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NOTES FROM THE FIELD

Focusing "upstream" to Address Maternal and Child Health Inequities: Two Local Health Departments in Washington State Make the Transition

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Abstract
Purpose Two local health departments (LHDs) in Washington State, Spokane Regional Health District and Clark County Public Health, are transitioning their Maternal and Child Health (MCH) services from an individual-focused (mother–child dyads/family) home visiting model to a population-focused, place-based model. This paper describes the innovative process and strategies these LHDs used in applying existing MCH funding in new ways.
Description The pilot communities selected in both jurisdictions for the initial transition were communities experiencing disproportionately high rates of maternal smoking, child abuse and neglect, births to single women, and low-income women on Medicaid. Available evidence suggested that the reach and effectiveness of existing, individual-level MCH approaches were not adequately improving these indicators in these communities.
Assessment Using a population-based approach that addressed policy factors as well as social, organizational, and behavioral change; both counties developed neighborhood level initiatives directed at the root causes of health inequities. The approach included developing meaningful community partnerships, capacity building, and creation of a shared vision for community change. Both LHDs and their partners engaged county-wide groups in neighborhood selection, jointly established priority intervention areas, and actively engaged communities focused on reducing specific health inequities.
Conclusion With existing funding resources, the two county LHDs dramatically changed their practice to better address underlying conditions that threaten MCH. Early successes from these pilots have contributed to important local and state system-level changes in MCH programming as well as effective community-level efforts to reduce health inequities.

Keywords Public health MCH · Population-based · Health departments · Life course perspective

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Background

Much of our nation's chronic disease burden is borne disproportionately by marginalized populations, preventable, and linked to poor birth outcomes and early childhood events [1–6]. Addressing conditions underlying the inequitable distribution of disease is an expectation of our public health systems [6–8].

Recent epigenetic studies and applications of the Barker Hypothesis have made strong links between physical and social environments during ante and post-partum periods and subsequent chronic disease in adulthood [1, 4, 9]. Public health interventions focused upstream, such as those ensuring access to healthy foods and improving educational attainment are designed to mitigate root causes of poor health [5, 10].

In Washington (WA) State growing evidence suggested that the state's primary public health MCH program supporting many of these services–Maternity Support Services (MSS)–was significantly impacting birth outcomes only in high risk hypertensive women, those with a previous low birth weight baby, and/or African Americans [8]. In addition, in 2008 the MSS program needed a large influx of local general funds because federal funds passing through the state to WA counties did not fully cover program costs paid by Medicaid and Maternal Child Block Grant (MCHBG) funds. Within two LHD jurisdictions, Spokane Regional Health District and Clark County Public Health, the additional local county funds required to supplement federal funding amounted to approximately $750,000 and $500,000 respectively. Local policy makers, therefore, considered the MSS home-visiting model "too expensive" because of the local funding required and its limited evidence toward improving birth outcomes of the largely poor white and Hispanic populations in these two county jurisdictions. MCH programs in other states have also been challenged with the cost and uncertain effectiveness of traditional models [7, 11–13].

In 2008 leaders at both Spokane Regional Health District and Clark County Public Health began exploring promising placed-based-MCH intervention models. The place-based approaches ultimately piloted address underlying causes of health inequities, using a life-course perspective to improve birth and early childhood outcomes leading to long term reductions in chronic disease. Using MCHBG funds available through the WA Department of Health (DOH) and county-level general funds, officials in both Spokane and Clark counties agreed to a radically different, systematic approach to reducing inequities by addressing the social determinants of health.

Process and Intervention Description

Transitioning from individual-level MCH services to a place-based neighborhood model, involved: (1) establishing a new goal for MCH services; (2) selecting pilot neighborhoods; (3) developing the workforce; (4) developing and prioritizing population-based interventions; and (5) developing evaluation methods.

Establishing a New Goal for Local Public Health MCH Services

As both LHDs moved from individual-level MCH services toward place-based interventions, they adapted and employed McLeroy and Bibeau's Social-Ecologic model [14] (Fig. 1). The adapted model resonated with public health leaders and demonstrated the importance of addressing each level of the Social-Ecological model. Public health leaders and staff in Spokane and Clark counties also incorporated a life-course approach, using the Health Resources and Services Administration (HRSA) MCH Division's life course model [15]. The life course model acknowledges inter-relationships between genetics, physiology, context, and environment. Such lifelong inter-relationships begin with pre-conception, providing support for upstream strategies focused early in life [15]. These models became the theoretical basis for the Spokane and Clark interventions and teaching and communication tools used with staff and community partners.

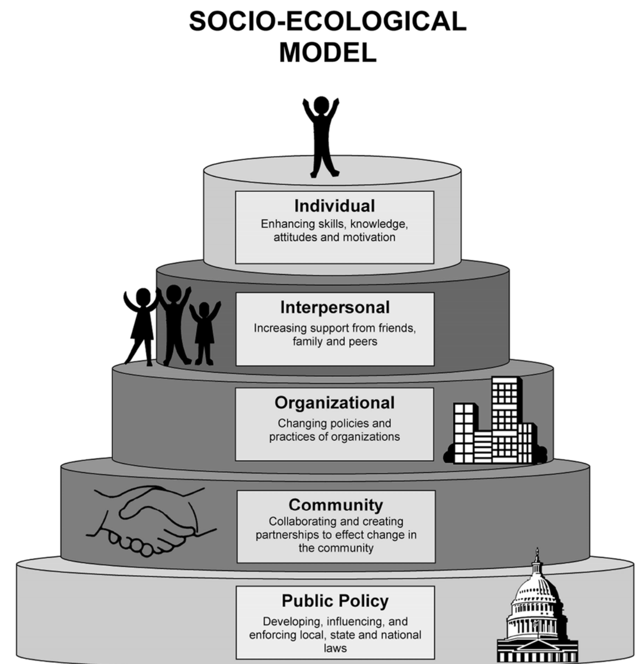

Fig. 1 Socio-ecological model of health. Kendrick et al. [21]. Adapted from McLeroy et al. [14]; Bronfenbrenner [22]

LHD leaders and MCH staff first established an MCH service goal consistent with their departments' visions of "Active, healthy families and people of all ages, abilities and cultures living, playing and working in thriving communities" [16, 17]. LHD staff then conducted a review of public health and MCH literature and websites such as the National Association of County and City Health Official's (NACCHO) "model practices" on-line database of local programs chosen by NACCHO members as "model practices" in areas such as MCH [18]. Staff also attended webinars to identify upstream MCH innovative practices. LHD staff used an iterative process to gain input from stakeholders, while identifying new programs and practices, and then having further stakeholder discussions. Stakeholders included local boards of health, school partners, advisory boards, and non-profit agency leaders. The long-term goal established in both counties was to reduce

chronic disease in marginalized communities by addressing social determinants of MCH using place-based, population focused strategies (Fig. 2). The counties adopted similar objectives: improving birth outcomes, decreasing child abuse and neglect, ensuring children are ready for school, and reducing health inequities.

Selecting a Pilot Neighborhood

Neighborhood selection in both counties began with extensive review of secondary health, social, and economic data. Both jurisdictions also examined data related to neighborhood assets and "readiness." They then systematically reviewed needs, assets, and readiness for the highest need geographic zones. Primary data from key informant interviews were also collected and an "assets and readiness assessment" instrument was collaboratively developed by the LHDs' staff and community partners. Staff used these assessment data to evaluate neighborhoods for factors demonstrating capacity to participate in and sustain a community-wide intervention. LHD staff presented data and rankings to stakeholders for final neighborhood selection.

The neighborhood selection processes in Spokane also included a Request-for-Proposals process, with LHD staff providing technical support to groups developing proposals. Spokane's "'Neighborhoods Matter' Advisory Board" was formed to select the pilot neighborhood (East Central Spokane) and oversee the overall effort.

Clark County LHD staff engaged residents, stakeholders, and elected officials to define neighborhoods. Clark County residents generally described their neighborhoods as in proximity to a specific elementary school. Elementary school catchment areas were, therefore, the geographic units assessed. Clark County's Central Vancouver neighborhood, a five-school catchment area was selected in 2010 by Clark County's Board of Health and Public Health Advisory Council for Clarks' pilot. In both counties the neighborhoods were experiencing disproportionately high rates of health risk and poor health indicators (Table 1).

Workforce Development

Most LHD staff had previously worked in individual-level programs, including MCH home visiting services, with protocols and productivity standards. The new neighborhood interventions necessitated a more flexible community-level participatory approach requiring skills such as advocacy, facilitation, and collaborative leadership—approaches that facilitated coalition development and community capacity building.

Staff in both LHDs required support and training to be effective with these strategies. In addition to opportunities for competency development, LHD leadership provided reassurance that addressed staff insecurities and the sense of loss that some staff felt in moving from individual-level to population-focused practice. Both LHDs worked with state-level and academic partners to provide formal training opportunities to develop capacity for policy development within the neighborhoods. Opportunities included WA State DOH training focused on developing strategic community partnerships and influencing policies and systems. Through a partnership funded in part by HRSA (HRSA D11HP14605), faculty from University of Illinois at

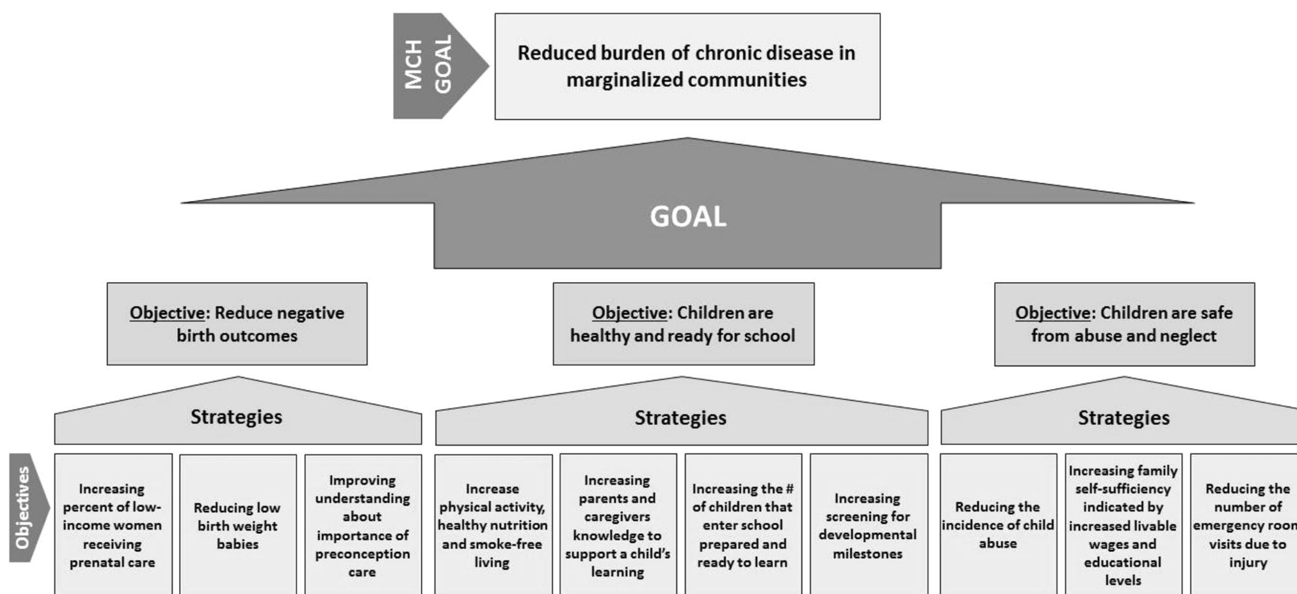

Fig. 2 Neighborhood-based MCH program logic model

Table 1 Selected characteristics of pilot neighborhoods relative to county and state (2009 data, except as noted)

Geography	Birth outcomes				Chronic disease		Demographics			Readiness[a]	Violence
	% Low birth -weight[1,*]	% First trimester prenatal care[2,*]	% Live births to single mothers*	% Maternal smoking during pregnancy*	AADR–Heart disease*	% Adult overweight/obesity[3]	% Population ages 0–4 years[4]	% Unem -ployment[5]	% Pass 3rd grade reading[6]	% Pass 3rd grade math[6]	Rate of abuse and neglect per 1000[7]
Central Vancouver	6.9	68	44	18	100	NDA	7.5	13.0	58	46	39
Clark County	6.2	75	31	12	138	64	7.0	13.2	NDA	NDA	32
East central Spokane	6.2	84	46	27	NA	62[b]	8.4[c]	20.1[d]	62	64	NDA
Spokane County	6.6	88	35	16	161	NDA	6.4	9.2	NDA	NDA	48
Washington State	6.3	78	34	10	154	62	6.6	9.3	72	62	32

NDA no data available, *AADR* age-adjusted death rate per 100,000 population

[a] Not available by county as multiple school districts overlap counties

[b] *Source:* 2008–2010 Behavioral Risk Factor Surveillance System (BRFSS)

[c] data from 2010

[d] *Source:* 2009–2013 American Community Survey

* *Source:* Washington State Department of Health. Center for Health Statistics. Washington State Vital Statistics

[1] Low birth weight (<2500 g)

[2] Percent of births to mothers who began prenatal care in the first trimester of pregnancy

[3] *Source:* BRFSS

[4] *Source:* Intercensal estimates of population by age and sex, 2000–2010. Available from: http://www.ofm.wa.gov/pop/asr/ic/default.asp

[5] *Source:* US Bureau of Labor Statistics and Washington Office of Financial Management

[6] *Source:* Office of Superintendent of Public Instruction, Washington State Report card, available at: http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&year=2013-14

[7] *Source:* Washington State Department of Social and Health Services. Risk and Protective Profile for Substance Abuse Prevention in Washington Communities. http://www.dshs.wa.gov/rda/research/risk.shtm

Chicago College of Nursing and University of Washington School of Nursing provided training to improve staff skills in assessment, collaborative leadership, logic models, and quality improvement [19]. The LHDs' leaders gave staff time for literature review and participation in NACCHO- and American Public Health Association-sponsored webinars. Staff also received opportunities to practice group facilitation, community assessment, and data use skills.

Developing Neighborhood-level Interventions

Because of the iterative, participatory process driving these efforts, the neighborhood interventions for each jurisdiction differed. The over-arching strategies, however, were similar. Strategies included increasing access to first trimester prenatal care, reducing child abuse and neglect, increasing access to healthy foods, providing safe opportunities for physical activity, and addressing system-level barriers perpetuating health inequalities. In both counties, LHD staff facilitated focus groups, key informant interviews, resident surveys, and community forums to develop objectives and strategies that residents felt would achieve the identified goal. Qualitative data gathering activities assured wide ranging perspectives, with residents representing marginalized socioeconomic and ethnic/racial minority groups specifically included.

East Central Spokane activities included "community kitchens," "community cafes," and "play and learn" groups. Community kitchens were developed to foster community connections, while promoting good nutrition. Community cafes involved facilitated conversations hosted by neighborhood leaders. The conversations led to improved resident communication with policy makers, resulting in resident requests for safe parks and continued access to the local library—actions they believed would improve the lives of marginalized neighborhood families. Play and learn groups provided guided activities that improved parenting skills and assisted children in developing social and emotional skills.

Priority objectives in Clark's Central Vancouver neighborhood addressed school readiness and reducing negative birth outcomes. Activities included working with neighborhood leaders to host community gardens; linking parents with school officials to increase access to playgrounds; and organizing faith communities toward supporting neighborhood needs, such as providing parenting support.

Evaluation

LHD staff worked with local stakeholders to develop evaluation plans and logic models (Fig. 2) that described links between selected neighborhood activities and the priority objectives neighborhood stakeholders had agreed on. Evaluation methods included process measures such as number of partnerships developed, number of policies developed and passed, number of participants attending events, technical assistance requested and provided, and collaborative connections made. More distal indicators being monitored by the LHDs' epidemiology staff included MCH indicators, socio-demographic factors, and chronic disease burden such as the measures in Table 1.

With an initial emphasis on formative evaluation, community health workers recruited participants from low-income apartments, social service agencies, and school resource centers to participate in focus groups and interviews. Participants described perceptions of the impact of the interventions in the two pilot neighborhoods. Qualitative data were analyzed for themes by the LHDs' interprofessional teams, with thematic validation by residents and stakeholders. Illustrative stories from these data depicted engagement of new faith-based community partners in neighborhood health improvement priorities, increased parent engagement in schools, and healthier living in smoke-free housing. Dissemination of formative evaluation findings to residents, LHD leadership, and elected officials included reports and presentations regarding lessons learned and intended health impacts.

Changes Observed

Given our goal of reducing chronic disease in marginalized communities by improving outcomes and opportunities in early life, distal neighborhood-level outcomes are not expected for some years. Proximal changes, however, have occurred at the system- and neighborhood-levels as an apparent result of focused investments and upstream community engagement activities.

Organizational Change at the State and Local Public Health System-levels

Spokane and Clark counties' neighborhood pilots led to organizational changes in their local and the state's public health systems. As a result of upstream goal-setting, reviews of existing evidence, staff training, and community engagement both LHDs shifted from individual-level services to approaches built upon socio-ecologic and life course perspectives and began to consider *all* public health interventions as needing to include community, organizational, and policy-level strategies.

This shift to prioritization of communities of need and using neighborhood strategies to address outcomes had a strong influence on policy at the WA State DOH with the state's MCH program loosening program restrictions to fund neighborhood-level health improvement strategies

(S. Grinnell, oral communication, July 2011). WA's DOH also consolidated their offices for Chronic Disease and for MCH due, in part, to the influence of these pilots and a desire to support and reflect an integrated, life course approach (S. Grinnell, oral communication, July 2011).

Proximal Neighborhood-Level Changes

Qualitative data indicated that stakeholders perceived several system-level barriers as perpetuating health inequalities. In East Central Spokane, for example, residents identified a library slated for closure in late 2010, as critical to school readiness and family support. Resident organizing efforts around this resulted in the library being maintained and a 20 % increase in East Central families using this library's services by the end of 2011. In another example, a "photo voice" effort in 2012 engaged East Central youth in documenting neighborhood conditions and advocating for change. Youth used photo documentation to convince the state Liquor Control Board to extend an Alcohol Impact Area to include East Central Spokane. In Clark County's Central Vancouver neighborhood, residents chose to improve birth outcomes by focusing on increasing tobacco-free living environments. LHD staff partnered with owners and managers of low-income apartments to establish smoke free units. One apartment owner created 500 new smoke-free apartments in early 2013. Stakeholders in Central Vancouver also initiated a healthy food branding campaign designed in partnership with Clark County's Youth Commission. The logo developed, "Healthy Here Now," is used to designate healthy foods and restaurant choices. Central Vancouver residents and LHD staff also partnered with the neighborhood's farmers' market to increase access to healthy foods and observed a 68 % increase in farmers' market transactions by food stamp participants from 2011 to 2012. Qualitative data from both counties indicated that residents, public health leaders, and stakeholders perceived that neighborhood-level changes such as those described here had major effects on building community confidence in setting priorities and acting on local issues considered to be exacerbating inequities.

Discussion and Lessons Learned

Integration and innovative use of MCH and chronic disease prevention funding for this project was key to successful implementation. Flexibility from the state's MCH Office leadership allowed our LHDs to use existing funds for piloting approaches to health inequities. The five steps mentioned previously proved critical to obtaining and maintaining governmental support and achieving success for this non-traditional use of MCHBG funds.

The socio-ecologic model, life course framework, and an understanding of health inequities helped us systematically develop upstream activities at all levels of the socio-ecological model, while coordinating strategies across activities. This approach focused group efforts to avoid the risk of community activities becoming peripheral to the initiatives' goal of reducing chronic disease through creating healthy environments.

Workforce development for these interventions required a full year of effort before staff felt competent in their population-focused roles and able to work effectively in interprofessional teams. As participating staff moved "from novice to expert" [20] in population-focused roles and embraced this practice shift, most have indicated that they would not go back to individual-level service delivery. The complex nature of evaluating community-driven approaches also led to improvements in LHD staff's evaluation skills.

The non-traditional use of MCHBG funds for these pilots makes it particularly important to monitor and report on progress. The logic model and process evaluations have proven useful in linking activities with other indicators and for monitoring progress. The need for short-term results to justify expenditures, however, has created pressure to develop traditional evaluation strategies based on process, impact, and outcomes. Identifying attributable short term outcomes has been challenging for these community-driven initiatives. Nonetheless, both counties have succeeded in maintaining funding by weaving in categorical MCHBG funds and using qualitative and quantitative measures to report progress. Additional resources in the form of research funding and academic partnerships could help sustain and spread these approaches by collaborating around rigorous research regarding the impact of such interventions.

Early evaluation efforts suggest that these pilots have made important policy changes and increased neighborhood connections across agencies and among stakeholders. The pilots also contributed to increased awareness of MCH issues statewide and opportunities for healthy nutrition and physical activity. The process and activities described demonstrate potential for LHDs to effectively shift from an individually-oriented MCH service model to a population-focused approach that addresses inequities among communities in need, without necessarily requiring new funding sources.

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