

# Integration of Social Epidemiology and Community-Engaged Interventions to Improve Health Equity

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The past quarter century has seen an explosion of concern about widening health inequities in the United States and worldwide. These inequities are central to the research mission in 2 arenas of public health: social epidemiology and community-engaged interventions. Yet only modest success has been achieved in eliminating health inequities. We advocate dialogue and reciprocal learning between researchers with these 2 perspectives to enhance emerging transdisciplinary language, support new approaches to identifying research questions, and apply integrated theories and methods. We recommend ways to promote transdisciplinary training, practice, and research through creative academic opportunities as well as new funding and structural mechanisms. (*Am J Public Health*. 2011;101:822–830. doi:10.2105/AJPH.2008.140988)

Public health is at a crossroads. In the past quarter century, concerns about widening health inequities have increased worldwide. Reducing these inequities is central to the mission of researchers and practitioners in 2 arenas of public health: social epidemiology and community-engaged interventions.<sup>1</sup> Socioeconomic and racial/ethnic inequities in health clearly are large, persistent, and increasing. In the United States, the magnitude of these inequities is dramatic and disquieting.<sup>2–4</sup> A White man living in suburban Montgomery County, Maryland, has a life expectancy 25 years longer than that of a Black man living a few miles away in downtown Washington, DC.<sup>5</sup> Health inequities, such as disproportionate childhood obesity alongside food insecurity among the poor and inadequate health care access among racial/ethnic minority populations, persist.<sup>6</sup>

Despite their common interest, social epidemiologists and community-engaged intervention researchers have achieved only modest success working together to use epidemiological research to reduce health inequities. These researchers and their practitioner colleagues differ in what they consider evidence, in their research training, and in their approach to translating evidence into policy and practice. Epidemiologists typically hold variables constant so they can analyze the predictive power of particular risk factors within populations,

often assuming that these risk factors provide a basis for interventions. Community-engaged interventionists emphasize community rather than population and assume that people live in complex, interconnected, and dynamic contexts. Community researchers consider whether identified risk factors are community priorities, whether these priorities are amenable to change, and how to engage community strengths in effective strategies.

Perhaps if social epidemiologists and community-engaged interventionists worked together to determine common research questions, models, and methods, application of results would improve.<sup>7</sup> Such collaboration would follow a trend in other biomedical fields, from multi- and interdisciplinary toward transdisciplinary research.<sup>8</sup> The National Institutes of Health, for example, launched the Road Map, encouraging transdisciplinary collaboration to improve clinical and public health practices and policies, with funding for the Exploratory Centers for Interdisciplinary Research,<sup>9</sup> the National Cancer Institute Centers on Transdisciplinary Research,<sup>8–10</sup> and the Clinical Translational Science Centers.<sup>11</sup> Publication of the proceedings from the pioneering cancer institute conference on transdisciplinary research<sup>12</sup> and the new *International Journal of Transdisciplinary Research* are encouraging signs.

Although both social epidemiology and community-engaged interventions are concerned with health inequities, for the most part they remain separated in practice. Social epidemiology focuses on etiology and distribution of social determinants. Community-engaged interventions, which are informed by multiple disciplines (e.g., public health education and health promotion, community psychology, and health policy), focus on behavior and social change theories and practice to improve health. Despite these differences, potential common transdisciplinary language can be found in what Herbert Blumer termed sensitizing concepts,<sup>13</sup> the theoretical categorizations that guide study of the social world. Although each field needs precision in defining its own terms, common sensitizing language could bridge gaps and thus contribute to reducing health inequities. If social epidemiologists, for example, identified structural risk factors affecting population health, how could they best collaborate with community-engaged intervention researchers to identify the distinctive forms these risk factors take in a specific neighborhood and thus aid community members in addressing the problems? How could the testing of strategies to enhance community political efficacy inform the understanding of the complex interactions among social stratification risk factors?

Since the 1990s when social epidemiology constructs were identified as targets for community empowerment,<sup>14</sup> inequities research by social epidemiologists has grown exponentially.<sup>15–17</sup> Interventions based on community engagement, a term in current use in public health<sup>18</sup> and clinical disciplines, have increased similarly. In the past 2 decades, several sensitizing concepts have increasingly resonated in both fields, although their origins and use remain distinct.

- Social epidemiologists study the balance between *resources and demands* in research on

hierarchy and control; community interventionists refer to strengths and needs.

- Social epidemiologists refer to *context* in studies of universal contributions to risk; interventionists work in specific public health practice contexts.
- Social epidemiologists focus on the *role of community* when studying how social capital and social networks function as protective factors; community interventionists promote community participation and activism.
- Social epidemiologists evaluate *power* in the context of inequitable social stratification; community interventionists target policy and political interventions.

We have (1) summarized some of the recent literature in social epidemiology and community-engaged and community-partnered research to highlight common language, (2) discussed the interface and note some current examples from transdisciplinary research on inequities, and (3) recommended enhancing existing collaborations and promoting transdisciplinary training, language, practice, and research. Greater collaboration between social epidemiologists and community-engaged interventionists could transform research practice within each arena, as well as support mutual efforts to address inequities, one of the critical public health issues of our time.

## DEVELOPMENTS IN SOCIAL EPIDEMIOLOGY

Socioeconomic status remains the most common and documented social determinant of disease.<sup>19,20</sup> Absolute poverty has been recognized for centuries.<sup>21,22</sup> A more contemporary extension of the concept is hierarchy or gradient: the lower people are in social class, the higher the rate of virtually every disease, condition, and risk factor.<sup>23–25</sup> In addition to elucidating the role of material deprivation, observations about hierarchy led to identifying psychosocial risk factors, such as lack of control or demands outstripping control, as contributing explanations for inequities that were also noted in Wilkinson's relative income hypothesis.<sup>26</sup> Psychosocial attribution has been extended through measurements of subjective social status (including a symbolic ladder with 10 rungs)<sup>27–29</sup>; effects on health can vary by race/ethnicity.<sup>27,30</sup>

Life course trajectory research<sup>31</sup> has expanded socioeconomic research to childhood and the effect on adult health status, including psychosocial functioning,<sup>32</sup> coronary heart disease, and all-cause mortality.<sup>33,34</sup> As a sensitizing concept, therefore, the balance (or imbalance) between high demands and insufficient resources means having less access to material and social goods as an adult or child. This decreased access is caused by political-economic structures and relationships and by subjective responses to an individual's position along the hierarchy. Community-engaged interventionists can bring this social epidemiology knowledge to their community partners to better understand how the concept of control or hierarchy may affect people at the local level and how to best integrate these effects into interventions, especially in involving community members across the lifespan in intervention planning and implementation.

Place and neighborhood have long been identified by sociologists and geographers as both literal and symbolic influences in people's lives.<sup>35</sup> As with community, place can be defined by webs of relationships and shared identities, although no community or place is homogeneous.<sup>36,37</sup> Social epidemiologists have explored the critical contextual role of geographic area in determining disease outcomes.<sup>38,39</sup> Multilevel epidemiological analyses have documented area effects on physical activity, depression, hypertension, tuberculosis, atherosclerosis, and kidney disease.<sup>38,40–45</sup> Community interventionists can benefit from better understanding of how sophisticated social epidemiology models of interactions of variables over time can elucidate the broad context,<sup>16,46,47</sup> such as interactions between high density of liquor outlets and violent crimes. Interventionists also offer analysis of local contextual resources and participatory processes that may inform distinct intervention strategies, such as history or readiness for organizing to address alcohol-related violence.

Racism is another major pathway through which actual and perceived lack of power can create ill health. A growing literature shows links between racial discrimination and poor health,<sup>48</sup> hypertension,<sup>49–51</sup> diabetes,<sup>52</sup> depression,<sup>53,54</sup> preterm birth,<sup>55,56</sup> general health status,<sup>57</sup> perceived health status,<sup>54,58</sup> and provision of health care.<sup>59,60</sup> Although race/ethnicity has typically been used as an individual-level

characteristic, social epidemiologists understand that racism, discrimination, and segregation arise from the intersections of individual characteristics, sociopolitical policy, and history.<sup>61–65</sup> Neighborhoods of concentrated disadvantage, for example, tend to disproportionately affect minority racial/ethnic groups, as a result of federal or local policies.<sup>63–68</sup> Epidemiology should further explore how power operates within institutional racism and its subjective effects. Community engagement scholars can enhance this understanding by working with communities to identify local structures or norms that contribute to powerlessness and by supporting community leaders in challenging discriminatory practices in communities, businesses, agencies, and local governments.

Social capital studies, emerging from social support and social network epidemiology research,<sup>69–71</sup> recognize the role of community in correlating horizontal bonding relationships<sup>72</sup> and collective efficacy<sup>73</sup> with mortality,<sup>74</sup> perceived health,<sup>71,75,76</sup> health behaviors,<sup>77,78</sup> obesity,<sup>78</sup> coronary heart disease,<sup>79,80</sup> and mental disorders.<sup>81</sup> An expanded definition of linking social capital emphasizes the capacity of people to demand resources from those in more powerful positions.<sup>82</sup> This political perspective is more parallel to that of community-engaged interventionists, who promote community participation and organizing both to enhance social cohesion and to confront inequitable material and political conditions that cause ill health.

## DEVELOPMENTS IN COMMUNITY-ENGAGED INTERVENTION RESEARCH

The comprehensive heart health and tobacco interventions of the 1970s and 1980s proved to be expensive to replicate and less effective than expected.<sup>83</sup> These findings transformed community interventions: (1) community engagement as a community-based or community-driven empowerment model is seen as more effective than a top-down community-targeted model<sup>84</sup>; (2) multilevel socioecological interventions<sup>85,86</sup> with empirically tested behavioral, interpersonal, and community-level change theories<sup>87,88</sup> are favored; (3) interventions are more likely sustained if embedded within cultural strengths and local systems<sup>89,90</sup>; and (4)

community participation strengthens implementation and dissemination science.<sup>91</sup> Community-engaged intervention research and practice for eliminating racial/ethnic health inequities have fostered community participation in all stages of research, in public discourse about knowledge creation and science, and in health policymaking.<sup>92-95</sup> Community-engaged and participatory research have enhanced researchers' capacity to translate evidence from highly controlled efficacy trials to real-world community interventions in diverse settings,<sup>96-99</sup> to incorporate culturally supported theories and norms,<sup>89,100</sup> and to promote external validity.<sup>101,102</sup> A Contra Costa, California, health department article identified 7 levels along a ladder of community participation; its rung of community oversight of public health practice was deemed critical for effectiveness.<sup>18</sup>

A growing evidence-based literature on community empowerment, community coalitions, and community-based participatory research (CBPR) supports the enhanced role of community and often targets structures of power and the imbalance of demand and resources at local or more macro levels. Community empowerment scholarship has expanded in the past 2 decades, while maintaining its foci on power relations<sup>103,104</sup> to redress social determinant inequities<sup>105</sup> and on the interaction between structural and personal transformation.<sup>106</sup> Definitions of empowerment have included people, organizations, and communities gaining mastery over their lives,<sup>107</sup> in the context of changing their social and political environment to improve equity and quality of life,<sup>14</sup> and, more recently, as the "expansion of assets . . . of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives."<sup>108(p6)</sup>

A comprehensive review of empowerment literature for the World Health Organization<sup>105</sup> identified research on subpopulations that achieved intermediate psychological, organizational, or community empowerment outcomes that led to longer-term health results.<sup>109,110</sup> Youth empowerment interventions, for example, have resulted in collective efficacy, social actions, and policy changes, which in turn are linked to improved health and education outcomes. Successful women's empowerment interventions have used transdisciplinary approaches,

identifying social risks of gender discrimination and socioeconomic exclusion, to enhance access to resources, rebalance decision-making power within families, promote child health,<sup>111-114</sup> and engage women in political roles.<sup>115</sup> The World Health Organization Commission on Social Determinants of Health linked its comprehensive assessment of global health inequities to political, civic, and personal empowerment.<sup>116</sup> Social epidemiologists could strengthen community empowerment interventions by identifying structural and interpersonal variables of power that could bolster community resources to overcome inequitable power relations and demands.

Community coalitions, a core community engagement strategy, aim to influence specific health outcomes or community capacity and comprehensive community health.<sup>117,118</sup> Research on coalitions has shifted over the years from a focus on internal structures and processes<sup>119,120</sup> to how coalitions can improve intermediate systems change outcomes of community capacity, empowerment, or policy change<sup>121</sup> and may affect health behaviors or health status, either indirectly through enhanced participation<sup>122</sup> or directly through organizing and policy changes with a specific health target.<sup>37,123</sup> Coalition success has included changes in hog industry pollution practices,<sup>124</sup> improved health and safety conditions for hotel workers,<sup>125</sup> better housing conditions,<sup>126</sup> increased immunization rates,<sup>127,128</sup> better control of asthma,<sup>129,130</sup> reduced underage drinking,<sup>131</sup> reduced inequities in diabetes care,<sup>132</sup> and enhanced neighborhood safety.<sup>133</sup> Social epidemiologists and interventionists could form coalitions to target issues from local to national; such teams could evaluate, for example, how neighborhood and interorganizational context variables affect people's collective efficacy and community participatory behaviors to achieve policy change.

CBPR, the fastest-growing community engagement strategy in public health, is already forging links between social epidemiology and community-engaged intervention researchers. Although CBPR can focus on epidemiological or assessment studies that are independent from intervention studies, this research strategy lends itself to integrated health inequities research. CBPR for health, derived from historical participatory research traditions that link research to action,<sup>134,135</sup> has been defined as

[a] collaborative approach to research that equitably involves all partners . . . recognizes the unique strengths that each brings . . . with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities.<sup>136(p2)</sup>

CBPR turns on its head the more traditional research paradigm in which researchers largely determine the research agenda.<sup>137-141</sup> CBPR treats community members and academics as equals in addressing issues of trust, power, capacity building, collaborative inquiry, and community use of data.<sup>142,143</sup> Community members therefore become additional partners in the transdisciplinary research team.

Largely through CBPR, more inter- and transdisciplinary collaborations, funded by the Centers for Disease Control and Prevention, the National Institutes of Health, and foundations, are forming, and some social epidemiologists are calling for participatory action.<sup>144-146</sup> As epidemiologist Steve Wing noted in 1998, if we are to transform society to eliminate health inequities, "education between scientists and the public must take place in both directions."<sup>147(p250)</sup> Collaborations have used social determinants data to target policy and practice outcomes,<sup>148,149</sup> environmental justice,<sup>150-152</sup> and children's health.<sup>153</sup> CBPR is also conducted through National Institute on Minority Health and Health Disparities–funded Excellence in Partnerships for Community Outreach, Research on Health Disparities and Training (EXPORT) Centers,<sup>154</sup> Centers for Disease Control and Prevention–funded Prevention Research Centers (<http://www.cdc.gov/prc>), Urban Research Centers,<sup>155,156</sup> and Racial and Ethnic Approaches to Community Health (REACH) programs<sup>157</sup> to reduce health disparities.<sup>158</sup> Each of these CBPR centers and projects addresses specific contexts, builds on community resources to counter high-risk conditions or demands, incorporates community participation throughout the research, and assesses power dynamics, both within partnerships and within communities.

## NEED FOR GREATER INTEGRATION

Transdisciplinary collaboration between social epidemiologists and community-engaged interventionists is still too limited in its

application, training programs, and research. In practice, much collaborative research functions at low levels of synthesis, either as multidisciplinary teams that work in parallel to address common problems, or as interdisciplinary teams whose members may work together but retain the perspective of their separate disciplines. Transdisciplinary teams aspire to jointly apply their theories and methods across disciplines to develop shared conceptual frameworks for solving problems.<sup>8,9</sup> Although the terms interdisciplinary and transdisciplinary have often been used interchangeably, transdisciplinary research requires the capacity not only to transcend individual disciplines but also to assess the level of integration of the team.<sup>159</sup>

To address health inequities together, researchers from both arenas will require better understanding of the other's assumptions and methods so that common transdisciplinary language, conceptual theory, and synthesized approaches can be developed.<sup>160</sup> In addition, a health inequities transdisciplinary research team inevitably includes a broader group of stakeholders—the community members, practitioners, and policymakers who are integral to translating research knowledge into health action.<sup>161,162</sup> We face 2 compelling questions: How can we use our starting point, the 4 sensitizing concepts (balance between demands and resources, context, role of community, and power), as well as others that may arise, to change the way both arenas operate? How does the role of community participation enhance our capacity to make a difference?

The Youth Empowerment Strategies (YES!) program in California provides an example of how a transdisciplinary collaboration can evolve. Established in the San Francisco Bay Area in 2003, the YES! project involved a collaborative CBPR team of social epidemiologists, statisticians, community-engaged and community-based intervention researchers, and educators from the outset. The program began in response to a Centers for Disease Control and Prevention request for proposals for CBPR on prevention of a health condition or risk factor. Rather than focus on individual risks, the YES! intervention was grounded in the social epidemiology literature on correlations between distressed neighborhood environments, increased exposures to violence and

other social dysfunctions, decreased social integration, and increased hopelessness.<sup>73,163</sup> The YES! social epidemiology team members had conducted an earlier national study of the correlation between neighborhood social disorder and youth behaviors, in particular tobacco and other drug use.<sup>164</sup> The YES! program then studied early adolescents in a specific low-income community with high levels of substance abuse and violence, unemployment, air pollution (high demands), and few services or extra school programs (insufficient resources).

Early on, the transdisciplinary team built a conceptual intervention model of an after-school program aimed at empowering students in the fifth through seventh grades to address neighborhood conditions through building youth civic engagement, collective efficacy, and hope. High school youths from the community, working with graduate students from the University of California, Berkeley School of Public Health, facilitated teams of younger students in using a multiyear curriculum to identify problematic issues within their schools and communities and then creating social action projects to address them. Although the social epidemiologists started with an abstract concept of neighborhood social disorder, the community interventionists and educators engaged young people in concrete activities to understand specific realities. The youths used PhotoVoice, social mapping, writing exercises, and interviews to document the good and bad within their schools<sup>165</sup> and team dialogue and decision-making to choose their social action projects. These projects tackled such problems as graffiti-marked bathrooms, bullying, and unsafe school areas. The young adolescents not only had opportunities to present PhotoVoice displays, murals, and role-plays to advocate change in the conditions they uncovered, but also in some cases moved the adults to take action to close down or clean up unsafe or graffiti-filled areas.<sup>166</sup>

Over time, the transdisciplinary team engaged in mutual training sessions with the facilitators and collectively adapted the intervention to keep it grounded in the young people's experience of risks and opportunities for change. Although the intervention supported children advocating change, as with all programs with young people, adult

mentors were needed to make change happen.<sup>167</sup>

Both groups of researchers learned in this mutual endeavor. They learned how to translate universal risk factors of neighborhood disorder and hopelessness into specific school contexts and into perceptions at different times by the community of young people, as they participated in making change. The social epidemiologists participated in the evaluation, learning the realities of implementation and of building an empowerment change model that made sense to the students and school personnel. These epidemiologists began to formulate new intervention theory that for the first time linked the community intervention theory of empowerment with transforming youths' hopelessness: hope could be fostered by enhancing youths' agency and power to make a difference. For the next grant submission, the research team partnered with the school educators to incorporate these realities into a revised research design that modified the intervention to support empowerment in confronting violence (identified as a critical issue by principals and students) and thereby countering hopelessness about a specific issue and making change more attainable for younger students.

One of the methodological advances derived from the theoretical insights was the creation of developmentally appropriate self- and collective-efficacy (or collective-power) constructs validated for young adolescents. These constructs were integrated into a mixed-methods design; interviews provided complementary understandings of dynamic changes over time and nested individual efficacy changes within teams and organizational context. Youths' capacity to influence change, for example, depended on team functioning, facilitator skills, and authority figures who had the resources to make things happen.

The YES! project identified a new 2-stage model of etiology in which the initial risk characterization led to more complex understandings of contextual risks and overall vulnerabilities as perceived by the young people, whose perceptions changed over time as they acted to make changes within the schools. Similarly, this model created an iterative intervention, involving youth empowerment and collective team advocacy that led to hope and

targeted school changes, which reinforced more advocacy actions.

## RECOMMENDATIONS FOR RESEARCH

A transdisciplinary approach can change research in several ways. First, this approach opens up the research questions. In the YES! program, social epidemiology questions of neighborhood dysfunction were translated to specific contexts, in which community interventionists engaged youths in mapping their schools and communities. This strategy of asking questions both about risk factors defined by population race, age, or gender and about the local and shifting context of these risks can lead to greater clarity on questions about the risk factors and potential targets for the intervention itself.

Second, involving social epidemiologists can change the scope of intervention research. In the YES! project, they were able to create a multilevel and dynamic theory of change that the children and school personnel could understand, enabling the team, through a CBPR process, to develop a plan to modify the intervention to focus on schools and violence. In another example of transdisciplinary CBPR research, involving Indian tribes, the team first conducted an ecological community assessment, which, among other issues, examined historical trauma.<sup>168</sup> This assessment provided descriptive data on people's perceptions of trauma related to loss of culture and language. Only after researchers and the tribal advisory committee discussed creating an intervention together, however, did the tribal partners contextualize the losses within their own history of forced relocation off ancestral lands and seek an intergenerational family intervention to support cultural renewal and healing through elder storytelling to children. Integrating the general with the specific context changed researcher ideas of what to include in the intervention and refocused the research questions about the impact of cultural connectedness on community capacity and health outcomes.<sup>169</sup>

Third, involving these researchers in a team can change the evaluation design and measures to better integrate quantitative and qualitative methods. Because community-engaged

participatory researchers are committed to community ownership, initial choices of data to collect could be informed by the contributions of their community partners. For example, a transdisciplinary team might recognize that communities are tired of being surveyed without action and would incorporate assessments of community strengths, history, and readiness for action. Data analysis could include triangulation of mixed methods, so that data are contextualized and interpreted for and with the community, with potentially enhanced use of results. As Macintyre suggests in her debate on the relationship between individual- and area-level deprivation, not only must empirical evidence of social determinants be up-to-date, but their significance as risk factors (and therefore their significance for action) should be evaluated in light of local perceptions of social meaning—information that is gathered more consistently by community-engaged interventionists.<sup>170</sup>

Fourth, study results can continue to influence social epidemiology and community-engaged intervention methods, measures, and theories of etiology or change. In the YES! project, new measures were developed to address newly linked theories between empowerment and hope and to assess interactions between individual and team changes. In the tribal project, intervention results might inform more nuanced measurement constructs of enculturation and historical trauma.<sup>168</sup> In the growing area of CBPR policy research, a new theory is emerging about the importance of political participation and use of social epidemiology data to move policy change forward.<sup>93,171</sup> Krieger suggests that an ecosocial model could stimulate interdisciplinary collaboration.<sup>172</sup> She notes that power and political-economic relations permeate all levels of risk factors and require simultaneous multilevel risk analyses and development of multilevel strategies to challenge risks.

Fifth, the grounding of both sets of researchers in applied thinking and in working with community partners will help them to communicate and translate their findings into practice and policy. Applications could range along a continuum from responding to a policymaker who requests background information, to writing a community or policy brief as an executive summary of original research, to

gathering inequities data for informing new interventions, practices, and policies.

## Training

The development of transdisciplinary research would be encouraged by graduate-level cross-training.<sup>173</sup> In an initial field experience class taught by faculty from each perspective, teams of students could identify health problems within a community. The concepts of balance between resources and demands, context, role of community, and power and political dynamics, among others, could be debated. Teams, which might include students from other disciplines, such as social work, planning, social sciences, and communications, could then elect to work on and apply their research methods, change strategies, and theories to these health problems throughout their training.<sup>174</sup>

At the University of New Mexico, a summary integrative experience class for the epidemiology, community health intervention, and generalist master of public health students offers an opportunity for teams to work together after more specific training. The teams engage with a local clinic and neighborhood to identify health questions from community members and providers, explore the epidemiology literature, and develop program plans and actions. This experience provides students an opportunity not only to ground their training in community priorities, but also to learn how to use information from both perspectives to translate research findings to practice and policy change. The goal is to promote critical reflective educational dialogue and support community-engaged student (and faculty) teams working off campus for community change.

Integration of training and research provides an opportunity to transcend the traditional academic hierarchy that views epidemiology as the primary science of public health. Social epidemiology already integrates many of the social issues embraced by community-engaged interventionists. A new heterarchy of mutuality of knowledge and learning between the sciences of social epidemiology and community-engaged and participatory interventions can then be generated.<sup>175</sup>

## Structural Support

Structural and financial support are critical to the growth of transdisciplinary inequities

research. Within new or existing postdoctoral fellowships that support transdisciplinary learning,<sup>176</sup> foundations and the National Institutes of Health could strengthen opportunities for junior investigators to cross-train in teams, along with community mentors, to address shared health inequities issues. New federal transdisciplinary inequities research awards could mandate the participation of both social epidemiologists and community-engaged interventionists as co-principal investigators.

Teams could more effectively answer such questions as what research designs best assess intervention effectiveness, how to adapt interventions for diverse settings, and how best to facilitate knowledge uptake of results. Multi-institutional calls for health disparities research might lead to new structures, similar to the Institute for Gender and Health and the Institute for Aboriginal Peoples' Health in the Canadian Institutes for Health Research.

## CONCLUSIONS

Collaborations between social epidemiologists and community-engaged intervention researchers can enhance the contributions of both to reducing health inequities. Unlike their colleagues in other types of epidemiological research, social epidemiologists do not have clinical counterparts. Cardiovascular epidemiologists partner with cardiologists and nephrologists; cancer epidemiologists partner with oncologists. To acquire effective investigative approaches and the ability to translate results to actionable knowledge, social epidemiologists must forge partnerships with those who are targeting social determinants through health-enhancing policies, practices, and interventions. Similarly, this interaction enriches community-engaged intervention researchers' creation and modification of interventions, measurement of appropriate constructs, evaluation findings, and generation of new theories and strategies for change. Developing and translating data into real-world use with community partners then becomes a more important role for both sets of researchers.

Beyond these recommendations and a recognition of the impact on each arena, core values remain to be addressed: how much do we, as health researchers and practitioners, value transdisciplinary concepts when we ask

questions from our disciplines, how much do we contextualize issues of risk and resources within larger political and power contexts, and ultimately, how much do we need consensus on what etiologic evidence is sufficient before we act to challenge health inequities? By identifying these 4 constructs as emerging shared language, we hope our research leads to other concepts and methods that further the growth of transdisciplinary collaboration. Clearly, the process of creating a coordinated effort is lengthy, involving cross-education, challenge, and reflection on each other's methods and theories, and requiring transdisciplinary research practice in the field.

Although the pathways between material deprivation, racism, and perceptions of powerlessness are not yet completely elucidated, community participation in research and advocacy is a critical strategy for targeting social determinants to create favorable conditions for health. Working together is crucial if we want to develop programs, policies, and political actions that address the corrosive issue of health inequities. ■

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