.). When the number of calls is quite large, the cost stays fairly low because the downtime between calls is spread over a larger number of workers. However, if the number of calls per shift falls below a certain point, the cost per call goes up sharply. For this exercise, consider a call volume of 20 calls per shift, or \$5 cost per call attributed to the cost of an I&R specialist. This would generate an annual call volume of 7,300 calls. Assuming further that annual daytime calls in an area equal 0.06 times the population of an area, a population of 121,666 individuals would produce 20 calls per shift during the day. Thus, as a rule of thumb, it could be argued that unless the population of the area served by the call center is larger than 121,666, the cost per call attributed to the cost of an I&R specialist will be high.

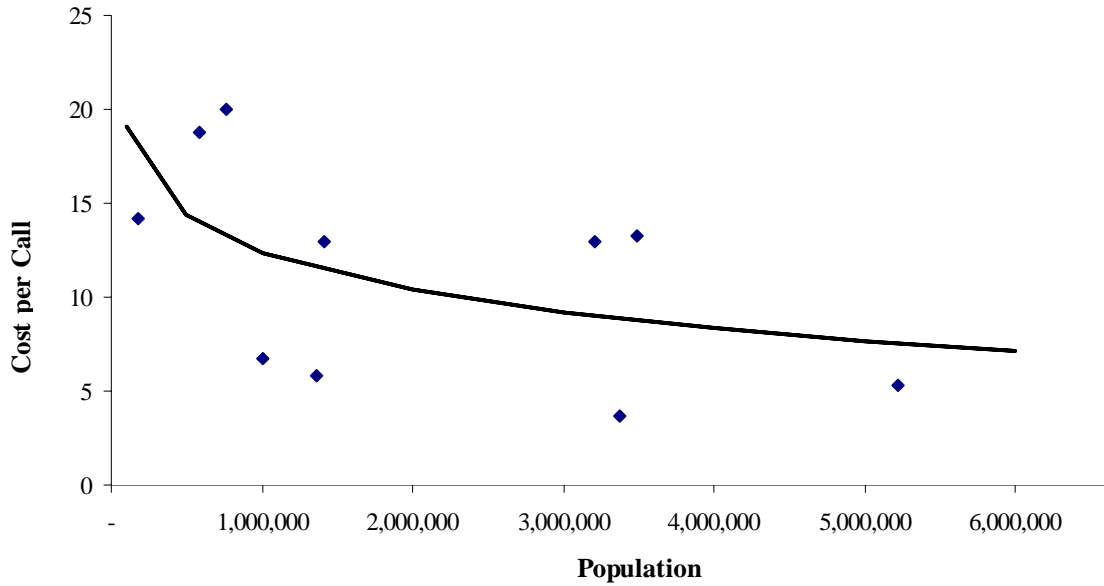
When night/after-hours calls are considered, the analysis is similar, except night calls are fewer in number than daytime calls. Assuming an after hours calls-to-population ratio of 0.0056, in order for a call center to achieve 20 calls per shift at night (or 7,300 calls annually) and avoid excessive call staff costs, the minimum population served can be estimated at 1,013,888.²⁸

Figure 10 shows actual costs per call as a function of population. The fitted line demonstrates that the larger the population served the lower the per-call cost for ten sites.

²⁸ Researchers have estimated the after hours calls to population ratio at 0.0056. See Appendix E.

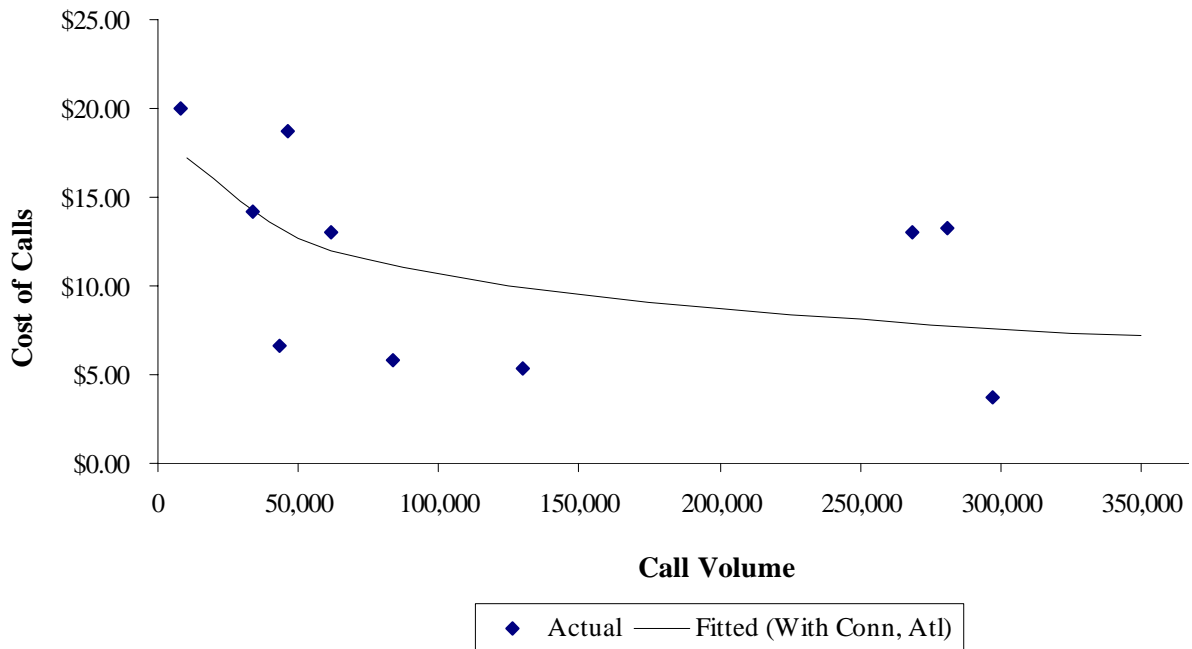
The line becomes particularly steep as the population falls below 1,000,000. This empirical finding corresponds to the theoretical model.

Figure 10: Cost per Call as a Function of Population



Call volume rather than population is actually the variable that determines economies of scale, as Figure 11 also indicates.

Figure 11: Cost per Call as a Function of Call Volume



Organization Type. In addition to economies of scale, the type of organization will affect cost per call. Appendix F contains a mathematical discussion of the relationship between organizational type and cost efficiencies for the three models. The result of that assessment suggests that:

$$CPC_{decentralized} > CPC_{hybrid} > CPC_{centralized}$$

Where: $CPC_{decentralized}$ = the cost per call of a decentralized system

CPC_{hybrid} = cost per call of a hybrid system

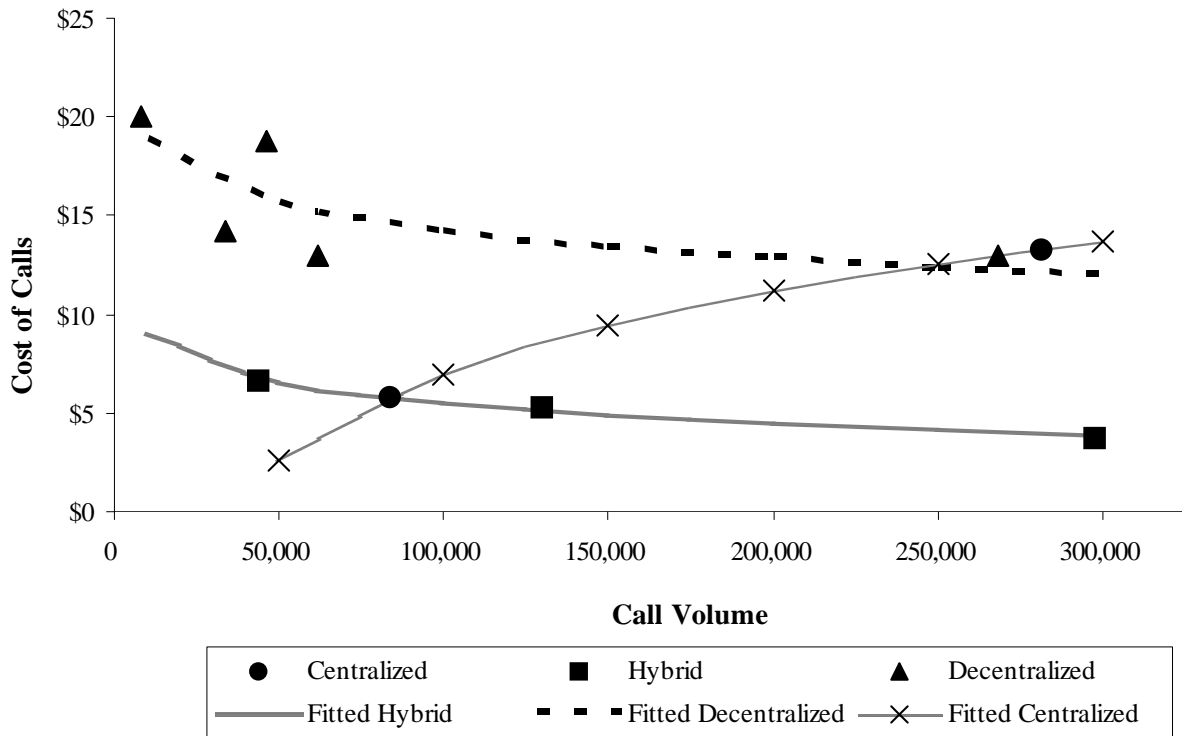
$CPC_{centralized}$ = cost per call of a centralized system

Figure 12 shows how organizational type influences cost per call.

This graphic indicates that the decentralized sites tend to have the highest costs, and generally sustain lower call volumes than the hybrid or centralized sites. Thus, higher costs may be attributed to smaller call volume as well as organizational scheme.

The relationship between the centralized site costs and the hybrid site cost per call is less clear. Adding fitted lines to the above graphic helps to make the relationships clearer. The fitted lines have a semi-logarithmic relationship. Under this kind of relationship, for every x percent increase in call volume, the cost per call would fall (or rise) by a constant amount, y .

Figure 12: Cost per Call as a Function of Call Volume and Organization Schema



The “fitted, centralized” line is upward sloping because between the two centralized sites, Connecticut and Idaho, the one with the larger call volume also has the higher cost. This is not a true indicator of the lack of economies of scale for centralized sites because Connecticut is an outlier. The remaining centralized cost datum happens to fall very near the fitted line for the hybrid sites, suggesting that ignoring Connecticut, there does not seem to be much difference in cost per call between centralized and hybrid sites.

Note that the fitted lines for both the decentralized and hybrid display economies of scale, and become quite flat by the time they reach a call volume at the high end of the scale. However, the hybrid costs are much lower than the decentralized costs at all call volume levels.

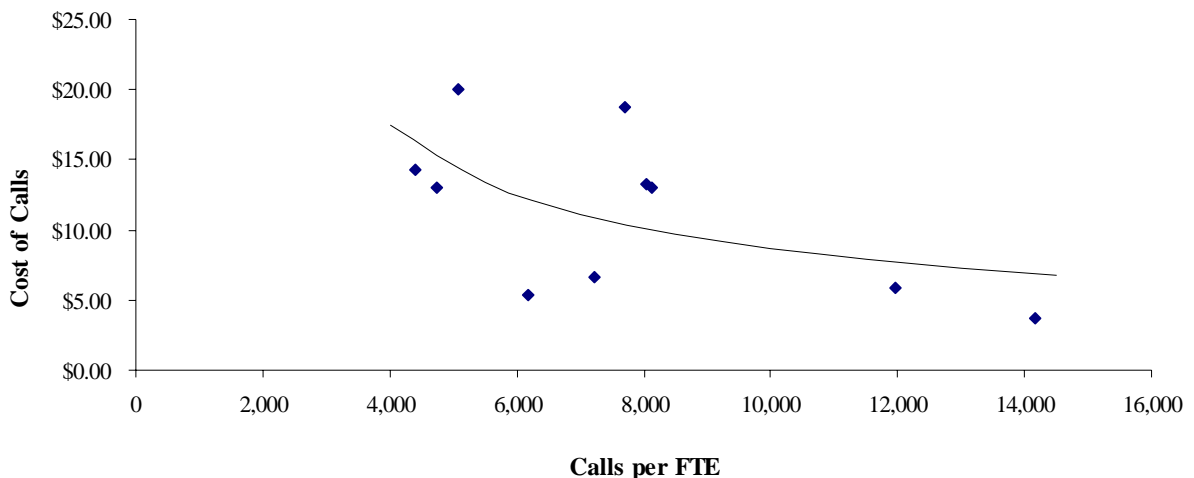
Workload of Information and Referral Specialists. The one remaining influence on cost per call is the number of calls per unit time, or its reciprocal, the time spent per call. Table 10 summarizes the relationship between these variables, under the assumption that an FTE is 2,000 hours per year.

Table 10: Call Volume Per FTE I&R Specialist

<u>Calls per FTE Per Year</u>	<u>Calls per Shift</u>	<u>Staff time used per call</u>
2,000	8	60
4,000	16	30
6,000	24	20
8,000	32	15
10,000	40	12
12,000	48	10
14,000	56	8.57

Figure 13 shows cost per call as a function of calls per FTE I&R specialist.

Figure 13: Cost per Call as a Function of Calls per FTE



That the slope of the relationship is negative should be axiomatic. If one staff person handles 14,000 calls per year, the costs are going to be lower than if that person handled only 4,000 calls per year. Indeed, if the wage is held constant, the wage cost per call is simply wage divided by calls per year. When the denominator gets larger, the quotient becomes smaller. The relationship shown in the graph is not exactly a reciprocal function, however, because of the presence of other wage, administration, communication, and other costs. Once again, the empirical data follows the theoretically expected pattern.

While it is not evident from the graph, the site with the largest number of calls per FTE, Minnesota, also happens to be a high volume site. The large number of calls per FTE in Minnesota may be the result of more efficient use of time, as explained in the section on economies of scale. However, the next highest site in terms of calls per FTE is Idaho, which is only a medium-sized site. The sites with the lowest calls per FTE tend to be the smaller, sites, such as South Dakota and New Mexico, that would suffer from diseconomies of extremely small scale. However, Atlanta, the second largest site in terms of call volume is one of the lower sites in terms of calls per FTE. The differences in calls per FTE are evidently not only related to the call volume, but also variation in managerial objectives. For instance, some sites appeared to be very concerned with minimizing average call time; other sites are less concerned or may more intensely engage the situation and needs of the caller, or provide specialized services that require more time. Other intervening factors include time spent in training or community engagement with resource providers, special projects, and the availability of after hours services.

Unexplained Variation. The final factor that affects cost per call is unexplained variation. Most of the points plotted against their fitted lines have a rather loose fit. Indeed, the R^2 of the fitted lines were typically in the 0.3 to 0.5 range, and none were statistically significant. Hundreds of sample observations are needed to establish confidence in these relationships. With a sample of only ten observations, a single outlier can substantially affect the outcome of any statistical procedure.

The largest variations in cost per call are induced by the differences in other expenses, including salary and benefits of non-telephone administrators and staff. A significant staff effort is sustained by many sites to maintain the completeness and accuracy of their resource database; these costs are embedded in non-call staff wages and other costs. Communication costs vary considerably, but lack the magnitude to dramatically alter the total cost for most sites. Administration expenses vary widely, but there are often clear reasons for the differences. For example, one site may pay very high rent, while another pays a very low rent. One time capital outlays for computers or technology upgrades may skew cost comparability despite similar call volumes. In the fiscal year targeted for this study, two sites had comparable call volumes, yet one had a much lower cost per call. In this instance, the lower cost site recorded less than \$1,000 for office supplies, and the other nearly \$50,000. By averaging over multiple sites and sometimes multiple years in developing estimation parameters, it is expected that no single outlier site can unduly influence the estimates.

Cost Estimates for National 2-1-1 Information and Referral Network

Cost per call and anticipated call volume form the basis of the total national cost estimate. There are three strata to this estimation:

1. Cost per call associated with each site
2. Cost per call associated with each model
3. Total cost under four national cost estimation approaches

The cost per call associated with each site has been identified and assessed in the previous section. The cost per call for each model has been estimated by aggregating call volume and total cost for the sites that represent each model. In the estimation process, the centralized model is represented by the state I&R programs of Connecticut, Idaho, and Hawaii. The decentralized models are found in Atlanta, Albuquerque, Sioux Falls, Grand Rapids, and Jacksonville. The Greater Twin Cities United Way/Minnesota, United Way of the Texas Gulf Coast (Houston)/Texas, and the 2-1-1 InfoBank of the Community Services Council (Salt Lake City)/Utah represent the hybrid model. The cost per call analysis results indicate that the centralized model is associated with a unit cost per call of \$9.54, the decentralized has a unit cost of \$15.79, and the hybrid model has a unit cost of \$5.24. It is important to remember that cost per call estimates include expenses associated with the entire range of tasks and functions associated with operating the call centers, not just the tasks solely associated with taking a call and providing information or making a referral. Management negotiates and decides the service delivery strategy and the actual amounts allocated to payroll, planning, marketing, training, accreditation, software and hardware upgrades, and telecommunications costs.

Equipped with a unit cost for each model, cost per call is multiplied by the estimated call volume to arrive at total cost. Estimated call volume is a function of current population and anticipated growth rate (based on Census data), multiplied by the constant call volume-to-population rate. The estimated weighted average of this market penetration rate for all sites is slightly over 0.06, as discussed earlier. Again, assuming largely mature 2-1-1 I&R sites, this rate could reasonably be applied to estimate national call volume. Hence, national call volume is the aggregate of the call volumes estimated for the 50 states and the District of Columbia. National call volume multiplied by the cost per call provides the national cost estimate.

This national cost for 2-1-1 information and referral has been estimated under four scenarios: a mixed model estimate and three single model estimates (i.e., centralized, decentralized, and hybrid). As described earlier, the analysis approaches benefits, costs, and net value from the prospective of participants, taxpayers, and society as a whole. The baseline year operational costs have been projected out for ten years, and the ten-year costs have been reduced to net present value using a 3 percent discount rate.

The cost to participants accrues almost entirely to the non-profit entities that operate the 2-1-1 call centers, entities that contract with them (e.g., organizations that contract with 2-1-1 for after hours service), and the donors who support them. Beyond the cost of a pay phone or cell call charge, there is no expense incurred by individuals, including employers, and professionals who use the service. These phone costs were assumed to be trivial and were

not estimated.²⁹ The cost to taxpayers is contained in public contracts, grants, and investments, as well as direct services that the public sector provides to the 2-1-1 network. The cost to society is the sum of participant and taxpayer costs, net any taxes or transfers between them. Proportionate shares of costs have been assigned to participants and taxpayers based on the budget information regarding funding sources provided by the sites.

Mixed Model Costs. Under *the mixed model scenario*, nine states and the District of Columbia are assigned the centralized model, ten states are assigned the decentralized model, and 31 states are assigned the hybrid model. Using the values and methods described above, Table 11 indicates that:

- Costs to participants approach \$94 million in the first year. Costs are nearly \$1 billion over ten years and convert to about \$866 million discounted to net present value.
- Costs to taxpayers are over \$66 million in the first year. Costs are nearly \$700 million over ten years and convert to about \$613 million, discounted to net present value.
- Total costs to society exceed \$160 million in the first year. Costs are nearly \$1.7 billion over ten years and convert to about \$1.5 billion, discounted to net present value.

Table 11: Mixed Model Cost Summary

	<u>First Year Cost</u>	<u>Ten Year Cost</u>	<u>Present Value of Cost</u>
Participants			
Call Center and Local Provider Costs	\$93,918,523	\$988,278,758	\$865,927,181
Taxpayer			
Grants, Contracts, Direct Services	\$66,464,150	\$699,383,948	\$612,798,328
Total Costs to Society	\$160,382,674	\$1,687,662,705	\$1,478,725,509

Single Model Costs. National 2-1-1 cost estimates under three, single model scenarios — i.e., the centralized model, the decentralized model, and the hybrid model — have also been developed.

Under the *centralized model scenario*, as Table 12 indicates:

- Costs to participants surpass \$101 million in the first year. Costs are just over \$1 billion over ten years and convert to about \$930 million, discounted to net present value.

²⁹ Especially since telephone companies appear to be phasing out pay phones and cellular phone rates are dropping. Cell phone access to 2-1-1 is not available currently in many areas.

- Costs to taxpayers exceed \$71 million in the first year. Costs approach \$750 million over ten years and convert to nearly \$657 million, discounted to net present value.
- Total costs to society are above \$172 million in the first year. Costs exceed \$1.8 billion over ten years and convert to nearly \$1.6 billion, discounted to net present value.

Table 12: Centralized Model Cost Summary

	<u>First Year Cost</u>	<u>Ten Year Cost</u>	<u>Present Value of Cost</u>
Participants			
Call Center and Local Provider Costs	\$101,009,262	\$1,058,948,902	\$928,031,267
Taxpayer			
Grants, Contracts, Direct Services	\$71,482,116	\$749,395,712	\$656,748,075
Total Costs to Society	\$172,491,378	\$1,808,344,614	\$\$1,584,779,342

As Table 13 indicates, under the *single model/decentralized scenario*:

- Costs to participants surpass \$167 million in the first year. Costs are just over \$1.75 billion over ten years and convert to more than \$1.5 billion, discounted to net present value.
- Costs to taxpayers are over \$118 million in the first year. Costs surpass \$1.2 billion over ten years and convert to nearly \$1.1 billion, discounted to net present value.
- Total costs to society are more than \$285 million in the first year. Costs are nearly \$3 billion over ten years and convert to just above \$2.6 billion, discounted to net present value.

Table 13: Decentralized Model Cost Summary

	<u>First Year Cost</u>	<u>Ten Year Cost</u>	<u>Present Value of Cost</u>
Participants			
Call Center and Local Provider Costs	\$167,132,555	\$1,752,164,417	\$1,535,544,692
Taxpayer			
Grants, Contracts, Direct Services	\$118,276,169	\$1,239,969,652	\$1,086,672,460
Total Costs to Society	\$285,408,724	\$2,992,134,070	\$2,622,217,151

Under the *hybrid model scenario*, as Table 14 reveals:

- Costs to participants surpass \$55 million in the first year. Costs nearly \$582 million over ten years and convert to about \$510 million, discounted to net present value.
- Costs to taxpayers are over \$39 million in the first year. Costs approach \$412 over ten years and convert to about \$361 million, discounted to net present value.
- Total costs to society are nearly \$95 million in the first year. Costs approach \$1 billion over ten years and convert to just above \$993 million, discounted to net present value.

Table 14: Hybrid Model Cost Summary

	<u>First Year Cost</u>	<u>Ten Year Cost</u>	<u>Present Value of Cost</u>
Participants			
Call Center and Local Provider Costs	\$55,487,981	\$581,718,306	\$509,800,592
Taxpayer			
Grants, Contracts, Direct Services	\$39,267,669	\$411,669,726	\$360,775,083
Total Costs to Society	\$94,755,651	\$993,388,032	\$993,388,032

SECTION SIX: NET VALUE

This section presents estimates of the net value of national access to 2-1-1 information and referral services, based on the arrays of benefits and costs presented in the previous sections. As explained above, while net value to participants and taxpayers are provided, net value to society is stressed as the most important figure for policymakers in their decision making process. Net value to society is the difference between societal benefits and costs and is the factor that should ultimately influence whether to pursue a course of action: a positive result generally favors support, whereas a negative result might suggest caution.

Of course, net value to society is not the sole basis for making such decisions because the true benefits of a course of action often elude monetization. As discussed in the Benefits section of this report, many of the recognized benefits of 2-1-1 access are “below the line” and thus cannot be readily monetized. Yet, even a crude estimation of their value would likely increase the net value of 2-1-1 to society remarkably. For example, assuming only one life saved in each state through crisis counseling — among the thousands of such calls handled — would produce added benefits amounting to tens of millions of dollars annually. Early proactive intervention with rent assistance, whether to prevent eviction or secure affordable housing, potentially precludes a spiral to homelessness, which could be the precursor to other emotional, psychological, and/or physical health problems. Individuals, taxpayers, and society eventually will pay a higher premium to address these ailments that are frequently associated with homelessness.

Net Value Estimates for National 2-1-1 Information and Referral Network

The estimated net values of access to a national 2-1-1 information and referral system are presented in the following discussion from the perspectives of participants, taxpayers, and society as a whole, with emphasis on the last of these. Net value to society is the single most important figure for policymakers to focus on in their decision making process. In general, interventions that yield positive net benefits to society merit further support. Estimates are first presented for the mixed model scenario, before turning to net value estimates for the three single model scenarios.

Mixed Model Net Value. As outlined above, the mixed model is presented as the best approximation of the approaches that states have or would likely adopt for their 2-1-1 I&R systems. The Ray Marshall Center thus offers the estimates associated with the mixed model scenario as the best estimates of the net value of a national 2-1-1 I&R system. The mixed model scenario for a national 2-1-1 I&R system yields positive net value for participants, for taxpayers, and for society as a whole. While most of the net value accrues to participants, taxpayers and society are net beneficiaries as well. As Table 15 indicates, under the *mixed model scenario*:

- The net value to participants of access to 2-1-1 I&R services exceeds \$56 million in the first year alone and is nearly \$600 million over ten years. Converted to net present value, the ten-year net value of 2-1-1 is about \$524 million.

- The net value to taxpayers of 2-1-1 I&R access is nearly \$20 million in the first year and about \$73 million over ten years, when discounted to net present value. Net benefits to taxpayers diminish over time because of one-time cost avoidance allocated in the first year for not having to develop an alternative call center for an emergency response network.
- The net value to society of 2-1-1 I&R access approaches \$69 million in the first year and exceeds \$530 million over ten years, discounted to net present value. The benefit/cost ratio for society for the first year equals 1.43, while the ratio for ten years is 1.36. *Investing in national 2-1-1 access to I&R services is strongly supported by the net value estimates from the mixed model scenario.*

Table 15: Net Value under the Mixed Model Scenario

Net Value to Participants			
	First Year	Ten Year Total	Present Value
Total Benefits	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Total Cost	\$93,918,523	\$988,278,758	\$865,927,181
Net Value to Participants	\$56,329,030	\$598,445,058	\$524,089,252
Benefit/Cost Ratio	1.60	1.61	1.61
Net Value to Taxpayers			
	First Year	Ten Year Total	Present Value
Total Benefits	\$86,325,134	\$780,640,068	\$685,865,588
Total Cost	\$66,464,150	\$699,383,948	\$612,798,328
Net Value to Taxpayers	\$19,860,984	\$81,256,120	\$73,067,260
Benefit/Cost Ratio	1.30	1.12	1.12
Net Value to Society			
	First Year	Ten Year Total	Present Value
Total Benefits	\$229,344,484	\$2,291,585,708	\$2,009,472,286
Total Cost	\$160,382,674	\$1,687,662,705	\$1,478,725,509
Net Value to Society	\$68,961,810	\$603,923,003	\$530,746,777
Benefit/Cost Ratio	1.43	1.36	1.36

Single Model Net Value. The single model scenarios also produce positive net value for participants, taxpayers, and society as a whole under the centralized and hybrid model scenarios, but not under the decentralized model scenario. Again, when positive, most of the net benefits accrue to participants. The hybrid model scenario produces the highest net value among the scenarios examined. Again, net benefits for taxpayers diminish somewhat over time in each of these models because of the one-time cost avoidance allocated in the first year for not having to develop an alternative call center for an emergency response network. Although total benefits do not vary greatly among the models, total costs do as a function of the variation in costs per call. Costs per call have been estimated at \$9.54 for the centralized model, \$15.79 for the decentralized model, and \$5.24 for the hybrid model.

As Table 16 indicates, under the *centralized model scenario*:

- The net value to participants of 2-1-1 I&R access is nearly \$49 million in the first year alone and amounts to some \$462 million over ten years, discounted to net present value.
- The net value to taxpayers of 2-1-1 I&R access is nearly \$16 million in the first year and about \$37 million over ten years, discounted to net present value.
- The net value to society of 2-1-1 access approaches \$58 million in the first year. Net value is above \$492 million over ten years and converts to more than \$432 million, discounted to net present value. The benefit/cost ratio for society is 1.33 for the first year and 1.27 for ten years. *Thus, the net value estimates for society resulting from the centralized model scenario also support investing in national 2-1-1 access to I&R services*, though these estimates are somewhat below those for the mixed model scenario.

As Table 17 indicates, under the *decentralized model scenario*:

- The net value to participants of 2-1-1 I&R access is negative. Costs exceed benefits by nearly \$17 million in the first year and by about \$145 million over ten years when discounted to net present value.
- The net value to taxpayers of access to 2-1-1 I&R services is also negative. Costs exceed benefits by over \$22 million in the first year and by about \$315 million over ten years, discounted to net present value.
- The net value to society of 2-1-1 I&R access is negative as well. Costs exceed benefits by nearly \$47 million in the first year and by about \$527 million over ten years when discounted to net present value. *The estimates of net value to society for the decentralized model are the only ones that do not lend strong support for investing in national 2-1-1 access to I&R services.* While there may be other reasons for proceeding with the more costly decentralized approach to 2-1-1 access, it is not supported by the estimates of benefits and costs that could be quantified for this analysis.

Table 16: Net Value under the Centralized Model Scenario

Net Value to Participants			
	First Year	Ten Year Total	Present Value
Total Benefits	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Total Cost	\$101,009,262	\$1,058,948,902	\$928,031,267
Net Value to Participants	\$49,238,291	\$527,774,913	\$461,985,165
Benefit/Cost Ratio	1.49	1.50	1.50
Net Value to Taxpayers			
	First Year	Ten Year Total	Present Value
Total Benefits	\$87,233,286	\$789,691,211	\$693,819,625
Total Cost	\$71,482,116	\$749,395,712	\$656,748,075
Net Value to Taxpayers	\$15,751,171	\$40,295,499	\$37,071,550
Benefit/Cost Ratio	1.22	1.05	1.06
Net Value to Society			
	First Year	Ten Year Total	Present Value
Total Benefits	\$230,252,637	\$2,300,636,852	\$2,017,426,323
Total Cost	\$172,491,378	\$1,808,344,614	\$1,584,779,342
Net Value to Society	\$57,761,259	\$492,292,238	\$432,646,981
Benefit/Cost Ratio	1.33	1.27	1.27

Table 17: Net Value under the Decentralized Model Scenario

Net Value to Participants			
	First Year	Ten Year Total	Present Value
Total Benefits	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Total Cost	\$167,132,555	\$1,752,164,417	\$1,535,544,692
Net Value to Participants	-\$16,885,001	-\$165,440,602	-\$145,528,259
Benefit/Cost Ratio	0.90	0.91	0.91
Net Value to Taxpayers			
	First Year	Ten Year Total	Present Value
Total Benefits	\$95,702,087	\$878,475,420	\$771,627,461
Total Cost	\$118,276,169	\$1,239,969,652	\$1,086,672,460
Net Value to Taxpayers	-\$22,574,082	-\$361,494,232	-\$315,044,999
Benefit/Cost Ratio	0.81	0.71	0.71
Net Value to Society			
	First Year	Ten Year Total	Present Value
Total Benefits	\$238,721,438	\$2,389,421,061	\$2,095,234,159
Total Cost	\$285,408,724	\$2,992,134,070	\$2,622,217,151
Net Value to Society	-\$46,687,286	-\$602,713,009	-\$526,982,992
Benefit/Cost Ratio	0.84	0.80	0.80

As Table 18 indicates, under the *hybrid model scenario*:

- The net value of 2-1-1 access to participants is nearly \$95 million in the first year and about \$880 million over ten years, discounted to net present value.
- The net value of 2-1-1 access to taxpayers is just over \$42 million in the first year and about \$280 million over ten years, discounted to net present value.
- The net value of national 2-1-1 access to I&R services to society approaches \$130 million in the first year alone and nearly \$1.1 billion over ten years when discounted to net present value. The benefit/cost ratio for society is 2.37 for the first year and fully 2.26 over ten years. *Thus, the net value estimates for society under the hybrid model also lend strong support for investing in national 2-1-1 access to I&R services.*

Table 18: Net Value under the Hybrid Model Scenario

Net Value to Participants			
	First Year	Ten Year Total	Present Value
Total Benefits	\$150,247,553	\$1,586,723,815	\$1,390,016,433
Total Cost	\$55,487,981	\$581,718,306	\$509,800,592
Net Value to Participants	\$94,759,572	\$1,005,005,509	\$880,215,841
Benefit/Cost Ratio	2.71	2.73	2.73
Net Value to Taxpayers			
	First Year	Ten Year Total	Present Value
Total Benefits	\$81,403,107	\$728,569,468	\$640,254,350
Total Cost	\$39,267,669	\$411,669,726	\$360,775,083
Net Value to Taxpayers	\$42,135,438	\$316,899,742	\$279,479,267
Benefit/Cost Ratio	2.07	1.77	1.77
Net Value to Society			
	First Year	Ten Year Total	Present Value
Total Benefits	\$224,422,457	\$2,239,515,108	\$1,963,861,048
Total Cost	\$94,755,651	\$993,388,032	\$870,575,675
Net Value to Society	\$129,666,807	\$1,246,127,076	\$1,093,285,374
Benefit/Cost Ratio	2.37	2.25	2.26

SECTION SEVEN: CONCLUDING OBSERVATIONS

This report has provided estimates of the net value to participants, taxpayers, and society of 2-1-1 accessible information and referral for human services nationally. There are clear, positive benefits for continuing to invest in and expand 2-1-1 accessed services. Under three of the four 2-1-1 scenarios examined, the estimated net value is positive. Only the scenario of a single model/decentralized system produced a negative net dollar value. The mixed model scenario—the model that most closely conforms with the models that individual states have adopted or are likely to adopt—produces an estimated net value to society about \$530 million over ten years, discounted to net present value, and a benefit/cost ratio of 1.36. The single model approaches may be of more interest to states as they decide the course that they will pursue. Net values to society for the centralized and hybrid models, ranging from \$432 million to nearly \$1.1 billion over ten years in present value terms, indicate that these merit serious consideration. Because of its negative net value estimates, the decentralized model should be more cautiously pursued. Some means to mitigate the diseconomies of scale under the decentralized model is recommended.

From an empirical perspective, the mixed model scenario is likely to be more realistic for national estimates than the three single model scenarios because 2-1-1 access is currently available to over 100 million residents in 28 states and Washington, D.C. through some 139 active systems, and many other states and localities are in the advanced planning stages for introducing 2-1-1 into their areas.³⁰ Areas already committed to a hybrid or centralized approach are not likely to adopt a decentralized approach. Sites currently centralized could evolve to a hybrid model as they adapt to new opportunities for public/private sector collaboration, as could decentralized and emerging sites as they pursue statewide coverage, seek to avoid duplicative services and expenses, and take advantage of the economies of scale that support efficient call center operations.

The generally positive estimated net values of a national 2-1-1 I&R network are supported by observations drawn from conversations with call center administrators and staff, as well as local health and human services professionals and individuals from the general public who have used 2-1-1. These conversations strongly reinforce the position that equitable access to timely, accurate information and referral services delivered by professional, dedicated staff has widespread and deep support and yields real benefits.³¹ The easy-to-remember and use 2-1-1 number has helped persons in need find the information or help that they require in their communities. When an individual or family seeks information or referral services for which they have little or no prior knowledge or experience, dialing 2-1-1 is much simpler than searching an array of seven- and eleven-digit numbers. Unless the caller knows which entity to call, dialing 4-1-1 is no substitute for 2-1-1, since the telephone directory system lists entities by name only, and there are service charges. Field work has also validated the belief that 2-1-1 has reduced the need for duplicative information and referral services and assists

³⁰ Current updates are available at <http://www.211.org/status.html>.

³¹ Appendix D presents the results of conversations with 239 individuals who have accessed 2-1-1 services in ten of the study sites.

human services practitioners in both the public and private, non-profit sectors to better serve their clientele.³² There are a myriad of recognized benefits associated with 2-1-1, almost all of which were hypothesized before initiating site visits, a few of which have been monetized, and several more have been identified as significant but difficult to quantify without further information.

The cost side of the net value equation raises other issues that were evident during the site visits. The viability of maintaining and expanding a standards-based, national 2-1-1 information and referral network is dependent on the infusion of additional funds. Almost all of the sites are concerned about revenue flows. Resource constraints are limiting their options for continuous quality improvements necessary to attain AIRS accreditation and to maintain operational standards.³³ Additionally, a few sites expressed concern over their ability to expand their service area or more aggressively market 2-1-1 in order to reach deeper into their communities and increase their call volume at the risk of overwhelming current staff capacity; they lack the funds to hire additional staff.

The effects of resource constraints will be replicated as 2-1-1 access strives to expand into previously unserved areas, particularly less densely populated towns and rural communities. Smaller information and referral call centers may resist elements of standardization that are the foundation for a national network. They may not have the funds to upgrade their hardware and software and have little incentive to expand their resource database or to adopt the standard taxonomy developed by Infoline of Los Angeles and AIRS.

Implementation Costs

This analysis assumed a fully operational 2-1-1 network as the starting point for the benefit/cost analysis. It did not directly address implementation or start-up costs for expanding current systems to achieve universal coverage. Researchers did find that start-up costs have varied widely among the sites. This variation is largely a function of the status and capacity of the individual call centers at the time they decided to introduce 2-1-1 and the resources that were available to invest in staffing and equipment.

For example, some call centers found the transition to 2-1-1 straightforward: the call center simply had to pay for the installation of new or upgraded telecommunications capacity and additional staff to handle the anticipated increase in call volume. A small grant or expenditure of additional operational resources was sufficient for a transition to 2-1-1. Others may have invested significantly in new hardware and software, telecommunications improvements, office equipment, and marketing, as well as human capital. These investments required a considerable infusion of new funding.

Introducing a 2-1-1 information and referral system can be costly. United Way of Connecticut received a \$920,750 grant from state general revenue to prepare for implementation of 211 Infoline early in 1999. Table 19 shows the expenditure of these

³² Social service practitioners may keep a list of the “specialized” services and providers for their clients, but many are relying on 2-1-1 to provide information and referral to the vast array of resources in the database. 2-1-1 is akin to “one-stop shopping.”

³³ Appendix G contains a review of intersite comparability issues and practices which are not yet fully standardized.

funds. Additionally, United Way of Connecticut and its supporters invested \$330,000 in marketing in the first year (1999) and \$195,750 in the second year. Thus, including marketing expenditures, United Way of Connecticut spent approximately \$1.45 million to get a centralized, state-of-the-art call center up and running to serve the 3.4 million residents of the state.

Table 19: Connecticut Implementation Expenditures

Capital & Contractual	Expenditures	Comments
Professional Contractual	\$108,870	Renovations; Computer and Telecommunications Consultants; Electrical Contractor
Legal	\$8,732	Attorney Fees
211 Set-up	\$9,000	Southern New England Telephone
Telecommunications System	\$373,040	Purchase, Installation, and Training for System
Computer Hardware	\$306,147	60 Desktop Computers; 7 Laptops; Printers; Servers
Office Furniture	\$114,959	27 Workstations; Chairs & Tables
Total Costs	\$920,750	

Source: Fiscal Officer, United Way of Connecticut

Significant implementation and transition costs are evident in other states seeking comprehensive geographic access to 2-1-1 services. The Florida Alliance of Information and Referral Systems estimates that a one-time investment of \$2,953,656 spread over five years is required to make a statewide transition to 2-1-1.³⁴ The Oregon 2-1-1 coalition estimates the cost of statewide transition at \$626,624 over three years.³⁵ The Texas Information and Referral Network originally estimated its budget requirements at \$22.3 million over five years.³⁶ There is simply no way to get around the fact that added funding will be required for system implementation and transition costs.

Promising Prospects

Despite the funding challenges faced by states and localities intent upon expanding, transitioning to, or introducing 2-1-1 information and referral access, several promising prospects and practices are available to further offset costs in favor of enhanced net value.

Basic Needs. The largest cluster of requests for assistance and the greatest numbers of referrals that call centers handle are for basic needs. 2-1-1 has enormously simplified access

³⁴ Civil Society Consulting Group, et al. (December 2003).

³⁵ Civil Society Consulting Group, et al. (May 2004).

³⁶ O'Shea, et al. (1998).

to assistance, both for individuals and their families and for human service professionals seeking ancillary assistance for their clients. Timely intervention to address these basic needs is a widely acknowledged benefit of 2-1-1. Nevertheless, a few call centers have been concerned about making referrals to providers that have run out of resources or have been hesitant to ramp-up their outreach and marketing activities at the risk of swamping already challenged providers.

An emerging practice observed in the field is to request that providers inform the call center when resources are low or no longer available (e.g., food banks, special initiatives) so that I&R specialists can adjust their referral patterns accordingly. Similarly, certain resources (e.g., rent assistance) are absorbed very early in the month. Providers and I&R specialists may determine a “window,” perhaps a day or two in the beginning of the month, when referrals are most appropriate. Simple adjustments in the communications between I&R specialists and providers may increase the quality of the referrals and reduce the level of unnecessary calls or visits to providers.

Public Health. 2-1-1 call centers regularly get requests and provide information and referrals for health care assistance that may involve community clinics, special initiatives (e.g., flu shots, West Nile disease), and public health insurance (e.g., Medicare prescription drugs, Children’s Health Insurance Programs). At least one site has developed another connection to the public health system that portends significant benefit to the already strained public health system.

For many disadvantaged citizens and recent immigrants with low-incomes and no health insurance, 9-1-1, Emergency Medical System (EMS), and hospital emergency rooms have become the medical care safety net. This demand often surpasses capacity, costs much more than regular medical care, challenges the financial stability of hospitals, and drives local tax increases. A promising prospect for 2-1-1 is serving as a conduit to a local health care information and triaging hotline. United Way of the Texas Gulf Coast 2-1-1 Helpline has the capacity to patch directly into such a program, a local “Ask Your Nurse” hotline. Although about 40 percent of the calls to the hotline are referred to the emergency room or told to call 9-1-1, the project has prevented some 3,000 trips to the emergency room in the first six months of 2004.³⁷ For individuals distraught over a seeming health emergency, people with mental or physical limitations, or language barriers, dialing 2-1-1 is easier than recalling and dialing an eleven-digit hotline number. 2-1-1 serves as a simple alternative gateway to a specialized health hotline and, in doing so, helps individuals and families responsibly get the appropriate health care. This path also helps the public health care system operate more efficiently.

Employment and Training. A few states and localities among the study sites have recognized the shared interests of the public workforce system and 2-1-1 in helping individuals and families obtain the assistance they need to maintain and improve their lives and livelihood. In effect, these areas have connected two “one-stops” to create a more comprehensive array of options for finding and retaining employment.

³⁷ Pyle (2004) p.19.

Call centers can make referrals to and receive referrals from the One-Stop Career Centers, which have been established in states and localities across the nation under the federal Workforce Investment Act of 1998. 2-1-1 referrals to employment services can help individuals attain the skills that they need to become more independent and increase their prospects for meeting their basic needs or more. Referrals from career centers can help individuals obtain the supports they need to retain employment, ranging from direct income supports (e.g., the Earned Income Tax Credit) to supportive services, such as child care or health care information and services. Moreover, publicly funded job training programs have performance expectations linked to job retention. Services accessed through 2-1-1 can help them meet those expectations. As conversations with callers indicated, many individuals have saved time at work or avoided missing work because of 2-1-1. This may be associated with reduced absenteeism and increased productivity for employers, another benefit that can be further enhanced by regular exchanges between the employment and training system and 2-1-1.

Volunteers and Donors. A common practice of 2-1-1 is to link volunteers with opportunities and donors with recipients who will benefit from the donation. In most cases, call center staff take care of this matching. In some instances, direct referrals are made to an ongoing community-based volunteer broker. Although the volunteer exchange function is relatively pervasive, few sites follow-up on volunteer referrals, excluding volunteers at the call center or its parent organization, to see if an appropriate placement occurred. Only one of the sites in this study made any attempt to track the number of volunteer hours that were facilitated by 2-1-1. Yet, as the benefit estimates suggest, this is an enormous potential benefit to society from 2-1-1.

Similarly, brokering donations provides considerable value, especially in emergency situations. Goods get delivered to locations where people can use them, and inappropriate donations — materials that are of little or no value to those in need and only crowd the storage area and confound the inventory of the emergency responders — are diverted. As simple as this sounds, it is reportedly very important to first responders and their support teams. As 2-1-1 becomes increasingly involved in planning and responding to disasters, the value of this function will likely increase.

Public Information. 2-1-1 has become a regular source of public information in some sites and is poised to become more so in others. Because it is so adaptive in the short-term, timely information can be expedited by 2-1-1 for events (e.g., Toys for Tots, Blue Santa, Operation School Supplies), special initiatives (e.g., Beat the Heat, Voluntary Income Tax Assistance), and programs (e.g., CHIP, child care, mental health). Media-based public service announcements on behalf of public or private, non-profit agencies can introduce events or programs in broad strokes, but 2-1-1 can provide more specific information like location, apparent eligibility, or availability on short notice and at little or (more commonly) no-cost. Sponsoring entities can thus avoid the tasks and associated costs of activating a phone line or other means to affect call response capacity. 2-1-1 is by design embedded in community affairs. The provision of public information is a practice that promises the continuation and deepening of this relationship to society's benefit.

Public/Private Collaboration. The private, non-profit sector, which sustains and promotes 2-1-1 accessed information and referral, and the public sector, which administers the vast majority of health and human resources, are increasingly recognizing the synchronicity of their aspirations, as well as the complementary features of their service delivery systems. Although developments in this area are uneven across the study sites, public health and human service agencies are increasingly turning to the 2-1-1 network as the first provider of information and referral services, some going as far as envisioning use of the call center model for program eligibility determination. Although there is some resistance to closer connections among wary 2-1-1 administrators, most are willing to build relationships that may better assist those in-need. In an era of fiscal constraint, public agencies are looking for means to trim expenditures, and 2-1-1 entities are seeking means to increase revenues. Both appear to believe that a win-win outcome is feasible under the right conditions.

Public/private collaboration regarding 2-1-1 information and referral services is likely to be a predominant characteristic as states and localities work to expand, transition to, or introduce 2-1-1 accessed health and human services across communities. The Calling for 2-1-1 Act, the proposed federal legislation seeking support for 2-1-1 nationally, is premised on continuing and expanding cross-sector collaboration. States and localities will likely negotiate this relationship with different results, but the process appears inevitable in order to replicate the net value to society that 2-1-1 delivers.

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Web Resources

- 2-1-1 Idaho CareLine. <http://www.idahocareline.org/>.
- 2-1-1 Minnesota Information and Referral. <http://www.firstcallnet.org/>.
- 2-1-1 Pennsylvania, United Way of Pennsylvania. <http://www.uwp.org/2-1-1-PA.htm>.
- Alliance of Information and Referral Systems. <http://www.airs.org/>.
- Aloha United Way. <http://www.auw.org/211/>.
- Canadian 2-1-1 Collaborative. <http://www.211.ca/index.htm>.
- Community Services Council, 2-1-1 Info Bank. <http://csc-ut.org/211infobank.htm>.
- Family Independence Agency, State of Michigan. <http://www.michigan.gov/fia/>.
- Federal Communications Commission. <http://www.fcc.gov/>.
- Florida Alliance for Information and Referral Services. <http://www.flairs.org/index.htm>.
- Greater Twin Cities United Way. <http://www.unitedwaytwincities.org/index.cfm>.
- Hawaii Covering Kids. <http://www.coveringkids.com/>.
- Hawaii State Civil Defense. <http://www.scd.state.hi.us/>.
- Hawaii State Department of Health. <http://www.hawaii.gov/doh/>.
- Heart of West Michigan United Way. <http://www.unitedwaycares.com/UnitedWay/Home.htm>.
- Illinois AIRS: <http://www.illinoisairs.org/>
- Indiana 2-1-1. <http://www.in211.org/>.
- Louisiana 2-1-1: <http://www.211louisiana.com/>
- Michigan Alliance of Information and Referral Systems. <http://comnet.org/miairs/211.html>.

Minnesota Alliance of Information and Referral Systems. <http://www.mnairs.org/>.

Northeast Florida 2-1-1. <http://www.nefl211.org/>.

Northwest Alliance of Information and Referral Systems. <http://www.nwairs.org/>.

Ohio Council of Information and Referral Providers: <http://www.ocirp.org/>.

Oregon 2-1-1 Coalition: <http://www.or211.org/>

Pennsylvania 2-1-1: <http://www.uwp.org/2-1-1-PA.htm>.

RTM Designs. <http://www.referweb.net/>.

South Carolina 2-1-1. <http://www.sc211.org/>

South Dakota Help!Line Center. <http://www.helplinecenter.org/>.

Telecommunications and Information Policy Institute, The University of Texas at Austin.
<http://www.utexas.edu/research/tipi/>.

Tennessee 2-1-1: <http://www.211tn.org/index.html>

Texas Alliance of Information and Referral Services. <http://www.tairs.org/>.

Texas I&R Network, Finding Help in Texas. <https://www.helpintexas.com/>.

Texas Integrated Eligibility Redesign System. <http://www.dhs.state.tx.us/programs/TIERS/>.

United Way, AIRS 2-1-1. <http://www.211.org/>.

United Way of Central New Mexico. <http://www.uwcnm.org/>.

United Way of Connecticut, 2-1-1 Infoline. <http://www.211infoline.org/>.

United Way of Metropolitan Atlanta. <http://www.unitedwayatlanta.org/>.

United Way of the Texas Gulf Coast. <http://www.unitedwayhouston.org/>.

Utah 2-1-1. <http://www.informationandreferral.org/>.

Utah Cares Database. <http://www.utahcares.utah.gov/>.

Utah Department of Workforce Services. <http://jobs.utah.gov/>.

Washington Information Network: <http://www.win211.org/211inWA.htm>

Appendix A: Site Contacts

Atlanta, Georgia

211 Center

Betty Hanacek- Vice-President, UW 2-1-1

Donna Burnham- Director, 2-1-1 Call Center

Don Zubler- Senior Shift Manager

Joel Blalock- Financial Officer

Marioly Botero- Database Manager and Technology Specialist

Elizabeth Garcia- I&R Agent

Dawn Stowell- I&R Agent

Danyell Gunby- I&R Agent

Roseanne Smith- UW's Director of Family Assistance Calling Services (FACS) Program

Sullivan Center

Sister Marie Sullivan- Executive Director

Paulette X, Assistant to the Director

3 volunteers

Child and Adult Protective Services Division

Audrey Richards- Program Director

Focus group, with approximately 12 staff of the Division's Emergency Intake and Special Investigations Unit.

Connecticut

2-1-1 Center

Mary Hogan- Vice-President for Information Services and Special Initiatives

Melanie Loewenstein- Senior Vice-President for Information and Crisis Services

Debi Colacrai- Interim President and COO

Paul Zocco- Technology Specialist

Jeanette Baker- Website Manager

Carman Us- I&R Specialist

Jenn Hartan- I&R Specialist, Team Leader

Department of Social Services

David Dearborn- Communications Manager, Public and Government Relations

Jacksonville, Florida

2-1-1 Center

Bob Arnold- Director, UW 2-1-1 of Northeast Florida
Sylvia Flores- Operations Manager
Alex Matisco- Database Manager
Carla Thomas- I&R Specialist
Ellen Lewis- I&R Specialist

Catholic Charities

Bill Beitz- Executive Director

Community Connections

Will Evans- Program Manager

Family Counseling Services

Dawn Lockhart- Executive Director

Hawaii

2-1-1 Center

Havinne Anderson- Program Director, 2-1-1
Amanda Jones- Marketing
Joann Lumsden- Finance
Kelly Koi- I&R Specialist
Marie Protacio- I&R Specialist
Tony Ho- I&R Specialist

State Civil Defense

Victor G. Gustafson

Hawaii Covering Kids

Barbara Luksch

Hawaii Police Department

Lt. Charles Chong-.9-1-1 Director

Houston/Gulf Coast, Texas

2-1-1 Texas Call Center

David Jobe- I&R Manager, UW of the Texas Gulf Coast
David Newberry- Database Coordinator
Mary Vazquez- Community Impact Coordinator
Paul Murray- Senior Network Administrator
Lam Nguyen- I&R Specialist

Maria Tijerina- I&R Specialist
Francisco-I&R Specialist

St. John Vianney Social Ministry Program
Susan Leal

Christian Community Service Center
Blair Parker-Emergency Services Manager

Gateway to Care (of the Harris County Hospital District)
Ron Crookston-Director

Harris County Social Services
Ellen Seaton-Manager of Special Assistance

State Department of Human Services
Nina Sodus - Regional Director for Long-term Care Services (Region 6)

Idaho

2-1-1 Affiliates

Sally Zive- President and CEO, United Way of Treasure Valley
Pat Williams- Director, 2-1-1 Idaho CareLine
Deb Krum- Mountain States Group
Alisa Eaton- Database Manager
Patty Bowman- Customer Service Representative
Stephanie Marquardt- Customer Service Representative

Quality Child Care Program (with United Way of Treasure Valley)
Jennifer Coleman

TANF Program and Child Care Development Fund, Idaho STARS
Genie Sue Weppner- Program Manager

Grand Rapids, Michigan

2-1-1 Center

Bob McKown- Call Center Director
Bob Haight- President, Heart of West Michigan United Way
Sue Stoddard- Vice President for Finance, Heart of West Michigan United Way
Sherri Vainavicz- Team Leader, United Way's 2-1-1
Tara Werkhoven- Database Manager
Toni Steele- Financial Officer

Beth Kooiman- I&R Specialist
Nancy Lindman- 2-1-1 State Coordinator

Family Independence Agency (FIA), Kent County

Andrew Zylstra- Director

All County Churches Emergency Support System (ACCESS)

Bruce Schlanderer- Executive Director
Marsh DeHollander- Director

Senior Neighbors

Robert Barnes- Director

Area Agency on the Aging of Western Michigan

Mary Forrester- Access Coordinator

Baxter Community Center

Melanie Beelen- Case Worker

Area Community Services Employment and Training Council

Beverly Drake- Director
Karen Tolan- Assistant Director

Minnesota

2-1-1 Center

Dave Fielding- V-P for Administrative Services, Greater Twin Cities UW
Caty Jirik- Director, UW 2-1-1
Marcos Michelli- Operations Director
Kathy O'Connor- Technology Specialist
Lael Tron- Database Manager
I&R Specialists

St. Cloud 2-1-1 Call Center

Tonya Hauschild- Director

Community Stabilization Project

Pam James- Coordinator of Tenants Screening Advocacy Project

St. Paul Foundation

Carol R. Olson- Program Officer

Dakota County Community Services Division

Dave Rooney- Director
Marilynn Loving- Contract and Administrative Services Manager
Michael Hamberg- Information Systems Manager

Albuquerque, New Mexico

2-1-1 Center

Mike Swisher- Director of 2-1-1 and AFL-CIO Community Services Liaison for UW of Central New Mexico

Chehreh Gibson- Database Manager and I&R Specialist

Bobbie MacKenzie- Program Specialist (*part-time I&R Specialist*)

Salvation Army

Morgan Patterson- Director of Development

Donna Patterson- Social Services staff

Noonday Ministries

Rev. Dennis Light- Director

Sioux Falls, South Dakota

2-1-1 Center

Janet Kittams-Lalley- HELP!Line Services and Clinical Director

Carol Muller- Executive Director, HELP!Line Center

Amy Nelson- 211 HELP!Line Coordinator

Amber Munson- Database Specialist

Jodi Peterson- I&R Specialist

Minnehaha County Welfare

H. J. Grogan- Director

Sioux Falls Housing and Redevelopment Commission

Shireen Ranschau- Executive Director

Utah

2-1-1 Center

Josh Pederson- Director, I&R Center

Jean Nielsen- Director of Community Services Council

Keith Leonard- information Specialist

Sue Skanchy- Director of Finance

Charles White- Database/Resource Manager

Airica J. Hant- I&R Specialist

Department of Workforce Services

Gregory B. Gardener- Director of Workforce Information Technology

Curt Stewart- Public Information Officer

Appendix B: Calling for 2-1-1 Act of 2003: Legislation At A Glance

U.S. Congress. House. *A Bill to Facilitate Nationwide Availability of 2-1-1 Telephone Service for Information and Referral on Human Services, and for Other Purposes*. House Bill 3111. 108th Congress, 1st session (September 17, 2003).

U.S. Congress. Senate. *A Bill to Facilitate Nationwide Availability of 2-1-1 Telephone Service for Information and Referral on Human Services, and for Other Purposes*. Senate Bill 1630. 108th Congress, 1st session (September 17, 2003).

Purpose: To facilitate nationwide availability of 2-1-1 telephone service for information and referral on human services, and for other purposes.

Scope of 2-1-1:

- Providing connections between individuals and families seeking services, volunteer opportunities, or both and appropriate human service agencies, including community- and faith-based organizations and government agencies
- Service in community preparedness and response (this is an allowable use of funds under grants for preparedness and response to bioterrorism and other public health emergencies)
- Collaboration between State governments, comprehensive and specialized information and referral centers, human service organizations and service providers, emergency management and homeland security officials, telephone companies, and other relevant entities
- Must facilitate equitable geographic distribution of subgrants to ensure that rural communities have access to 2-1-1
- Funding amounts may be used for Statewide and regional planning, start-up costs (including costs of software and hardware upgrades and telecommunications costs), training, accreditation, public awareness, evaluation of activities, and provision of 2-1-1 telephone service

Eligible Entities (lead entities):

- Exists for such purpose under State law or exists for such purpose by order of the State public utility commission (if one of these is the case, they must collaborate to the extent possible with the entities listed below)
- Is a collaborative entity established by the State for such purpose from among: representatives of an informal existing 2-1-1 statewide collaborative, if any, in the State; State agencies; community-based, faith-based, and non-profit organizations; specialized I&R providers, including current 2-1-1 call centers; foundations; and businesses. (House bill excludes State agencies from this list)

Funding Arrangements:

- Appropriations for fiscal year 2004, \$200,000,000
- Secretary of Commerce shall award a grant, based on a formula for allocation, to each State to carry out 2-1-1 services for the entire State
- State must ensure that 50% of program resources will be derived from other sources, including in-kind contributions
- Subgrants may be awarded by the lead entity to persons or entities for provision of 2-1-1 services, operation of 2-1-1 call centers, or other purposes of the program
- Requirement on allocation of grant amounts – House Bill: not less than 2 percent used for evaluation of persons or entities for eligibility for subgrants; not less than 2 percent shall be used for technical assistance for same persons or entities; and not more than 6 percent shall be used for the management and administration of subgrants awarded; Senate Bill: not less than 10 percent shall be allocated for evaluation, training and technical assistance, and for management of subgrants.

Appendix C: Field Interview Guides 2-1-1 I&R National Benefit/Costs Assessment

INTRODUCTION

Thank you for hosting our visit. Our research team today includes. As you may recall, we are from the Ray Marshall Center for the Study of Human Resources, a research and evaluation unit of the LBJ School of Public Affairs at The University of Texas-Austin. We are collecting data and visiting sites as part of an effort to develop a national benefit/cost analysis of 211-accessed information and referral services. The project is supported by the United Way of America. We will produce discrete benefit/cost estimates for each of the eleven sites in the study and a national estimate. We hope that the results, which we shall share with you for review and comment prior to preparing the final report in September 2004, will serve as a tool that helps to communicate the net social value of your I&R efforts in the community that you serve, as well as the prospective value of comprehensive national coverage. The final report may become part of the Congressional discussions of the Calling for 211 Act, should our leadership turn their attention to that legislation once again. Our purpose today is to acquire a clear understanding of your organization and operations, identify all sources of expenditures, collect any information that may contribute to benefit valuation formulas, and gain insights that will help us better understand cost variations between the several 211 I&R systems in our analysis.

Could you give us your job title and a brief description of your duties and responsibilities for the 211 I&R network?

IMPLEMENTATION (DIRECTORS)

We'd like to start with a short exploration of 211 implementation, such as dates, 211 designation procedures/authorizing state legislation or executive orders, public utility commission and state government roles, and start-up costs.

1. How long has your 211 call center been in operation?
2. Is there authorizing state legislation (proposed or enacted) or an executive order supporting 211 implementation?
3. What role does your public utility commission play in your 211 service?
4. What role does your state government play? What role could it play?
5. Were additional resources (grant, donation) made available to introduce 211 and, if so, where did they come from?

6. What is the status of a statewide 211 I&R system? When did it start and where is it headed in terms of design features and implementation schedules?

ACCESSIBILITY

We'd like to talk a bit about accessibility.

7. How is I&R accessed at the call center? _____
211 _____
1-800 _____
7-digit _____
8. Can you monitor the volume of calls that come in on different numbers, and if so, what are the approximate shares?
9. What days of the week and hours is 2-1-1 available?
(If service is available 24/7)
Are evening or weekend calls diverted to this I&R center? Under what arrangement? (e.g., funding, MOU)?

(If service is not available 24/7)
Are evening or weekend calls diverted to another I&R center? Under what arrangement?
10. How is your I&R number answered during hours of operation? Does this change during the evenings, weekends, or because of other factors?
11. What is the status 2-1-1 cell phone access within your area? Are there special challenges?

SERVICE ARRAY

We'd like to find out about general and specialized services and dedicated or general phone lines.

12. Do you provide both general/core I&R and specialized services?
13. If yes, do you have dedicated lines for the specialized calls or do they share the same lines? Please explain.
14. Are there separate funding streams for the general and specialized services? Please explain.

STAFFING ARRANGEMENTS

15. Can you tell us the total number of FTE staff at the call center? _____
16. How many FTE staff answer 2-1-1 calls?

17. Do IRS handle general or specialized calls or both? Explain.
18. To what extent and how are volunteers used to help at the call center? Do volunteers answer I&R calls?
19. (If appropriate.) Do volunteers handle general or specialized calls or both, or provide other services (e.g., follow-up)?
20. (If appropriate). Can you estimate approximately how many annual VOLUNTEER staff hours are devoted to providing I&R services or the percent of calls handled by volunteers?
21. What minimum education/experience/certification is required of your I&R staff?
22. Are there new hire training requirements? (time, content):
23. What is the policy regarding I&R Certification for IRS?
24. Who pays for AIRS training and certification?
25. What is the average hourly or weekly wage range for your for your I&R Specialists?
26. What are the key factors influencing wage differentials?
27. Is there an expected average workload of calls per hour or day for IRS? If so, what is it and how is this monitored?

MANAGEMENT FUNCTIONS

28. Do you have a performance management or evaluation system in place? Please explain.
29. What quality controls and service standards are in place?
30. Do you have a target call volume and if so, what is it and how is that determined?
31. Do you estimate cost per call and if so, what is it and how is that determined?
32. In your opinion, is there an optimal size in terms of geographic/spatial coverage for an I&R center, and if so what would that be? Or would population size or call volume be more relevant factors for determining how large an area a call center should serve?

- 33. Do you provide technical assistance and guidance to other I&R sites, and if so, how is this funded?
- 34. Do you manage any subcontracts or grants for 211 services?
- 35. What is the status of the call center regarding AIRS certification?

CATCHMENT GEOGRAPHY

We'd like to hear about your service area, population and settlement patterns and other regional characteristics that may be associated with the types of I&R services sought at the call center.

- 36. How many counties are in your service area? _____ or How comprehensive is the statewide network?
 # counties _____
 % population _____
 % total territory _____
- 37. What is the current approximate population of the service area?
- 38. Are there notable variations in population concentration (rural/urban), race/ethnicity, or income across your service catchment that present special challenges or opportunities? Explain.
- 39. Has call volume changed significantly over time? If so, how and possibly why? To what extent has 211 access influenced call volume or the types of calls received?
- 40. Do you have any plans for expanding your service area?

FUNDING AND RELATIONSHIPS

- 41. Are there other organizations or entities that are primary partners in the operations of the 211 call center?
 If yes, which are they, and what do they contribute? (Acquire documentation.)
- 42. (If appropriate.) What share of the operating budget comes from specialized services or contracts?

43. Does the call center receive an annual funding allocation, assistance with the development of your technical networks, or in-kind or other assistance from these? Explain. (Acquire documentation.)
44. Are you linked to disaster/hazards response networks and, if so, how? Explain. (Acquire documentation.)
45. What is the call center's relation to 911 emergency response? Has there been cross training? Have inappropriate 911 calls been diverted to 211 or appropriate calls forwarded to 911 from the call center? (Acquire documentation.)
46. Are you linked to other call centers in a state or regional network? Can you briefly describe that network? Do you share resources? Explain. (Acquire documentation.)
47. Are I&R data used as a community planning tool to help identify human needs and service gaps? Explain.
48. Do you make other uses of your information request and referral data? Explain.

MARKETING

49. Is there or has there been a marketing strategy for 211 services? Explain method, motivation/strategy, target populations (including hard to reach, i.e., non-English speaking, homeless, abused, etc.), effectiveness, and costs.
50. If so, how was this funded (211 funds, donations, in-kind, etc.)?
51. Did marketing influence the mix of clients or the types of requests received?

CHALLENGES/OPPORTUNITIES

52. In your opinion, what have been the most significant changes, if any, in the operation of call centers since the introduction of 211 access?
53. What are the greatest challenges presented to you as a call center administrator?
54. What might be done to reduce or overcome these challenges? How does or can 211 access help you to do so?
55. What costs associated with operating a 211 call center, in your opinion, are possibly too high and could be reduced? Explain.

56. What expenditures have you had to defer (e.g., computer upgrades, training, wage & salary increases) or reduce (staff, benefits, etc.)?
57. In your opinion, what are the most outstanding benefits that 211 I&R brings to the community?
58. What do you think will be different about this 211 I&R call center in 5 to 10 years?

FINANCIAL OFFICER

Repeat introduction and add that we like to discuss 211 I&R funding, including the sources and totals of funds and expenditures. We would like to distinguish between marginal 211 expenditures apart from complete call center expenditures, both as start-up and ongoing costs to the extent possible. We would also like to review the accuracy, comprehensiveness, and completeness of budget/expenditure reports provided by the site.

1. What is the approximate annual cost to fund the call center and the comprehensive I&R services you provide?
2. Does this fluctuate much annually and if so, how might you explain the changes?
3. Can you specify the marginal costs of operating 211 access separate from all other I&R call center expenditures? If so, what expenses would this include? What is the approximate annual cost?
4. Can you determine the cost of developing and implementing 211, i.e., start-up costs apart from operational costs? (workstations, computers, desks, chairs, file cabinets, phones, phone system, staff training, etc.) Explain.
5. Does your fiscal reporting system report the ongoing costs per year for the following expense categories?

telephone \$ _____
 annual connection charges \$ _____
 certification training \$ _____
 staff training, exclusive of certification \$ _____
 rent \$ _____
 utilities \$ _____
 copying, postage, supplies \$ _____
 travel \$ _____
 consultants \$ _____
 insurance \$ _____
 marketing \$ _____
 website development and updating \$ _____
 labor costs \$ _____

6. Does a parent organization or partner (e.g., United Way) cover any costs such as rent, utilities, liability insurance through cash or in-kind assistance?
7. What metrics are used to drive the budget?
8. What are the call center's funding sources?

Grants (public and private)

Private contributions

General operating funds of organization

Fees generated by I&R services

In-kind

Other _____

9. Do you or someone else at the call center estimate the value of donations or in-kind and volunteer assistance to the I&R operations? Explain.
10. Have you outsourced or considered outsourcing non-core services (e.g., payroll)?
11. Do you estimate/calculate cost per call and if so, what is it and how is that determined?
12. Is there an optimal call volume or cost per call associated with financial efficiency (you need to break even)?
13. In your opinion, is there an optimal size in terms of geographic/spatial coverage for an I&R center, and if so what would that be? Or would population size or call volume be more relevant factors for determining how large an area a call center should serve?
14. In your opinion, what have been the most significant expenditure effects in the operation of call centers since the introduction of 211 access?
15. What are the greatest challenges presented to you as a fiscal administrator of a 211 call center? What might be done to reduce or overcome these challenges?
16. What costs associated with operating a 211 call center, in your opinion, are possibly too high and could be reduced or eliminated? Explain.
17. What expenditures have you had to defer (e.g., computer upgrades, training, wage & salary increases) or reduce (staff, benefits, etc.)?
18. In your opinion, what are the most outstanding benefits that 211 I&R brings to the community?

19. What do you think will be different about this 211 I&R call center in 5 to 10 years?

DATABASE MANAGER

Repeat Introduction and add: There may be several databases in the I&R Center. We would like to speak with you about the development and maintenance of the organizational and resources database that you use for I&R, the call database that tracks the types of calls and actions taken, and the telephone database that measures events like wait time, average call length, abandonment rate, etc. We'd like to know about the features, availability, use, and your responsibility related to these databases.

1. Are you responsible for these databases? Explain your roles and responsibilities briefly.
2. What is the hardware and software configuration for these systems?
3. How did you create your database of organizations/resources? Did you start with a pre-existing list/database used by a previous I&R center or volunteer center?
4. How often do you validate and update resource information? How is this done?
5. Do you feel that the database of organizations/resources is meeting the needs of the staff and clients?
6. Is the organizational database available on the Web? Who maintains the Web site and how is it paid for?

If so, do you feel this is helpful in meeting the needs of I&R seekers?

How would you improve or change this?
7. Can you briefly describe the elements in your call database?
8. When and how does a call get entered into the database?
9. How do you deal with "phantom" calls?
10. Does your total call volume include all calls or only those for which information and referral are recorded?
11. Do you feel this call data is meeting the needs of the management, staff and others for whom this data may be useful? How would you improve or change this?

12. (If appropriate.) Can you briefly describe the elements in your telephone database?
13. Do you feel this telephone data is meeting the needs of the management, staff and others for whom this data may be useful?
14. Does the call center receive an annual funding allocation, assistance with the development of your technical networks, or in-kind or other assistance from other sources for the operation and maintenance of the databases? Explain. (Acquire documentation.)
15. Have there been changes in resources allocated to data management staffing and equipment needs associated with 211 access and the expansion of I&R?
16. Do you have printed resource directories that you make available? Are they useful? Do they enhance or drain revenues?
17. Are you linked to other call centers in a state or regional network? Can you briefly describe that network? Do you share resources? Explain. (Acquire documentation.)
18. Are calls rerouted for overflow or after hours to another center? Are the volume and types of calls rerouted captured in a database? Please explain.
19. Are I&R data used as a community planning tool to help identify human needs or service gaps? Explain.
20. Do you make other uses of your information request and referral data? Explain.
21. In your opinion, what have been the most significant changes, if any, regarding database management in the operation of call centers since the introduction of 211 access?
22. What are the greatest challenges presented to you as a database manager?
23. What might be done to reduce or overcome these challenges?
24. What costs associated with database management, in your opinion, are possibly too high and could be reduced? Explain.
25. What expenditures have you had to defer (e.g., computer upgrades, training, wage & salary increases) or reduce (staff, benefits, etc.)?
26. In your opinion, what are the most outstanding benefits that 211 I&R brings to the community?

27. What do you think will be different about this 211 I&R call center database management in 5 to 10 years?

COMMUNICATIONS TECHNOLOGY SPECIALIST

Repeat Intro adding: We'd like to review the 211 I&R telecommunications set-up (grid/network/operating system, phone trunks, TI lines, fiber vs. copper, etc.) with you

1. Can you briefly describe the telecommunications background of the 211 system. What happens when an individual dials 211?
2. How is this different than a toll free (1-800) number?
3. Are you linked to other call centers in a state or regional network? Can you briefly describe that network? Do you share resources? Explain. (Acquire documentation.)
4. Are calls rerouted for overflow or after hours to another center? How? Is there an additional charge for this? If so, how much and who pays?
5. How many I&R phone lines do you have?
6. In this telecommunications network, does the call center incur the following costs? Explain.

service agreement and fees _____
per call _____
per minute _____
monthly/annual charges _____
7. What are the strengths of the present system? Its limits? What would you recommend as an alternative or an improvement? Explain.
8. What is the status of the website? Review website functionality and visitation/use rates. Who maintains the website and how is it paid for?
9. In your opinion, what have been the most significant changes, if any, in the telecommunication structure and pricing in call centers since the introduction of 211 access?
10. What are the greatest challenges presented to you as a telecommunications specialist?

What might be done to reduce or overcome these challenges?

11. What costs associated with telecommunications, in your opinion, are possibly too high and could be reduced? Explain.
12. What expenditures have you had to defer (e.g., computer upgrades, training, wage & salary increases) or reduce (staff, benefits, etc.)?
13. In your opinion, what are the most outstanding benefits that 211 I&R brings to the community?
14. What do you think will be different about the telecommunications configuration serving this 211 I&R call center in 5 to 10 years?

I&R SPECIALISTS

Repeat introduction, adding: We'd like to speak with you briefly about your experiences taking I&R calls or providing specialized services. We are particularly interested in finding out how 211 I&R may benefit those who use the network.

1. How many calls do you receive throughout a "typical" day?
2. What is the average call length in minutes? Is there much variation? What accounts for this?
3. Do you feel that certain populations use I&R services more than others? Explain.
4. Has 211 influenced the types of calls or callers? Has it changed the accessibility for any certain populations or groups?
5. Do you receive calls from the same persons for different information?
6. What are the most common types of calls/requests for information and/or services?
7. How accurate is the information and referral database? How do you determine this?
8. Do you ever send print materials (application forms, informational brochures, etc.) to callers? Are these available through your website?

Is the information in your organization/resources database available online?

If yes, is all the information available or just portions of it?
9. In what ways as an I&R specialist do you think that you are most helpful to callers?

10. What are some of the ways that these individuals and families have told you that they benefited from 211 I&R?
11. How many calls in a typical day are from other agencies seeking to help their clients?
Which agencies are most common?
What kind of assistance are they seeking for their clients?
12. Do you provide information regarding application procedures or eligibility requirements for programs administered by other agencies? Explain.
13. Do you pre-screen clients and/or give them eligibility requirements for specific human services? If yes, for what services?
If yes, how often in a typical day?
14. Can you schedule appointments for callers at agencies? Explain.
15. Do you get many calls from people seeking employment assistance? What do you do?
16. Do you receive call from people wanting to donate time or other resources? How many in a typical day?
17. Have you ever taken calls at the time of a crisis or disaster? If so, could you tell us about the role of 211?
18. Do you ever get calls from employers trying to find assistance for one of their employees? Explain.
19. What percentage of calls do you follow up? _____%
Is follow-up selection typically made:
 - a. by a random sample of total # of calls?
 - b. by type of call?
20. Have you seen changes in types or number of calls or in caller profiles pre/post 211?
21. How do you serve special populations (hearing-impaired, blind, non-English) callers? Has the number of calls from these changed since 211 was introduced?
22. Do you have bi/multilingual staff?

23. Do these receive pay differentials?
24. Do you record information about each I&R call you receive? What is it?
25. How do you handle “phantom” calls?
26. In your opinion, what have been the most significant changes, if any, in the operation of call centers since the introduction of 211 access?
27. What are the greatest challenges presented to you as an IRS?
28. What might be done to reduce or overcome these challenges?
29. In your opinion, what are the most outstanding benefits that 211 I&R brings to the community?
30. What do you think will be different about this 211 I&R call center in 5 to 10 years?

CONCLUSION

Thanks for being so generous with your time and insights; you have been very helpful. We will share our draft analysis with you later, and may have a few follow-up questions before that. Thanks.

LOCAL COLLABORATORS

Thank you for hosting our visit. Our research team today includes As you may recall, we are from the Ray Marshall Center for the Study of Human Resources, a research and evaluation unit of the LBJ School of Public Affairs at The University of Texas-Austin. We are collecting data and visiting sites as part of an effort to develop a national benefit/cost analysis of 211-accessed information and referral services. The project is supported by the United Way of America. We plan to produce discrete benefit/cost estimates for each of the eleven sites in the study and a national estimate. We hope that the results, which we shall share with you for review and comment prior to preparing the final report in September 2004, will serve as a tool that helps to communicate the net social value of I&R efforts in your community, as well as the prospective value of comprehensive national coverage. Our purpose today is to find out how 211 I&R may help your organization to operate more efficiently and/or more effectively serve your clients.

1. What are the mission and principal objectives of your organization?
2. Could you give us your job title and a brief description of your duties?
3. In what ways do you interact with the 211 I&R network? Do you give or get referrals? Other?
4. What do you value about 211?
5. What did you do before 211?
6. What would you do without 211?

Explore the following based on functional relationships:

7. Contributions to operational efficiency:
8. Contributions to client well being:
9. Cost avoidance: Staffing Db Management Other
10. Workload reduction: (effort/time; salary range/staff; frequency)

Appendix D: Conversations with 2-1-1 Customers Protocol and Results

PROTOCOL

1. How did you first learn about 2-1-1?
2. Do you use 2-1-1 often?
3. Have you ever called 2-1-1 late at night or on the weekend when most agencies and businesses are closed?
4. Do you generally call for the same type of information or for a variety of reasons?
5. Did you receive the information you needed?
6. Has the call center staff ever directed you to other types of assistance in addition to the type of assistance you called to find out about?
7. Have you ever been given the wrong information when you called 2-1-1, for example, been directed to a provider that really had nothing to offer you or you did not qualify?
8. How did you find the services you need before 2-1-1?
9. Is it easier now to find help when you need it because of 2-1-1?
10. Did you ever call 9-1-1 for a type of help or information that you now know 2-1-1 could give or direct you to?
11. Has a call to 2-1-1 ever been able to save you or someone close to you time, including time at work or from taking time off work to get the help you need?
12. Have 2-1-1 representatives ever called you back to determine if your needs were met? If so, please describe follow-up call.
13. What would you improve about 2-1-1?
14. Do you currently use other help lines or organizations to address your needs? If yes, how is 2-1-1 different?
15. Have you ever used the Internet to find information about services that would be helpful to you or someone close to you?
16. What are the differences between using 2-1-1 and the internet?
17. Do you think you will call 2-1-1 again? Why?
18. Overall, how did you benefit most from 211?

TABULATIONS

Client Data Assessment: Aggregate Data for All Sites

	Number of People	Percentage of Total
Question 1.		
People heard about 2-1-1 from?		
Non-profit Agency	29	12%
Public Agency	40	17%
Pre-existing I&R	11	5%
Employer	18	8%
Media (radio, TV, billboard, newspaper)	24	10%
Phone Book	16	7%
Pamphlet/ Print Directory	9	4%
Word of Mouth	55	23%
Client does not remember	19	8%
Other	17	7%
Total	238	100%
Question 2.		
Number of times client has called 2-1-1?		
Once ever	72	30%
2-3 times	69	29%
4-9 times	31	13%
10 or more times	67	28%
Total:	239	100%
Question 3.		
Called late at night or weekends?		
Yes	47	21%
No	182	79%
Total:	229	100%
Question 4.		
Generally calls for the same type of information or a variety of reasons?		
Same	79	35%
Variety	148	65%
Total:	227	100%

Client Data Assessment: Aggregate Data for All Sites (cont.)

	Number of People	Percentage of Total
Question 5. Received information needed? Yes No Total:	 220 17 237	 93% 7% 100%
Question 6. Ever directed to other types of information in addition to the reason for the call? Yes No Total	 91 124 215	 42% 58% 100%
Question 7. Ever been given the wrong information by 2-1-1? Yes No Total	 34 185 219	 16% 84% 100%
Question 8. How caller found services before 2-1- 1? Used 4-1-1 Non-profit agency Public agency Pre-existing I&R Phone book Pamphlet/print directory Word of mouth No prior need Unable to find services before Other Number of Respondents	 16 11 30 6 68 7 34 44 31 27 231	 7% 5% 13% 3% 29% 3% 15% 19% 13% 12%
Question 9. Easier to find help when you need it because of 2-1-1? Yes No Total	 208 15 223	 93% 7% 100%

Client Data Assessment: Aggregate Data for All Sites (cont.)

	Number of People	Percentage of Total
Question 10. Called 9-1-1 for help that now knows 2-1-1 can provide? Yes No Total	 13 159 172	 8% 92% 100%
Question 11. Saved time, including time at work? Yes No Not employed (subset of No) Total	 89 112 28 201	 44% 56% (14%) 100%
Question 12. Called back to determine if needs were met? Yes No Total	 71 116 187	 38% 62% 100%
Question 13. What to improve about 2-1-1? More resources in database Access 24/7 Cell phone access Expand service area More marketing More skilled, professional I&R specialists Quality of information Nothing Other Number of Respondents	 10 6 1 5 17 7 6 157 13 222	 5% 3% 0% 2% 8% 3% 3% 71% 6%
Question 14. Have used other helplines to address your needs? Yes No Total	 52 171 223	 23% 77% 100%

Client Data Assessment: Aggregate Data for All Sites (cont.)

	Number of People	Percentage of Total
<p>Question 15. Have you ever used the internet to find services like the ones 2-1-1 provides?</p> <p>Yes</p> <p>No</p> <p>No computer (subset of No)</p> <p>Total</p>	<p>82</p> <p>141</p> <p>32</p> <p>223</p>	<p>37%</p> <p>63%</p> <p>(14%)</p> <p>100%</p>
<p>Question 16. Differences between using 2-1-1 and the internet?</p> <p>2-1-1 can offer more appropriate and specific information</p> <p>Ease and speed of 2-1-1</p> <p>Talking with real person</p> <p>Ease and speed of internet</p> <p>Other</p> <p>Number of Respondents</p>	<p>23</p> <p>35</p> <p>16</p> <p>6</p> <p>5</p> <p>71</p>	<p>32%</p> <p>49%</p> <p>23%</p> <p>8%</p> <p>7%</p>
<p>Question 17. Will call 2-1-1 again?</p> <p>Yes</p> <p>No</p> <p>Total</p>	<p>226</p> <p>7</p> <p>233</p>	<p>97%</p> <p>3%</p> <p>100%</p>
<p>Question 18. Most benefit from 2-1-1?</p> <p>24/7 availability</p> <p>Ease and speed of access</p> <p>Reliable and accurate information</p> <p>Quantity of information</p> <p>Human contact</p> <p>Avoided catastrophe</p> <p>No cost service</p> <p>Did not benefit</p> <p>Other</p> <p>Number of Respondents</p>	<p>12</p> <p>98</p> <p>57</p> <p>40</p> <p>28</p> <p>9</p> <p>7</p> <p>12</p> <p>36</p> <p>229</p>	<p>5%</p> <p>43%</p> <p>25%</p> <p>17%</p> <p>12%</p> <p>4%</p> <p>3%</p> <p>5%</p> <p>16%</p>

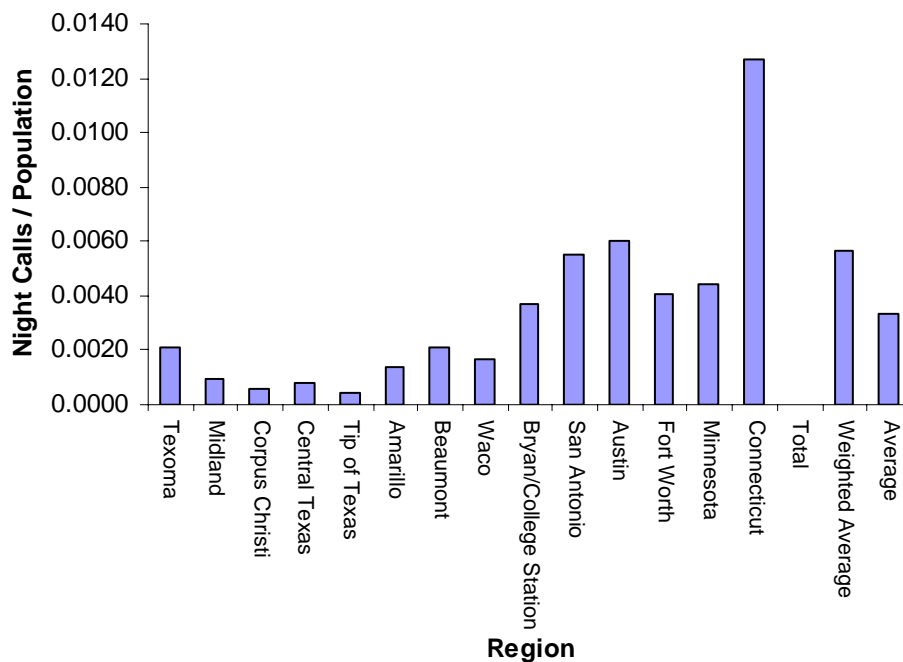
Appendix E: Estimating After-Hours Calls Per Capita

One of the parameters needed to estimate the costs and benefits of 211 is an estimate of the number of after-hours (night and weekend) calls per capita. Having an estimate of this parameter gives us the ability to estimate the number of after-hours calls for a region given its population.

To perform this estimate, we gathered data on after-hours calls and population for 211 regions in Texas, Minnesota and Connecticut. The following table shows the raw data.

Area	After-Hours Calls	2003 Population (Est.)	Annual Night Calls per Capita
Texoma	146	70,272	0.0021
Midland	366	401,106	0.0009
Corpus Christi	320	528,195	0.0006
Central Texas	292	362,538	0.0008
Tip of Texas	498	1,076,404	0.0005
Amarillo	698	517,125	0.0013
Beaumont	796	382,629	0.0021
Waco	554	331,033	0.0017
Bryan/College Station	1,022	277,354	0.0037
San Antonio	10,720	1,933,826	0.0055
Austin	8,876	1,482,185	0.0060
Fort Worth	8,008	1,963,233	0.0041
Minnesota	14,857	3,374,966	0.0044
Connecticut	44,184	3,483,372	0.0127
Total	91,337	16,184,238	
Weighted Average			0.0056
Average			0.0033

This data can be better understood visually with the aid of the following graph:

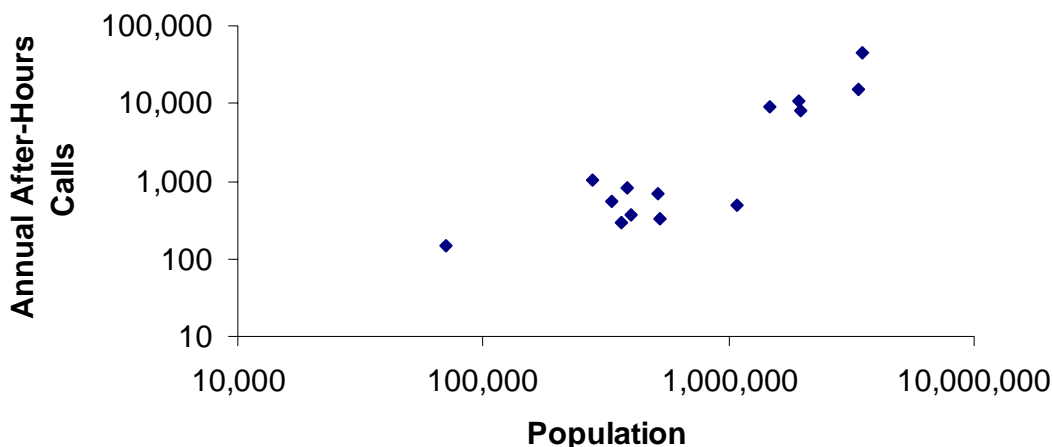


After Hours Calls Per Capita

Both the table and graph indicate that Connecticut is an outlier. Furthermore, Connecticut dominates the weighted average because it had more calls than the rest of the areas combined. The Connecticut per-capita after-hours call volume is thought to be higher than other areas because it is well-publicized, offers specialized as well as core services, and has been in operation for several years.

The following scattergram shows the relationship between population and calls. Both the horizontal and vertical axes are logarithmic not because the relationship is necessarily logarithmic, but because the large variations in scale make a linear representation of the data less informative. A linear graph is included later in this note.

After-Hours Calls as a Function of Population



Regressions of after-hours calls as a function of population produced the following results:
1.44812154 -12.15890067

$$\text{Calls} = 0.0886 \times \text{Population} - 3723.3$$

(5.61) (-1.48)

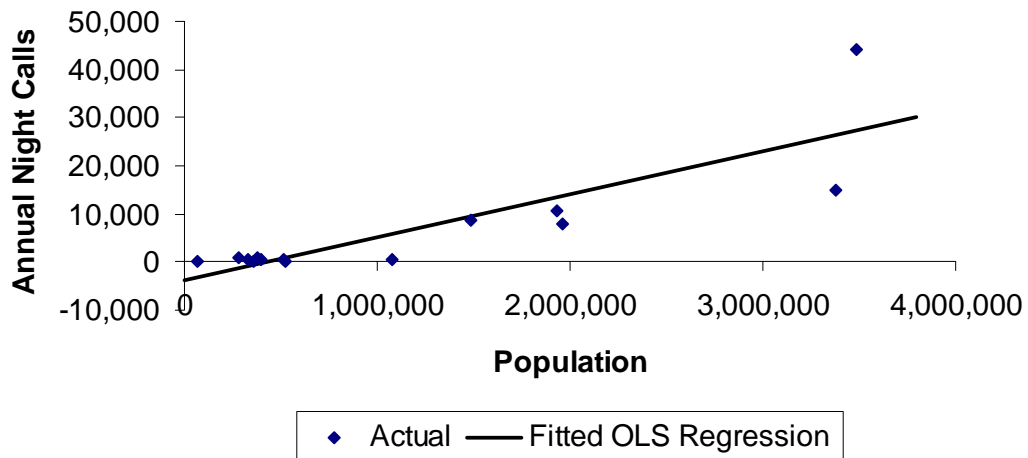
$$\ln(\text{Calls}) = 1.44812 \times \ln(\text{Population}) - 12.1589$$

(6.53) (9.06)

Where the numbers in parentheses are t-statistics for the null hypothesis that the parameter is zero. In the logarithmic regression, the t-statistic for the null hypothesis (i.e., that the coefficient of the log population is one) is 2.05, which is not statistically significant at the 0.05 level.

The following graph shows the result of graphing the actual and fitted values on a linear graph, with the fitted linear regression line superimposed on the data.

After-Hours Calls as a Function of Population

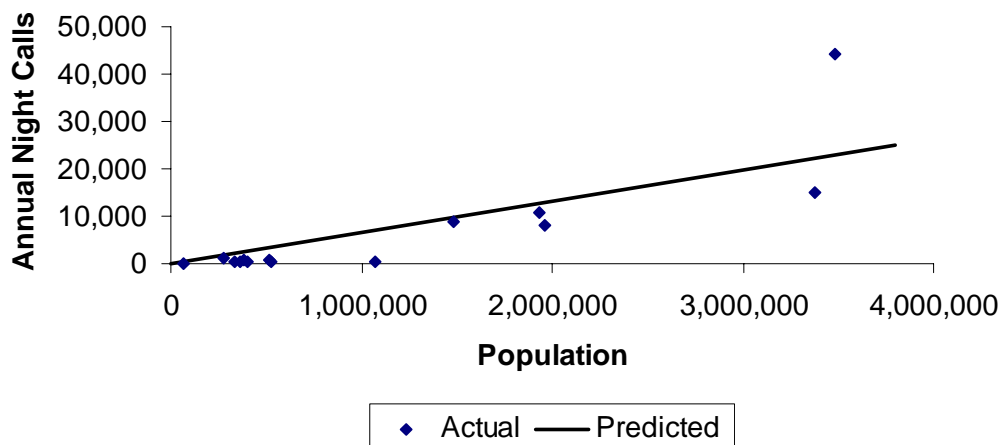


The result indicates that linear regression approach is not infeasible because for a significant part of the domain of the function, it produces negative predictions of call volume. The negative predictions are the result of having a negative constant term in the regression. A test of the constant term against the null hypothesis that it is zero cannot be rejected at the 0.05 level. For these reasons, the preferred approach is to predict after-hours call volume as a simple proportion of population, without a constant term, and the selected coefficient to use in this prediction is the weighted average from the table above, namely 0.0056. After-hours call volume may be estimated with the following formula:

$$\text{After-Hours-Annual-Call-Volume} = 0.0056 \times \text{Population}$$

The following graph shows the actual and predicted values based on this prediction method.

After-Hours Calls as a Function of Population



Appendix F: A Treatise on Cost Comparisons

The purpose of this note is to look at the mathematics of three kinds of call center organizational models : e.g., a centralized administration/single call center model, a decentralized administration/ multiple call center model (also known as the independent model for this treatise), and a hybridized centralized /decentralized call center model incorporating features of both, to assess the affect of the model on costs . In a centralized model, a single call center provides I&R for the entire state and maintains the database of resources. In the decentralized or independent model there is no single entity responsible for statewide administration of 2-1-1 or its service delivery components, e.g., operating the call centers or maintaining a central database. Each call center serves a substate area and maintains its own database of resources. In the hybrid model, multiple call centers may serve substate areas as in a decentralized approach, but the state or another entity has organized other features of a comprehensive network, e.g., system administration, telecommunications or a statewide database, as in a centralized model. Under this model, we also posit that a single call center will take after hours calls.

In the following paragraphs, we will develop total cost functions for these three kinds of organization. Then we will compare costs among them with the goal of finding out which approach is likely to be the least costly.

For the independent approach, the total cost function is:

$$TC_{indep} = \sum_{i=1}^N [F_i + V_{di} \cdot C_{di} + V_{ni} \cdot C_{ni}]$$

Where:

TC_{indep} =Total Cost of the independent approach

F_i =Fixed costs at installation i

N =the number of subareas

V_{di} =Variable Cost per Call, area i, daytime

V_{ni} =Variable Cost per Call, area i, nighttime

C_{di} =Call volume, area i, daytime

C_{ni} =Call volume, area i nighttime.

Fixed costs are those that do not fluctuate with call volume. These costs would include the cost of software, rent, workstations, electric and water utilities, etc. The variable costs depend on the wages of the telephone workers and per-call telephone fees.

For the centralized approach, the total cost function is:

$$TC_{cent} = F_c + V_{dc} \cdot \sum C_{di} + V_{nc} \cdot \sum C_{ni}$$

Where the variables are defined similarly to the variables in the independent model. Note that we are assuming call volume to be the same regardless of organizational approach.

For the hybrid approach, the total cost function is:

$$TC_{Hybrid} = \sum F_i + I + \sum V_{di} C_{di} + V_{nc} \cdot \sum C_{ni}$$

Where all variables are similarly defined, except the new variable I, which is the incremental fixed cost of upgrading one of the call centers to receive night calls, plus the fixed cost of setting up the other call centers to link to that call center at night.

Armed with these equations, we will now proceed to compare total costs between alternatives. First, we compare TC_{indep} with TC_{cent} . The comparison is done by subtracting cost one from the other. If the difference is nonzero, then one of the approaches is cheaper than the other. The difference to be studied is:

$$TC_{indep} - TC_{cent} =$$

$$\sum F_i + \sum V_{di} C_{di} + \sum V_{ni} C_{ni} - F_{cent} - V_{dc} \sum C_{di} - V_{nc} \sum C_{ni} =$$

$$\left[\sum F_i - F_{cent} \right] + \left[\sum V_{di} C_{di} - V_{dc} \sum C_{di} \right] + \left[\sum V_{ni} C_{ni} - V_{nc} \sum C_{ni} \right]$$

The first term in this expression is arguably positive. That is, we think it is likely that building four small call centers is going to be more expensive than building one large call center. The second term is likely to be positive, but there are conflicting influences that makes it impossible to unambiguously assert that it is positive. The third term is almost certainly positive, but again there are conflicting influences. If all three terms are positive, as is likely, then TC_{indep} is more expensive than TC_{cent} .

The second term could be negative if there are savings in communications cost for having decentralized offices—the average distance from caller to center is likely to be shorter in the independent approach than in the centralized. However, since telephone long distance rates are becoming independent of distance, this advantage of decentralization is likely to be small or non-existent. In Texas, where voice-over-internet is used to route after-hours calls, there is no additional variable communications cost for using a centralized system for after-hours calls.

Another influence on the second term is the concept of economies of scale. Economies of scale suggests that costs might be lower at higher levels of output. A concentration of call volume in a single site, rather than dispersed across several sites, suggests that the centralized approach might be more cost effective. When night calls are considered (the third term in the above equation),

the situation is similar, and diseconomies of small scale would accrue to the decentralized sites. Arguably, cost efficiencies are particularly stacked against small centers at night because there is not one night shift, but two.

The mathematical comparison of the independent model to the centralized model suggests that the centralized model will in general be cheaper.

Comparing TC_{indep} to TC_{hybrid} gives us the following equations:

$$TC_{indep} - TC_{hybrid} =$$

$$\left[\sum F_i - \left[\sum F_i + I \right] \right] + \left[\sum V_{di} C_{di} - \sum V_{di} C_{di} \right] + \left[\sum V_{ni} C_{ni} - V_{nc} \sum C_{ni} \right] =$$

$$-I + \left[\sum V_{ni} C_{ni} - V_{nc} \sum C_{ni} \right]$$

The first term in this expression for cost difference between TC_{indep} and TC_{hybrid} is unambiguously negative. That is, the fixed costs for the hybrid will be greater than the fixed costs for the independent model since I is positive. The daytime variable costs were the same for the independent and hybrid systems, so the daytime cost term cancels out. The nighttime costs would be lower for the hybrid system, for the economies-of-scale reasons discussed above. However, if there is a per-call cost to transfer calls from the subareas to the central location, then that cost would have to be added to V_{nc} .

If the fixed cost of setting up the hybrid system is greater than the nighttime staffing savings, then an independent system will have the lower cost. However, it is more likely that the incremental fixed costs of the hybrid system would be small compared to the savings to be had by consolidating the call volume at night. This would make the hybrid system the lower-cost option.

Now we compare the centralized versus hybrid approaches.

$$TC_{hybrid} - TC_{cent} =$$

$$\left[\left[\sum F_i + I \right] - F_c \right] - \left[\sum V_{di} C_{di} - V_{dc} \sum C_{di} \right] - \left[V_{nc} \sum C_{ni} - V_{nc} \sum C_{ni} \right]$$

The sign of the first term is not known for certain. However, earlier we argued that it would be cheaper to operate one big call center rather than N small ones. When the incremental fixed costs of hybridizing (I) are added to the independent model, the fixed-cost advantage of the centralized model becomes even greater.

The second term as in the in an earlier comparisons, leans in favor of the centralized model because of the economies of scale that manifest lower total cost for daytime calls.

The third term in this equation is zero because the night calls would be handled the same way in both the centralized and hybrid models.

Thus in the comparison of the centralized to the hybrid models, the centralized model will have both a lower fixed cost and a lower per-call cost during daylight hours, unless the subareas have a population large enough that the centralized approach has no economies of scale. In that case, the hybrid model will still have higher fixed costs, but the per-call costs will be about equal.

Pulling it all together, we have the following results:

1. The independent model is likely to be more costly than the centralized model
2. The independent model is likely to be more costly than the hybrid model
3. The hybrid model is likely to be more costly than the centralized model

If cost were the only consideration, then the centralized model would likely be the best alternative. However, there may be other considerations as important as cost. For example, if local control is a political issue, the independent model may be the only politically viable option. On the other hand if uniformity of service quality among the regions is important, then the centralized approach may be optimal.

Appendix G: Inter-site Comparability and other Issues

Researchers encountered an enormous amount of variability between sites. Variables include differences in organizational structure, fiscal management and accounting practices, database management, the use of technologies, staffing arrangement (including the use of volunteers), service delivery practices, scale of operations, funding sources, and other features. While the configurations of these features can be approached from the perspective of management and cost efficiencies, researchers examined them primarily in order to assure that all effort that contributed to the operations of the 2-1-1 I&R call center was identified and accounted for in expenditure reports, and secondarily to account for significant cost differences between sites. In the prior instance for example, if the call center was a unit in a larger organization, researchers sought to determine how indirect costs of centralized administration, support functions (e.g., marketing, information technologies), and overhead were allocated to the call center unit. The purchase of an automatic call distributor (ACD), computers, software, and workstations, if considered a one-time expense, is an example of the latter.

Alongside the detailed process analysis, fiscal (budget and expenditure) and service delivery (call and telephone) data provided by the sites had to be examined to assure that these reports and the data elements contained in them were comprehensive, accurate, appropriate for the analysis, and comparable between sites. This is necessary for developing a reliable national benefit/cost analysis, as well as equitable site specific benefit/cost estimates.

The more challenging areas for aligning data across sites include:

Call Volume Definition. Call volume in the study sites has been variously defined as a) an entry into the ACD; b) an answered phone; c) an answered phone with a human on the line; d) a transaction (at least one referral) entered into the call database; e) any referral(s). The definition affects many common measures such as call volume/population, cost per call, and call volume growth.

Phantom Call Management. A phantom or static call causes the phone to ring but there is no human point source. Reportedly it is a phenomenon caused by telephone switches and is sensitive to weather and distance. Most sites exclude phantom calls from their call volume. (Either “a” or “b” above may include phantom calls.)

After Hours Calls. Eight of the eleven sites have 24/7 service. Several take calls after hours for other sites. Those that do may or may not include these in their call volume.

Specialized/Other Toll Free Lines. Most sites have specialized or dedicated lines for specific services or programs (e.g., suicide/crisis hotline, Big Brothers/Big Sisters, CHIP or child care information.) These are generally excluded from call volume and budgeted separately.³⁸ Specialized services may also be provided through the 2-1-1 trunk and are counted in call volumes.

³⁸ Specialized lines and contracted services often support the more generalized, free services.

Data Continuity and Staff Capacity. Some sites are challenged to produce annualized pre/post 2-1-1 reports. Reasons offered include organizational merger, incompatible data systems/software, staff turnover, and staff time.³⁹

Call Volume Growth Rate. Different methods of calculating call volume are accompanied by the possibility of call center mergers, and expansion of the catchment area in determining call volume growth rate. Additionally, there could be rapid growth or spikes affecting the annual volume due to additional projects or events (e. g., natural disaster).

Call Volume/Population Ratio. Often referred to as the saturation or penetration rate, this measure is subject to the same limitations as call volume growth rate.

Researchers also made several other observations during the research:

Salaries. The review of expenditure data and conversations with administrators rapidly confirmed that salaries and benefits are by far the largest cost item for the 2-1-1 I&R Centers. Although sites have difficulty specifying actual implementation costs, they almost unanimously state that hiring additional staff to handle anticipated increase in call volume is a major cost factor.

Marketing. Marketing of 2-1-1 is an intensive, formal campaign with media exposure and advertisements in a couple of sites, but most prefer moderate to casual approaches such as outreach to health and human services organizations or target populations in the community. Brochures, pamphlets, and flyers, etc., serve these purposes. Marketing is generally limited because administrators fear overwhelming I&R specialists with requests and/or providers with referrals—both are related to resource constraints.

Information Technologies. As previously suggested, information technologies and the capacity to use them vary considerably across centers. The resource database is available to the public on-line in most sites, but at this time most individuals prefer to use the telephone. (Sites occasionally still produce print directories and the database is usually available on CD for those without internet access.)

Access. Limited cell phone access is a major issue across several sites. Pay phone access is increasingly questionable. Stronger public sector support with telephone company negotiations may open up access and stabilize telecommunications costs, which vary considerably.

Service Delivery. Service delivery intensity varies across sites and affects measures like average call time, number of calls per specialist, and call volume targets. Some sites will always “ask the second question,” believing that there is usually a complex of interconnected needs. Others will simply respond to the request at hand. Sites may adhere to performance measures rather strictly or use them more loosely as management monitoring tools.

³⁹ Sites with the same software and automated systems were in one instance unable to produce the same report, suggesting uneven capacity.

Volunteers. Call centers infrequently use volunteers to answer telephones, generally because of quality control and training issues—most volunteers are unlikely to commit enough time to justify the training investment.

Credentials. Education and training minimum requirements for hiring call specialist range from a high school diploma with some experience to college degrees. One site has a majority of I&R specialists with advanced degrees. Most sites strongly encourage and pay for AIRS certification for I&R specialists.