Evidence-Based Community Pediatrics: Building a Bridge From Bedside to Neighborhood

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ABSTRACT. The American Academy of Pediatrics policy statement “The Pediatrician’s Role in Community Pediatrics” encourages all pediatricians to partner with their communities to create and disseminate innovative programs that improve child health. This article describes 4 pillars of a bridge to evidence-based community pediatrics for pediatricians interested in pursuing evidence-based community action: (1) collaborate with the community to establish a specific, short-term, health-related goal; (2) identify evidence-based best practice(s) for achieving the shared goal; (3) collaborate with the community to adapt this best practice to the community’s unique assets and constraints; and (4) evaluate the project by using appropriate expertise. Practical elements of each pillar are described and illustrated by specific examples from community-based efforts of pediatricians and are accompanied by specific resources to aid pediatricians in their future community health work. Pediatrics 2005;115:1142–1147; community-based participatory research, community pediatrics, evidence-based medicine.

ABBREVIATIONS. AAP, American Academy of Pediatrics; CHAMP, Child Health Advocacy for Miami Pediatricians; CATCH, Community Access to Child Health; CBO, community-based organization; SPARK, Supporting Partnerships to Assure Ready Kids.

The recent American Academy of Pediatrics (AAP) policy statement “The Pediatrician’s Role in Community Pediatrics” encourages all pediatricians to partner with their communities to create and disseminate innovative programs to improve child health.1,2 This policy statement reinforces a growing trend toward community-based action. More than half of all pediatricians report participation in community-based activities, and participation has grown significantly during the past decade.3

In the age of evidence-based medicine, one would expect a surge of community-based pediatric activity to be evidence based as well. Many community-based programs that aim to improve child health, however, are neither evidence based (ie, proven efficacious by controlled trial) or successful (ie, proven effective by regional or national dissemination). Most programs aim to produce long-term changes in health behavior, and such outcomes are difficult to measure. Pediatricians often lack adequate training and support in the behavioral sciences, epidemiology, or program evaluation. Local public health institutions are underfunded to provide this support or have a different focus. Finally, pediatricians do not share an effective mechanism for identifying and disseminating best practices in community-based pediatrics.

Despite these obstacles to practicing evidence-based community pediatrics, clinicians are building a base to support the bridge from evidence-based bedside practice to evidence-based neighborhood practice (see Fig 1). Community-based child health interventions have not been systematically reviewed, but a survey of the medical literature demonstrates increased concern with documenting their efficacy. A Medline search under the keywords “community,” “pediatrics,” and “evaluation” produced 56 publications in the past 10 years, compared with only 23 publications from the previous 30 years. These most recent publications reveal that pediatricians engaged in successful pediatrician-community partnerships share the following common ground:

- They are open to treating disease outside of the traditional biomedical model.
- They identify local information about the assets and needs of the community, as well as national information on the best practices for addressing the problem.
- They establish strong partnerships with community members from outside the medical world.
- They often work in collaboration with an academic medical facility.

EVIDENCE-BASED COMMUNITY PEDIATRICS: THE 4 PILLARS OF THE BRIDGE FROM BEDSIDE TO NEIGHBORHOOD

This article describes 4 pillars of a bridge to evidence-based community pediatrics, a guide for any pediatrician interested in pursuing effective community action. This bridge is informed by the medical literature, existing national resources, and our practical experience. The bridge is a reflection, in part, of 2 years of lessons learned from Child Health Advocacy for Miami Pediatricians (CHAMP), a program
designed to fund community-based pediatric research projects through the University of Miami Jackson Memorial Medical Center (see Appendix 1). These 4 pillars are important to all pediatricians (generalist or specialist, academic or nonacademic) who want to apply best practices to community action.

Pillar 1: Collaborate With the Community to Establish a Specific, Short-Term, Health-Related Goal

Maintaining focus on a single, meaningful, measurable health outcome is a critical pillar. One review of academic-community partnerships describes the following important steps in building successful pediatrician-community partnerships that allow to focus on health outcomes:

- Recognize the community as a source of identity. More than a shared geography, a community represents a shared set of symbols, values, norms, interests, and needs. Successful projects strengthen this sense of community. For example, the Community-Campus Partnerships for Health provides regional trainings, online guides, and telephone support to facilitate physician-community collaboration.

- Identify the community’s assets. These assets may include passionate community members, public parks, volunteer associations, a network of child care centers, school principals, religious groups, or dance troops.

- Seek and share information about the community, which is available from the US Census, local government, or a regional foundation. At the same time, clinicians and researchers need to be sensitive to community pride when reporting, for example, high rates of drug abuse or domestic violence.

- If possible, conduct a needs assessment.

- Include a feasible, clearly defined community benefit with a timeline for achieving that benefit. One common barrier, community mistrust, arises from a long history of university-led research that does not benefit, and sometimes harms, community members.

The following examples from pediatric residents, academic faculty, and community pediatricians (from CHAMP and programs elsewhere in the country) illustrate the important process of creating a productive partnership focused on a specific health outcome.

Michelle Fisher, MD, used an AAP Resident Community Access to Child Health (CATCH) grant to establish a child care health consultant program as a bridge between pediatricians and staff at 4 federally subsidized child care centers in Miami-Dade County, Florida. Two residents who served as child care health consultants in this program helped to craft a CHAMP demonstration project to conduct a needs assessment on child obesity. Their needs assessment uncovered a high rate of child obesity, a near-universal maternal perception that all children were normal or below normal weight, and the effect of child care staff and maternal acculturation on these perceptions. The pediatricians, staff, and parents then were able to agree on a specific, child health-related outcome for future action: changing maternal perception of a “healthy” toddler’s weight.

In a similar effort to address childhood obesity in San Jose, California, Anisha Patel, MD, conducted a needs assessment among parents in a low-income Latino community during her pediatric residency at Stanford University. Together with her community partners, Dr Patel identified a specific health outcome of increased access to physical activity and discovered an important community asset in need of repair: its soccer field. In partnership with the community and other pediatricians, she helped to secure funding to repair the field and sponsor a local soccer league.

In another example, a faculty-resident team, Lourdes Forster, MD, and Jessica Capote-Dishaw, MD, began working with a community-based organization (CBO) to increase breastfeeding rates among Hispanic women in Miami, Florida. Although Dr Forster was interested initially in breastfeeding, her community partners at Abriendo Puertas suggested that maternal depression was the bigger problem. The resulting CHAMP-funded project was designed to explore a specific health-related outcome: the relationship between maternal depression and breastfeeding.

In some instances, a successful community partnership may compel legislative advocacy. In Missouri, for example, Katie Plax, MD, worked at a health department clinic in which 40% of the children seen were uninsured. To alleviate this problem, Dr Plax organized 40 community leaders to be trained in the Medicaid-enrollment process. After enrolling >100 children in 6 weeks, the group became frustrated with the bureaucratic barriers, and they researched the strategies that other states had used to streamline enrollment. Based on this research and with help from the Center on Budget and Policy Priorities, the group agreed on a single, child health-related outcome: establishing presumptive eligibility for child Medicaid enrollment throughout the state of Missouri. Dr Plax and her colleagues formed the Kids Can’t Wait campaign, which fostered broad community support among the following 3 preexisting coalitions: a statewide children’s advocacy organization, a group of 70 urban religious congregations, and a legal-aid organization. In the end, this broad-based collaboration secured the political will to influence the Missouri state legislature to establish...
Pillar 2: Identify Evidence-Based Best Practice(s) for Achieving the Shared Goal

In conjunction with identifying a specific health outcome, it is essential to review the literature to identify evidence for best practices to achieve the shared goal. Medline, PsycINFO, and other online medical and social science search engines may be helpful and familiar guides (see Appendix 2). Other useful resources include the US Census, the local health department, the local school district, local foundation reports, and regional offices of federal programs (eg, Special Supplemental Nutrition Program for Women, Infants, and Children; Medicaid; Healthy Start). Librarians are an invaluable and underused resource.

An indispensable resource for identifying the most effective community-based health interventions is the Guide to Community Preventive Services (Community Guide). Commissioned by the Centers for Disease Control and Prevention, Community Guide is the first and only broad-based, systematic review of the efficacy and cost-effectiveness of community-based programs that aim to prevent disease or promote health. Updated quarterly by the US Task Force on Preventive Health Services, Community Guide rates the efficacy of hundreds of programmatic approaches that fall under 1 of 15 general health topics such as mental health, nutrition, sexual activity, and violence.

Because many community-based programs focus on changing child or parent behavior, it is important to be familiar with theories of behavior change. These theories address a recurring reality for community interventions, namely, that health information (ie, changing a person’s knowledge about a particular topic) is insufficient to change health behavior.

Child-obesity prevention provides a robust example. Community Guide notes that “classroom-based health education focused on information provision” has no proven efficacy in increasing child physical activity. Instead, the guide cites evidence for other effective programs, including school-based physical education, enhanced access to places for physical activity, and individually adapted health-behavior change. Several studies noted by Community Guide were conducted by Thomas Robinson, MD, MPH, a pediatrician who has devoted his career to designing and testing social cognitive-theory–based interventions. Social cognitive theory holds that a specific health-behavior change is determined by an individual’s perceived self-efficacy for that behavior change and an individual’s perception of the consequences of that behavior. The 4 key learning processes that promote behavior change are attention, retention, motivation, and production. Successful health-behavior programs must include simple, explicit behavioral goals (ie, extrinsic motivation) and some measure of choice for the participant (ie, intrinsic motivation).

Dr Robinson emphasizes intervention activities that are motivating in and of themselves while simultaneously promoting health. Informal observations and experience from a prior study of substituting aerobic dance for physical education classes suggested that dance was an intrinsically motivating activity for preadolescent girls. Dr Robinson had previously documented the critical impact of reduced television viewing on the weight gain of children. As a result, he proposed a study of traditional African and popular dance, combined with reduced television viewing, for low-income black girls, a group at high risk for obesity and its comorbidities.

Pillar 3: Collaborate With the Community to Adapt This Best Practice to the Community’s Unique Assets and Constraints

This third pillar, adapting a best practice to a specific community setting, is perhaps the most enjoyable and fulfilling part of community action. It is an opportunity to seek advice from a broad array of community stakeholders who can, for example, identify specific factors necessary to motivate children and their caregivers to participate in a new program. Stakeholders may include the children themselves, their parents or caregivers, community leaders, or community workers. Information may be sought through individual, key-informant interviews or focus groups, but the content of these discussions should be recorded as comprehensively as possible.

Frame these discussions with ideas or vignettes designed to answer specific questions. By contrast, an open-ended “fishing expedition” for ideas (ie, asking participants what should be done) is inefficient and misleading, because participants’ responses often can be motivated by wanting to satisfy the perceived expectations of the facilitator.

In Miami, for example, Laura Hassen, MD, and Chinwe Egbo, MD, shared their needs assessment with child care staff and parents through a series of 4 focus groups. Several parents indicated the need for health care professionals to address and implement exercise and nutrition programs with children directly in the child care setting. Staff noted the lack of information about nutrition and activity provided in the school’s parent curriculum. Over the past year, a new generation of pediatric residents, along with faculty who participated in these focus groups, have built a collaborative of >100 child care centers to develop a workable, evidence-based program to address maternal and staff perceptions of child nutrition and activity.

In East Palo Alto and Oakland, California, Dr Robinson’s research team worked in the target communities to assemble focus groups with >70 adolescent girls, their parents and guardians, and after-school program leaders. To identify the factors that would motivate participation in the dance program, focus-group participants were asked to react to specific ideas from the intervention design team, who in turn observed their verbal and nonverbal responses. This process identified their specific dance interests (hip hop, traditional African dance, step, and double-Dutch jump roping) as well as preferred settings and durations for dance classes. They also found factors...
that would motivate sustained participation (eg, focus on self-esteem and fun, use of black female college students as instructors and role models) and ways to overcome transportation and other barriers (eg, central locations, convenient times), as well as the tactics useful for marketing the most successful programs. After incorporating the ideas from the focus groups, Dr Robinson and his team spent 18 months piloting their intervention, first with small groups of girls in brief intervals and then in a dress-rehearsal randomized, controlled trial that lasted 3 months. Only then did they embark on a large-scale, randomized, controlled efficacy trial of the program.

**Pillar 4: Evaluate the Project by Using Appropriate Expertise**

For most pediatricians, evaluation is the least appealing piece of this bridge to effective community-based action. Nonetheless, CBOs, community leaders, pediatric colleagues, and future funders demand evaluation results before offering their support to sustain community activity. Program evaluation is necessary not only to document the effectiveness of the program but also to suggest areas for improvement. Although they may attempt to answer a novel research question, evaluation plans remain a difficult and time-consuming task. Table 1 describes a stepwise approach to evidence-based community projects and meaningful evaluation.

For the majority of community-based action, the goal is to apply a proven best practice in a newly adapted setting. In these instances, the simplest evaluation plan is to use a previously validated tool (eg, questionnaire, structured-interview form) from a peer-reviewed study. Sometimes a telephone call to the primary author may be necessary. The use of a survey occasionally requires purchase, special permission, or editing to adapt the study to your use. Avoid the temptation to create or translate your own survey; this do-it-yourself approach often produces data from which it is difficult to make meaningful conclusions. To improve the usefulness of your evaluation, consider adding a formative evaluation such as a focus group or a series of open-ended interviews with a small subsample of the respondents.

For many projects, it is helpful to find local advisors with experience in statistics, survey design, study design, and program evaluation. Some individuals may provide advice about your project’s content (eg, a telephone call to the primary author of a study documenting the efficacy of a particular intervention). Others may provide advice about your project’s context (eg, a personal visit with the program officer for a large foundation that funds children’s programs in your area). The AAP CATCH program, community foundations, and other organizations offer technical assistance (and in some cases funding) toward the proper design of needs assessments and program evaluations.

The HealthSpark project is 1 example of a comprehensive evaluation program built into a community pediatrics project. Jeffrey P. Brosco, MD, PhD, and Daniel Armstrong, PhD, are working with a coalition of community partners named Supporting Partnerships to Assure Ready Kids (SPARK) to improve school readiness and health for children in 2 underserved neighborhoods in Miami-Dade County. Through validated quantitative measures, focus groups in multiple languages, and a map of pediatric practitioners, the SPARK team is providing information on child health and access to health care to their community partners and county and state policy makers. In an effort to build a framework for community-based scholarship, the SPARK project is using its database to answer specific research questions about breastfeeding, obesity, violence, and early identification of behavior disorders.

**CONCLUSIONS**

The future of child health demands a bridge from evidence-based bedside pediatrics to evidence-based

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**TABLE 1.** A Stepwise Approach to Evidence-Based Community Projects and Meaningful Evaluation

<table>
<thead>
<tr>
<th>Specific Goal</th>
<th>Potential Resources</th>
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<tr>
<td>Identify a specific, meaningful child health outcome.</td>
<td>Community stakeholder interviews</td>
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<td>Review all previously studied community-based efforts that were effective in affecting the chosen outcome.</td>
<td>Focus groups</td>
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<td>Identify a local evaluation team.</td>
<td>Community-based organizations</td>
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<tr>
<td>Adapt a proven best practice to fit the assets and needs of your community. Meet with evaluation team to design evaluation plan.</td>
<td>Resource librarian</td>
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<td>Submit a written proposal, if appropriate, to the governing Office of Human Subjects Research Institutional Review Board.</td>
<td>Community Guide</td>
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<td>Adapt surveys, informed-consent forms, and other study materials. Meet regularly with evaluation team.</td>
<td>Medline</td>
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<td>Share findings from evaluation at a national meeting or in a national publication.</td>
<td>Community-based organization representative</td>
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<td>Statistician/evaluator</td>
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<td>Academic institution</td>
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<td>Local organization skilled in evaluation</td>
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<td>Community stakeholders</td>
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<td>Medline</td>
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<td>National Center for Health Statistics State and Local Area Integrated Telephone Survey</td>
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<td>Your admitting hospital</td>
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<td>Local school district</td>
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<td>Translators</td>
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<td>Evaluation team</td>
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<td>Pediatric academic societies</td>
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<td>AAP</td>
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<td>Other national organization</td>
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neighborhood pediatrics. Pediatricians are pursuing community health work intended to bridge this gap in many areas such as access to health care, obesity prevention, school readiness, promotion of breastfeeding, and treatment of maternal depression.

The 4 pillars outlined in this article provide pediatricians with a framework to build a strong evidence-based bridge for community action. This hard work cannot be conducted alone, and the construction of a bridge from bedside to neighborhood will require sustained community, institutional, and financial support. Pediatricians can help ensure that the work is focused on clear, meaningful, and measurable health outcomes, which ultimately will lead to improved health for children.

During its initial years, the CHAMP program was successful by several measures. Applications for funding have increased from 3 during the first year to 12 in the third year. Eighteen projects have been funded out of a total of 26 applications, with 24 faculty (8 generalists, 12 subspecialists, and 4 non-MDs), 28 residents, and 19 CBOs participating in them. Of the 9 projects that have completed their funding cycle, 4 have been presented at peer-reviewed national meetings, 3 manuscripts are in preparation or submitted for publication, 4 projects have sought additional external funding, and 2 projects have secured such funding. Resident graduates of the program remain in close contact with their faculty advisors, extending their work locally or in the communities that they now serve. All residents and faculty engaged in these projects have benefited from increased experience in community-based participatory research principles and methods. Several projects have led to unexpected partnerships or projects with CBOs. For example, a project to promote breastfeeding among Latina immigrants included a survey that uncovered an unanticipated high prevalence of depression, which led to a county-wide partnership with Healthy Start, a federally funded, community-based initiative focused on maternal and infant health, to address this issue.

APPENDIX 1: CHAMP

Established in 2002 with support from the Anne E. Dyson Pediatrics Training Initiative, CHAMP has the following 3 purposes: (1) to initiate goal-directed collaborations among pediatric faculty, residents, and CBOs; (2) to reenergize preexisting collaborations between faculty and CBOs; and (3) to generate useful data to sustain and improve these collaborative projects. Meeting these ambitious goals requires the active participation of an enthusiastic and experienced advisory board, including 9 junior faculty from community pediatrics and adolescent medicine, 2 pediatric residents, a senior researcher and department administrator, and a CBO representative. The CHAMP research director is a community pediatrician with formal training in research methods and evaluation.

At the beginning of the CHAMP program, the research director developed a request for proposal to provide between $5000 and $30 000 for 1-year projects to improve some aspect of child health in a community setting. This process was informed by CATCH and National Institutes of Health grant formats, as well as advice from faculty engaged in community collaborations. Each project was required to demonstrate a grassroots approach that included at least 1 pediatric resident, at least 1 faculty member, at least 1 CBO leader, and scientific rigor in the form of a descriptive or analytic approach to a specific research question. To stimulate interest in submitting proposals, the research director held a series of informational sessions followed by monthly community-research office hours. During its first year, CHAMP funded 3 demonstration projects championed by members of the advisory board. Each year thereafter, the request for proposal has been sent to all members of the pediatric department, comprising >150 pediatric faculty and >60 pediatric residents. The advisory board reviews each application received, requests revisions, and selects projects for funding based on shared criteria of scientific merit and community interest. For those projects that are funded, all faculty and residents are required to complete an online certification course in human subjects research protection.

APPENDIX 2: RESOURCES FOR EVIDENCE-BASED COMMUNITY PEDIATRICS

- Community Guide (www.thecommunityguide.org). Established by an independent body appointed by the Centers for Disease Control and Prevention, Community Guide summarizes what is known about the effectiveness, economic efficiency, and feasibility of interventions to promote community health and prevent disease.
- Community-Campus Partnerships for Health (http://depts.washington.edu/ccph). This independent nationwide network includes a Web site with information to help develop, sustain, and evaluate partnerships. It includes a short step-by-step set of instructions on how to implement evaluation plans and offers real-world examples. Community-Campus Partnerships for Health also publishes a directory of grants, training programs, and fellowships related to community-based participatory research.
- National Registry of Effective Programs (http://modelprograms.samhsa.gov). Subject to annual peer review funded by the US Department of Health and Human Services, this registry lists cost-effective programs addressing mainly adolescent health behaviors: alcohol and drug abuse, antisocial behavior, safe-sex practices, tobacco use, and violence prevention.
- State and Local Area Integrated Telephone Surveys (www.cdc.gov/nchs/slaits.htm). Managed by the Centers for Disease Control and Prevention, these wide-ranging health-behavior surveys are well validated and publicly available. They cover such topics as children with special health care needs, immunizations, asthma, early childhood health, and adolescent health. Rather than creating new surveys, consider using these questions in your community-based evaluation.
Logic Models (www.wkkf.org/Programming/Resources.aspx?CID=0). Many foundations and government funding agencies require that each funded program be guided by a logic model, a matrix that matches program goals with specific, measurable activities and outcomes. The W. K. Kellogg Foundation Evaluation Handbook provides a practical guide to the construction of a logic model.

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