Community-Based Oral Health Programs:

A Need and Plan for Evaluation

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Prepared for the W.K. Kellogg Foundation by:

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The Economic and Social Research Institute (ESRI) is a nonprofit, non-partisan organization that conducts research and policy analysis in health care and in the reform of social services. ESRI specializes in studies aimed at improving the way health care services are organized and delivered, making quality health care accessible and affordable, and enhancing the effectiveness of social programs. For more information, see www.esresearch.org.

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Overview

The Surgeon General's *National Call to Action to Promote Oral Health* points out that numerous barriers hinder many Americans from attaining optimal oral health, and calls for overcoming these barriers by "replicating effective programs and proven efforts." This requires documenting, *evaluating*, and making available information about the design and outcomes of successful programs that already exist in many communities around the country.

Some community-based oral health programs have been studied and reviewed, and a few have undergone rigorous evaluations. But to date there has been no widely accepted evaluation protocol or guidelines that community leaders, grantmakers, and policymakers can use to assess which oral health programs are indeed "successful" and appropriate for replication. Such guidelines could also help planners and administrators assess their own programs as they are being implemented so that they can make mid-course corrections and improve the likelihood of success.

This report by the Economic and Social Research Institute (ESRI) lays out a plan and parameters for developing an evaluation "toolbox" for community-based oral health programs. It is based on a review of program evaluations and interviews with community-based oral health experts, program administrators, providers, policymakers, and researchers.

Given that different programs have different goals, target populations, resources, methods, and timelines, it is neither feasible nor appropriate to develop one specific evaluation methodology that can be used for every oral health program. However, it is possible to delineate sets of measures and a few key outcomes that should be examined regardless of the particular initiative assessed. Further, the *process* of bringing together stakeholders (described below) to share ideas about what is important to measure and how best to accomplish this is in itself, a productive exercise that can help foster understanding and further collaboration among groups with different (and sometimes conflicting) agendas and perspectives.

Although evaluation does require funding that might otherwise go to service provision, the benefits of having timely information about what does and does not work in any particular program can be invaluable in the long-run. This is particularly critical in an era when localities are shouldering much of the burden of helping the uninsured, and since programs are expected by funders to be self-sustaining in the long-term. The significance of evaluation findings to educators, in particular, cannot be understated, given the connection between understanding the effects of service delivery, policy, and programmatic innovations and new training paradigms.

Summary

In the following section we discuss the need for objective evaluations of community-based oral health programs that address gaps and disparities in access to care, particularly for vulnerable populations. These programs may grow out of public or private community institutions, but they sometimes involve partnerships between the two sectors. Structured, objective evaluations have a number of key benefits, including the following:

- Building accountability into programs; this helps get good value for money invested;
- Helping program planners and administrators learn from mistakes, and fostering mid-course corrections;
- Helping over-burdened communities avoid unsuccessful reproduction of programs that are not suited for their needs, and conversely, helping communities tailor successful programs to meet their circumstances;
- Documenting successful outcomes that provide a factual foundation upon which leaders in the oral health community can then build further financial, programmatic, and policy support;
- Widespread use of a concise, uniform "summary checklist" that allows policymakers and program planners to compare programs across a manageable set of key criteria;
- Building recognition for programs based on a strong evaluative framework.

In this report we define what kinds of programs are in need of evaluation, and briefly describe a few evaluations that have been done to date. We discuss the range of stakeholders who could benefit from a consistent and relatively uniform way to assess and compare oral health programs, and then suggest a basic process for designing such a toolbox. The goal is to not re-invent the wheel, but rather to synthesize and build on existing evaluation tools and criteria.

In the section, “Components of Community-based Oral Health Program Evaluation,” we describe the major components that should be included in evaluations of community-based oral health programs, along with suggestions for specific measures that could be considered. For example, the tool box should include:

- Quantitative component: Examination of process and outcomes measures related to improving access such as number and range of services provided, different individuals served, measurable improvements in oral health, cost and savings estimates that compare the cost of *inputs* versus *outputs* to assess cost-effectiveness; similarly, measures can assess expansion of the oral health workforce and impact on public policy;
- Qualitative component: Examination of process and outcomes measures, including identifying ingredients of promising programs, and the key barriers and challenges to implementation; changes in preventive behaviors and attitudes; increase in public awareness or "oral health literacy," relationships between oral and general health care providers, relationships between providers and community leaders, etc.;
- Summary Evaluation Tool: We also recommend the development of a Summary Tool that is user-friendly and contains a manageable number of key measures. This would allow persons who are not experts in statistics or evaluation techniques to assess the degree to which a program meets basic standards.

Finally, we outline challenges involved in developing evaluation tools, including redefining some of the traditional measures of a program's success.

Defining the Issue

A. Why Is Evaluation Important?

As with many aspects of healthcare financing and delivery, gaps in oral health coverage are increasingly being addressed at the community level due in large part to the absence of federal policy ensuring access to care. As the breadth and scope of these programs grow, so too does the need for assessing their effectiveness and disseminating information about them to others in the oral and primary care health, public health, and health services research arenas. Program evaluations are a natural mechanism by which this assessment and dissemination can take place. Evaluations can be helpful for communities that are already operating oral health programs, as well as for those that are not:

- ***For communities that are addressing access issues***, evaluations of their program(s) offer administrators, providers, policymakers, advocates, and other community stakeholders an opportunity to assess the effectiveness of their efforts along a variety of dimensions. They incorporate accountability by acknowledging the need to show results from the community's (as well as foundations', and state and federal governments') investment. For those areas that are found to be lacking, further analysis can help administrators understand reasons behind the sub-optimal results, and guide them in making mid-course corrections. Evaluations that document successful outcomes provide a factual foundation upon which leaders in the oral health community can then build further financial, programmatic, and policy support. While programs and policies may become sustainable and successful without research and evaluation of their effects, there is no doubt that having information on how programs work and why they work (or don't work) is beneficial to all involved in delivering care and services to the underserved.
- ***For communities that would like to do something to address unmet need,*** evaluations that describe how a program came into being – including what resources and what political and regulatory supports were necessary, how it operates, what opportunities and challenges were faced, how obstacles were overcome, and the kinds and degree of changes related to access, workforce, oral health outcomes, etc., can help determine whether that model could be effective in other settings. By understanding what factors shaped the program's design, implementation, and potential for sustainability, communities can avoid "reinventing the wheel," implementing an initiative that would be inappropriate, and wasting valuable public and private resources in the process.

Thus, it is important to recognize that evaluations do not just pertain to documenting the effects of a program, but also to understanding the issues and factors that went into its development and implementation. All of this information can make a significant difference to those in communities seeking ideas and strategies for delivering services more effectively. They can also identify reasons why a successfully implemented program may still fall short of its intended outcomes. Indeed, it is important for evaluators and program stakeholders to not shy away from discussing the negative or disappointing aspects of a program or policy. In many cases, the lessons learned in these situations can be as helpful (if not more) as the reasons for successful outcomes.

B. What Should Be Evaluated?

Community-based oral health initiatives address a wide range of challenges. The long term objective of the kinds of programs we are discussing here is to improve oral health outcomes, particularly among underserved and vulnerable populations. The mechanisms for doing so generally fall into the following categories:

- ***Increasing services and service sites for underserved and vulnerable populations*** such as low-income, uninsured or underinsured people, those faced with mental illness, and the elderly; potential services range from preventive care such as water fluoridation and dental screenings, to complex restorative care;
- ***Improving workforce participation*** through such means as encouraging recruitment and retention of practitioners trained to be culturally competent and willing to treat underserved populations, expanding functions for dental auxiliaries[1] and providing incentives to existing oral health providers to treat more underserved patients, creating opportunities for dental students educated at public institutions to"give back" to the communities in which they were trained, and development of oral health provider education modules that require students to play an active role in their communities; such activities may encourage a shift in the traditional "private practice" paradigm;
- ***Influencing behavioral change and increasing oral health literacy among consumers*** though public education campaigns directed at enhancing consumer awareness of oral health issues, and promoting preventive and public health behaviors that will improve overall oral health;
- ***Influencing policy change at the county, state, or federal level*** by educating legislators, providing research and advocacy materials for use during state budget and appropriations debates. These efforts may be geared to promote private coverage for dental services, or to expand public coverage – through Medicaid, SCHIP, or county-based coverage initiatives. These activities may also result in the easing of licensure rules for dentists trained out-of-state or overseas, or the expansion of scope-of-practice limits for dental hygienists and other providers.

Given the variety of programs within each of these categories, it would be essentially impossible to develop one set of questions and outcome measures by which to evaluate a program's success and tell the story of how it came into being. Indicators and "bars" that are appropriate for a program that is just beginning or one that is small in scale, for example, may be different from those appropriate for a well-established or broader program.

Thus, the focus of this report is on how to develop sets of measures, ranges of key outcomes, and general strategies, questions, and issues to be aware of when considering evaluations of community-based programs that will take into account the different goals and purposes of these programs. While this report focuses mainly on community-based programs, it is important to note that many of the same measures, outcomes, and questions could likely be applied to evaluations of state and federal oral health programs.

C. Examples of Previous Evaluations

Previous evaluations of community-based oral health programs provide examples of methodologies and resources available. Quantitative evaluations of initiatives that incorporate funding from public programs such as Medicaid often have a valuable already-existing database at their disposal. Washington state's Access to Baby and Child Dentistry (ABCD), as well as other programs such as AppleTree Dental in Minnesota and Community DentCare in New York City, all track patient enrollment, encounters, utilization, and costs, which helps to pave the way for thorough quantitative evaluations (case studies of these programs can be found at www.wkkf.org).[2] Such data can be useful for examining the effects an initiative has had on utilization and cost of services among the target population.

An evaluation of the Access to Baby and Child Dentistry (ABCD) program illustrates this approach. ABCD, which began in Spokane, Washington, provides preventive oral health care to Medicaid-enrolled children from birth through age five, and pays participating dentists an enhanced fee for those services (see "Community-Based Oral Health Programs: Lessons from Three Innovative Models," www.wkkf.org/oralhealth). Using the state's Medicaid Management Information System (MMIS), a computerized database that tracks eligibility and claims files for Medicaid enrollees, and ABCD enrollment data, researchers at the University of Washington determined the number of dental services provided to each Medicaid enrollee (in the ABCE age group) between January 25, 1995 and January 30, 1996. This helped the program administrators and others determine whether enrolling in ABCD actually led to greater access and utilization of oral health services for Medicaid enrollees. The study found that the first year of the program was a success, with a significant increase in the proportion of children having at least one dental visit: children enrolled in ABCD were 12.7 times more likely to visit the dentist than were children who were not enrolled, and the odds that a one-to-two year old enrolled in ABCD would visit a dentist were 63.7 times greater than those for a child not enrolled in the program.[3] Other researchers examining ABCD also used the MMIS to study other questions, sometimes in conjunction with ABCD data or primary survey tools.[4]

Another methodology for gaining insight into a program is based on qualitative data gathering, which incorporates site visits and structured interviews to elicit information on a program. Qualitative evaluations are particularly useful when it comes to understanding all the factors related to a program's design, development, implementation, and operation. Questions regarding the political and economic context in which a program was first hatched, the players and champions who were instrumental in its development, the financing and organization of the program's services or activities, and the lessons learned from the initial start-up and ongoing administration can all be answered by posing thoughtful questions to those who work within the program or had a role in its design and start-up. A prime example of this type of evaluation is the in-depth study conducted in 2002-2003 on the Community DentCare program.[5]

D. Who Uses Evaluation Results?

Any organization or individual who is involved in the development, implementation, replication, policy support, or funding of a community-based oral health program has a stake in

understanding how – and how well -- existing programs work. Stakeholder groups that would be most likely to benefit from program evaluations include the following:

- State and county public health departments
- Community Health Centers/Federally Qualified Health Centers
- State oral health policy campaigns
- State and local (both urban and rural) dental directors,
- Community-based organizations working with underserved populations including free clinics and volunteer programs
- Local, state and federal legislators/policymakers (for allocating resources, assessing budget priorities based on cost-effectiveness and public health outcomes)
- Public health and private dentists
- Primary care providers and public health professionals
- Dental and medical societies
- Dental and medical school deans and faculty, particularly community dentistry and public health departments
- State Medicaid administrators and other government agency staff
- Grant-makers including private foundations, corporate sponsors, and public grant-making agencies (e.g. HRSA)
- Local, regional and national patient rights and health advocacy organizations (particularly child health advocacy organizations, special needs, etc.)
- Medical centers and hospitals

The challenge is to conduct evaluations and package findings in ways that will speak to the varied concerns and perspectives of these audiences.

E. Who Conducts Evaluations?

Evaluations can be conducted by different types of organizations and in different ways, reflecting the variation in types of programs currently operating. Government and university researchers, think tanks, provider associations, health services research and public policy analysis shops that recognize the value of oral health programs have traditionally been a source of evaluation efforts and findings. Frequently, the initiative being studied has a relationship with a particular entity (e.g. ABCD and University of Washington, or Community DentCare and Columbia University), which leads to a natural collaborative partnership where the university, already helping to collect and store program data, is in an excellent position to evaluate the program. In other cases, such as the periodic surveys conducted by the American Dental Association, the questions and issues being examined are specific to the professional association's membership.

Evaluations conducted by neutral parties such as research and policy analysis organizations or universities can also provide impartial observations and insights into the way programs have affected the target populations. The Children's Dental Health Project (CDHP) is a "policy shop" that has developed a compendium of "model" programs that had been recognized for their work. CDHP also has conducted evaluations of community-based dental programs in Maryland for the Maryland Healthcare Foundation. Other examples include the Association of State and Territorial Dental Directors' (ASTDD) state oral health program evaluation project, which

summarizes evaluations of state oral health programs that utilized ASTDD evaluation guidance, and also provides recommendations on how to improve its evaluation process.[6] Finally, myriad studies have been conducted through the Health Resources and Services Administration's Bureau of Maternal and Child Health.

To develop a set of evaluation tools that could be useful across a broad array of community-based oral health programs, it seems appropriate that those who understand oral health issues and those with expertise in evaluating these issues and programs work together to develop new parameters for quantifying the impact a program is having on the community.

Components of Community-based Oral Health Program Evaluation

As described briefly earlier, an evaluation of community-based oral health programs may include quantitative and/or qualitative measures, each having strengths and weaknesses. Although the final evaluation toolbox envisioned (with variations based on type and stage of program being assessed) should be the result of a collaborative process among evaluation experts and oral health stakeholders, here we delineate a number of measures that should be considered. Some are "process measures" that assess how well the program has been implemented and how well it is operating. Others are "intermediate outcomes" and "final outcomes measures" that assess the impact of the interventions on such areas as access to services, health and productivity, oral health workforce expansion, and policy changes.

A. Quantitative Component

An evaluation typically involves assessing the changes associated with an intervention, comparing baseline indicators (before intervention) with those indicators during and after the intervention. It is critical in these "pre-post" studies to have some way of determining if the pre-post change can be attributed to the intervention. There are two ways to do this: 1) track the experience of a control group over the same period as the test group; and 2) develop a multiple regression technique that estimates a trend or path to see if there is an identifiable break in the trend at the point where the program was implemented. It is crucial to recognize that a change in outcomes that does not take into account other factors or a control group will not establish a correlation between the program and improved oral health outcomes. That being said, there are various levels in terms of cost and timing of quantitative analyses in determining changes in access, outcomes, and costs that can provide helpful information. In many cases, evaluators have designed methodologies that allow them to provide program administrators with immediate feedback on implementation issues. This process can provide quick guidance for mid-course corrections and improvements.

Below are quantitative measures related to access, health, cost-effectiveness, workforce growth, and policy changes. This is not an exhaustive list, but rather provides examples and reflects the wide range of potential measures.

Access, Health, and Cost-effectiveness

The goal of access-related measures is to assess, through quantifiable indicators, the impact of the initiative on the ability of the target population to obtain and use oral health services, and ultimately to improve their oral health. Possible elements to measure are the number and types of services provided, costs expended and avoided, and impact on productivity. To measure cost-

effectiveness, there is a need to measure and compare the costs of *inputs* versus *outputs*. Inputs include such items as:

- Labor - # FTEs, total labor cost per employee;
- Equipment - clinical and administrative;
- Transportation costs - mobile van, transfer of equipment, etc.;
- Information systems – hardware (computers) and software;
- Space – rent, maintenance, etc.;
- Education and outreach – professional and public education/marketing efforts.

To assess the outputs and impact of the program, specific indicators may include the following:

- Dental claims filed through Medicaid/SCHIP or other publicly funded program;
- Number of individuals served and their characteristics – may use dental indicators collected by federally-qualified health centers in the Uniform Data System, Head Start Program Information Reports (PIRs), or school system data in states with mandatory screenings;
- Number and types of dental services provided at program sites; e.g., oral health screenings performed in non-medical settings, such as Head Start programs, schools, and other community-based settings;
- Levels of compliance, maintenance, and follow-up care such as percent of broken appointments and other measures, preventive behaviors as reported by patients (e.g., number of people who brush teeth twice daily, floss daily), and other measures of behavioral change related to clinical encounters;
- Number of oral health screenings and/or fluoride varnish applications performed by primary care providers (e.g., during well-child and EPSDT exams);
- Change in number and dollars spent (and saved) on preventive treatments, advanced and chronic oral disease procedures, and cases presenting at hospital emergency departments;
- Percentage of children presenting with early childhood caries;
- Parental and professional educational encounters (e.g., number of sessions public health/dental professionals held with families to educate them on the importance of preventive care, educational sessions for primary care providers on the integration of oral and general health);
- Days of school/work missed due to oral health problems.

Workforce Development

Although the focus of the evaluations discussed here involves community-based oral health programs intended to expand access to services immediately, many programs have a parallel goal of expanding the number of providers who treat underserved populations over the long run. Quantifiable measures of the impact of such efforts include the following:

- Application rates to dental schools, dental hygiene, dental assistant and dental "practitioner" programs;
- Whether or not there is a dental education “pipeline,” e.g. examining the number of public university baccalaureate students pursue dentistry within the state, and how many of those students go on to practice in the state’s underserved communities;

- Rate of ethnic and racial minority applicants and graduates;
- Community-based rotations in public health settings;
- Placement of graduates in underserved areas and in community-based programs working with special needs/elderly/uninsured adults;
- Number of scholarship and loan forgiveness programs available and number of dental providers enrolled; retention rates of these providers in underserved communities;
- Number of universities that integrate medical and dental students in each other's curricula and learning environments;
- Number of traditional dentist services newly performed by primary care providers, hygienists, dental assistants, other mid-level practitioners;
- Increase/decrease in Dental Health Professional Shortage Areas (HPSAs);
- Extent to which training includes modules relating to cultural competency in treating diverse populations.

Quantitative methodology can be summarized in Figure 1:

Figure 1.

Quantitative methodology

- Pre-post comparisons or random assignment to treatment and control groups
- Factor analysis
- Comparison of cost of inputs versus outputs (to measure cost-effectiveness)
- Indicators that measure service utilization/access, health outcomes, workforce growth, etc.

B. Qualitative Component

In addition to the above indicators, there are also many aspects of community-based oral health programs that cannot be quantified but that provide critical information to those who administer them and those considering replicating them. Identifying the necessary "ingredients" of promising initiatives, as well as barriers and challenges to implementation and methods for overcoming barriers provides helpful guidance and solutions to planners and administrators. Assessing changes in oral health behaviors and attitudes, and the development of new relationships between oral and general health care providers, are examples of qualitative outcomes measures of oral health programs. Efforts to enhance public awareness, or "oral health literacy" resulting from public education campaigns and outreach can also be assessed.

These kinds of information are gathered through interviews and focus groups rather than numerical data analysis. Rigorous qualitative methodology provides researchers with a strong tool for understanding the story of how a program came into being. While case studies and focus groups can only provide anecdotal evidence of changes in outcomes that may be correlated with

the program, they are an appropriate tool, particularly when examining the following processes and outcomes.

Identifying the "ingredients" needed for successful implementation and ongoing operation. A qualitative evaluation may determine the factors in a community that contribute toward a successful program, involving the examination of:

- Effective methods for identifying community needs and resources; e.g., tools for assessing access gaps among different populations and workforces shortages; public coverage for dental care; current role and past history of local dental community's commitment to serving the underserved; current rules and customs regarding scope of practice among hygienists, dental assistants, other practitioners;
- Existence and make-up of coalitions (e.g., public health department, community health centers, local universities, dental and medical societies, community organizations, consumer groups, educational institutions); nature of relationships between public health and private practice dentists, dental and primary care providers, local and state representatives;[7]
- Role and characteristics of leadership and key players;
- Financing requirements and sources, impact of payment processes (e.g., Medicaid reimbursement);
- Information/software demands and systems;
- Necessary regulatory, legislative, and public campaign activities;
- Strengths and weaknesses, major obstacles faced, how they affected the program's goals, and successful methods for addressing/overcoming them;
- Lessons learned.

Qualitative Outcomes

General

- Changes in oral health literacy and care-seeking behaviors by target population;
- Changes in self-esteem and employability related to improved oral health;
- Appropriateness of service provided;
- Changes in attitudes about integration of oral and general health care;
- Shifts in support by local health departments, state government (Governor's office, agencies, legislators), local and state dental and medical societies;
- Development of new relationships among organizations described above;
- Political and financial stability of the program.

Policy Oriented

Within the context of outcomes is a subsection dealing specifically with policy changes, given that the goal of many community-based oral health programs is to effect policy activity at the state and/or federal level. Such policies are often related to Medicaid coverage and/or reimbursement rates for dental services, licensure and scope of practice. Changes in legislation and regulations are generally the result of a combination of political and financial pressures, rather than the efforts of one community program. Nevertheless, it is important to assess the number and types of policy changes for which a community-based program played a role. Possible measures to be examined include the following:

- Changes in regulations related to a) licensure, b) expanded function by oral health professionals (dental hygienists, assistants, and oral health practitioners) and c) dental school admissions policies;
- Changes in coverage for dental services under Medicaid, SCHIP, and other public programs and private insurance plans;
- Changes in reimbursement rates to dentists and primary care providers for oral health services (through Medicaid/SCHIP or other public programs);
- Establishment of fluoridation program, increased support for oral health services in community health centers or volunteer programs;
- State and federal support for tuition reimbursement programs and other incentives that target dental graduates in underserved areas;
- Success with or potential for replication or expansion.

Qualitative or case study methodology can be summarized by Figure 2:

Figure 2.

Qualitative Methodology
- Structured interviews
- Site visits
- Focus groups
- Most appropriate to examine measures pertaining to understanding the program's development, implementation, challenges, barriers, effect on policy change, and ingredients for success and sustainability

C. Summary Checklist

To facilitate the comparison of programs and the communication of evaluation results, we recommend the development of summary evaluation checklist. This would involve synthesizing and condensing the above quantitative and qualitative indicators into a short set of key summary measures. The development of such a list can be guided by existing criteria for "best practices" such as those developed by the Association of State and Territorial Dental Directors (ASTDD).[8] Possible summary measures that build on the ASTDD criteria include:

- Efficiency or cost-effectiveness of the program;
- Appropriateness of Services;
- Replicability (success or potential to be replicated elsewhere);
- Sustainability of program based on financial and political stability;
- Sustainability of benefits/ lasting changes in oral health behavior and outcomes;
- Overall impact on workforce;
- Impact on Policy, based on contribution of program toward changes in coverage, reimbursement, licensure, etc;
- Collaboration, building partnerships among stakeholders;
- Integration-level of oral health into general health;

- Level of in-kind support provided to the program from both public and private sources.

Another way of looking at the realm of evaluation measures, outside of the categories of "quantitative" and "qualitative" is to consider the timing of measures being considered: inputs, process measures, intermediate outcomes, and final outcomes. Figure 3 depicts this way of visualizing an evaluation structure, with options that reflect the variety of activities and goals a program may have.

Figure 3

Inputs	**Process Measures**	**Intermediate Outcomes**	**Final Outcomes**
Labor Equipment Transportation Space/rent Information systems Education Outreach	Program enrollment Patient and parental education Increased workforce participation Increase in culturally competent providers and environment Influence of policy change Increased provider reimbursement rates Improved coverage/ benefit package	Increased dental visits for: Screenings Cleanings Sealants Fluoride treatments Fewer emergency oral health visits	Fewer cavities Decrease in early childhood caries Reduced periodontal disease Fewer days of school/work missed Better physical health Improved self-esteem and employability Lower total costs to health care system

Challenges: Appropriateness

Based on conversations with representatives from several community-based programs, an issue that is relevant to future evaluations is how to best measure *appropriateness* of care delivered through community-based oral health programs. Typical measures, such as number of dentist visits and number of procedures, are commonly used to determine changes in access and outcomes. The true story, however, may be obfuscated by these broad measures. For example, should the number of sealants a clinic puts on young children be used as a measure of successful preventive care access if those children already have caries and other poor oral health that are not being treated? Similarly, in a program that provides care to the elderly and those with special needs, should an increase in root canals or crowns be heralded as a success story if a lack of follow-up care and maintenance results in deterioration of the newly restored teeth?

Thus, one of the biggest challenges in designing oral health program evaluations involves shifting perceptions and measures of success in order to ascertain appropriateness and long-term effectiveness of services rather than quantity of services. Key issues here include:

- Acknowledging the need for programs to ensure the delivery of regular treatment and follow-up care after providing preventive and/or emergency procedures to individuals who did not have proper access to oral health in the past;
- Incorporating an educational component to parents and caregivers to promote healthy oral health behaviors over the long run;

- Recognizing that in some cases, procedures might not be appropriate if the patient will not be able to follow care protocols that will ensure the procedure's success;
- Balancing prevention and treatment, and setting priorities (e.g., expanding children's services versus providing basic adult care) given limited resources; this is not unique to dental care; the public health and medical systems struggle with difficult tradeoffs and choices as well.

In general, are there new ways to think about the delivery of oral health that would translate into more appropriate quantitative measures for both program operation and evaluation? It is important to begin considering that the ability to reform the oral health care delivery system as a whole may be affected by a willingness to rethink traditional outcome measures. In doing so, however, it will be important to stay mindful of evidence-based outcome measures that have support in scientific research, and apply them when appropriate. Also, these challenges call for greater emphasis on cost-benefit analyses as part of evaluation, and risk-based policies.

Challenges: Replicability

Another set of challenges involves assisting communities in using evaluations to determine whether a successful program can be replicated for their purposes. Through a series of qualitative case studies of programs around the country (ABCD/"E", Kids Get Care, AppleTree Dental, and Community DentCare), ESRI identified the ingredients that made these programs work, as well as the features that would need to be considered by other communities before trying to replicate them. What became clear is that each community must assess what kind of program is best suited to its environment and tailor it to meet its own needs and circumstances. Some factors to consider when thinking about replication include:

- Availability of public and private funding;
- Availability of already-existing oral health resources (both financial and human/workforce)
- Set up of the public and private health care delivery system;
- Demographic analysis;
- Ethnic/racial make-up of target population;
- Assessment of the needs of children, adults, elderly, and special needs populations

Challenges: Appropriateness

Finally, for those who are involved in existing programs (rather than in communities trying to establish a new program) there is the challenge of having sufficient interest and/or financial resources to not only conduct evaluations, but to develop the data systems that would be best suited to answering certain questions and drafting policy and program options Developing survey tools and conducting evaluations may require a significant financial and/or human investment, which could be seen as taking resources away from service provision. Even if these evaluation activities were funded by outside sources (e.g., separate foundation or government funding), there are still likely to be public costs related to data collection and extraction, and person-hours spent working with researchers. It is therefore crucial to communicate to program leaders the benefits of evaluation, particularly in terms of successful outcomes in the long term.

Some would argue that because oral health does not lend itself to a specific disease state, it is difficult to argue for greater financial support of broad-based oral health data collection, or "surveillance" systems. One potential strategy for bringing oral health to the forefront of public health leaders and stakeholders, and thereby increasing funding for data collection and evaluation, is to emphasize the connection between oral health and other health concerns, such as heart disease, premature birth, and diabetes. These interrelationships, as described in more detail in both the Surgeon General's Report 2000 *Report on Oral Health* and the 2002 *A National Call to Promote Oral Health Action,* can and should be used to make the case for the development of a comprehensive surveillance-type data system focusing on oral health behaviors, status, and care utilization among the general population.

Conclusion

Much can be learned from examining programs currently operating at the community level to bring needed oral health care to underserved populations. Coalitions of stakeholders are committed to addressing the serious problems facing vulnerable populations. They deserve recognition in the form of rigorous and thoughtful program evaluation that will highlight their successes, note areas where sincere efforts fall short, and explain the challenges that were faced. At the same time, these coalitions are realizing that existing means of measuring those successes and challenges may not be adequate. A goal of this report was to raise some issues that may help funders, researchers, and other stakeholders consider new ways of thinking about oral health program measurement.

Finally, while the focus was on oral health, many of the issues and challenges discussed could also apply to other community or health care initiatives. As we work toward policies that tackle health care reform, we must keep in mind that objective evaluation must be an integral part of that process. By creating general parameters for "telling the story" about a program's development, program administrators, community advocates, providers, and others may find it easier to communicate their accomplishments and experiences to stakeholders, furthering progress in the goal of improving access to oral health care.

Endnotes

[1] This includes dental hygienists and dental assistants. The Bureau of Labor Statistics estimates 43% growth in these professions from 2002-2012 (http://www.bls.gov/emp/mlrtab2.pdf).
[2] See Silow-Carroll, S and T. Alteras, *Community-based Oral Health Programs: Lessons from Three Innovative Models,*, The W.K. Kellogg Foundation, November 2004. www.wkkf.org.
[3] Peter Milgrom, DDS, et al, "Making Medicaid Child Dental Services Work: A Partnership in Washington State," JADA, Vol. 128, October 1997.
[4] Tarja Kaakko, DDS, et al., "An ABCD Program to Increase Access to Dental Care for Children Enrolled in Medicaid in a Rural County," J. Pub. Health Dent., 62(1), Winter 2002; Peter Milgrom, DDS, et al, "A Community Strategy for Medicaid Child Dental Services," Public Health Reports, Nov./Dec. 1999, Vol. 114
[5] Diamond, R. et al, "Implementing a Community-Based Oral Health Care Program: Lessons Learned," J.Pub. Health Dent., 63(4):240-43, 2003.
[6] "Review of the ASTDD State Oral Health Program Evaluation Project: Final Report," ASTDD, August 2001.
[7] Coalitions appear to be part of nearly every community-based or regional effort to increase access to dental services.
[8] ASTDD best practice criteria are: Impact/effectives, Efficiency, Demonstrated Sustainability, Collaboration/Integration, and Objectives/Rationale. These criteria grow out of ASTDD's Best Practices Project, dedicated to promoting oral health best practices that help build infrastructure and capacity in state, territorial and community oral health programs, meet the Call to Action set by the Surgeon General's Report on Oral Health and A National Call to Action to Promote Oral Health, and achieve Healthy People 2010 objectives to enhance the oral health of all Americans and reduce health disparities. (See: http://www.astdd.org/index.php?template=bp_criteria.html&shell=best).