

# COMMUNITY ENGAGED TEACHING, RESEARCH AND PRACTICE

## A Catalyst for Public Health Improvement

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### Abstract

*The interdisciplinary field of public health promotes health among populations. Complex public health needs persist in the United States, influenced largely by social and structural determinants. Viable solutions require creativity and a commitment to change the status quo, facilitated by collaborative problem-solving. Public health education programs in the United States have a role in developing a workforce that is equipped to support these processes. Cornell University's Master of Public Health (MPH) Program sought to identify opportunities to simultaneously support student learning, community capacity development, and community-centered action for public health improvement. A sequential two-phased approach was used to define curricular components and indicated pedagogical methods. Two key themes emerged: alignment of skills and abilities needed and desired by current and future public health workers and the strategic role community engaged learning could play in advancing learning and improving public health. Community engaged learning was specifically adopted as the primary pedagogical approach for a series of three courses in the Cornell MPH Program, focused on needs assessment, intervention planning, and monitoring and evaluation for improvement. These courses were designed with community collaborators, with goals to build student knowledge and community capacity in 12 domains and improve community health outcomes via collaborative work.*

### Introduction

Public health protects and improves the health of people by preventing disease and promoting health among populations, with the goal of ensuring population-wide physical, mental, and social well-being (DeSalvo, O'Carroll, Koo, Auerbach, & Monroe, 2016; DeSalvo et al., 2017). Despite advances in knowledge and medicine, public health needs persist in the United States, influenced largely by social and structural determinants (factors such as equity in access to education, housing, employment, safe neighborhoods, and health services, and policies and systems that support this) and affect people and communities disproportionately, often delineated by racial,

ethnic, income, and/or geographic lines (Artiga & Hinton, 2018; National Center for Health Statistics, 2015). These needs are complex and adaptive—issues for which the problem itself is hard to define, and thus viable solutions require creativity and a commitment to change the status quo, facilitated by multiple perspectives for collaborative problem-solving (Frenk et al., 2010; Heifetz, Grashow, & Linsky, 2009). To design and implement programs to address these needs, diverse perspectives and expertise are required, as is a commitment to working with communities to leverage their context expertise (DeSalvo et al., 2016, 2017; Kania & Kramer, 2011). This makes public health an interdisciplinary field that spans social and basic sciences, diagnostics and discovery, and education and community development.

The complexity of current public health needs and influencing factors has influenced calls to challenge the status quo of public health training and practice (DeSalvo et al., 2016, 2017; Fraser, Castrucci, & Harper, 2017). To more effectively support conditions in which people can be healthy, preventing disease and prolonging life, the field of public health is refining training methods and accreditation strategies and re-committing to methods of practice that empower communities to direct their own health improvement (DeSalvo et al., 2016, 2017; King, 2017). Community partnerships, competence development, real-world learning, collaboration, and collective impact are ideas shared in support of change.

Universities have a role to play in this, as producers of research, workforce developers, and contributors to community engagement and development (ASPH Education Committee, 2006; ASPPH, 2013; King, 2017). Public health draws on research and the evidence base from multiple academic fields (sociology, psychology, communication, education, human development, immunology, epidemiology, etc.) to inform public health practice. Public health is implemented by a diverse workforce (comprised of health care and allied health care providers, educators, administrators, economists, policy-makers, etc.) that is largely trained in a university setting (APHA, n.d.; CDC, n.d.-b). And public health is improved via engaged and shared investment and development from the community level, a role many universities commit to (Ashoka U, n.d.; Campus Compact, n.d.).

In the United States, more than 200 schools and programs of public health are seeking to train professionals to help understand and address public health needs (ASPH Education Committee, 2006; King, 2017). In this article, Cornell University, a tertiary education institution with a land grant mission, is offered as an example of how a Master of Public Health (MPH) Program was encouraged to adopt community engaged learning (CEL) as a core element of its program and curriculum design, as a way to support community partnerships, competence development, real-world learning, collaboration, and collective impact. This article presents a summary of Cornell's formative research and contributes to the evidence-based conceptual argument for integrating CEL into university-based education for fields linked to public health, to simultaneously support learning, workforce capacity development, and community-led action for public health impact.

# Background

## Our Public's Health

Currently, the United States is experiencing critical public health needs and significant inequities in health outcomes linked to race, ethnicity, gender, and class (Bailey et al., 2017; National Center for Health Statistics, 2015). Average lifespans are decreasing in the United States for the first time in decades (Devitt, 2018). Infant mortality rates in the United States are above those of other developed countries (Thakrar, Forrest, Maltenfort, & Forrest, 2018). Communities are suffering ill effects from polluted water and air as well as from climate change (Patz, Campbell-Lendrum, Holloway, & Foley, 2005). Some 50% of the U.S. population is affected by malnutrition—hunger, overweight, or obesity—and about 25% of the adult population has diabetes or prediabetes (CDC, n.d.-a, 2017; IFPRI, 2016). These chronic diseases consume some 40% of the U.S. health care budget while also contributing to disability—reducing years of productive life and impacting mental health and self-esteem (Cawley & Meyerhoefer, 2010; CDC, n.d.-a, 2015, 2017).

While genetics and access to health care account for a small proportion of U.S. health outcomes, the majority are influenced by the *social determinants of health*—the social, environmental, and behavioral factors that each person encounters in their communities (Artiga & Hinton, 2018; Choi, Sonin, Hrothgar, & Kittelsen, 2018; CSDH, 2008). Addressing these public health needs requires community-led and community-based interventions that link public health, health care, and community resources (DeSalvo et al., 2016, 2017a, 2017b; Freudenberg, Pastor, & Israel, 2011; Wolff et al., 2017).

## Many Professions Support Public Health

The enumerated U.S. public health workforce comprises some 300,000 people at local, state, and federal departments of health; this does not include the hundreds of thousands working in the private and non-governmental sectors (Bogaert et al., 2019; University of Michigan School of Public Health, 2013). The public health workforce comprises many professions—epidemiologists, statisticians, health educators, policy makers, managers, nurses, veterinarians, social workers, to name a few—and extends far beyond the government to include people representing the public and private sectors. A public health system is made up of formal and voluntary entities that support the essential services of public health, including health departments, health care centers, benefits services, law enforcement, schools, faith-based organizations, neighborhood groups, libraries, and business, among others (CDC n.d.-b).

There is no specific credential required to be a part of the interdisciplinary public health workforce, and public health teams are often made up of professionals with diverse skill sets and backgrounds. However, it is estimated that some 25,000 students graduate with a public health degree each year. About 90% of those graduate with an MPH degree, earned in addition to a bachelor's degree in diverse fields and possibly in addition to another degree such as an MD, RN, DVM, PhD, etc. (Leider, Plepys, Castrucci, Burke, & Blakely, 2018).

# The Role of Universities in Public Health Training and Workforce Development

Public health training has been a part of university offerings in the United States for more than 100 years, established to develop interdisciplinary professionals able to prevent disease and support population health (Feldscher, 2015). There are some 200 accredited schools and programs of public health (SPPH) programs in the United States (CEPH, n.d.). A series of reports in the early twenty-first century suggested that the 100 years of rapid growth in public health education resulted in training that was siloed and isolated from on-the-ground public health work, developing graduates whose skills did not match those needed in the workforce (Foster, King, & Bender, 2018; Horton, 2010; King, 2017). This was due, in part, to university environments where individual academic productivity and research is prioritized over teaching, community engagement, and collaboration (Alperin et al., 2019; Horton, 2010).

Many public health training programs in the United States are informed by national accreditation standards. In line with feedback that the public health workforce required competence in new and emerging areas, new accreditation standards for public health education were released in 2016 (CEPH, 2016; King, 2017). Following trends in other professional training programs, the new accreditation criteria shifted away from a course-based training approach toward one of competency development (Britten, Wallar, McEwen, & Papadopoulos, 2014; CEPH, 2016; Meredith et al., 2017), giving SPPH the freedom to design and deliver curricula in new and innovative ways (Petersen & Weist, 2014) and to focus on strategic skills and practices that align with community and workforce needs (CEPH, 2016; Petersen & Weist, 2014; Resnick et al., 2019).

## Building Competence

Competency-based training programs expect graduates to demonstrate mastery of specific knowledge, skills, and values, and the ability to integrate and apply them effectively in various environments to achieve a desired outcome (ASPH Education Committee, 2006; Britten et al., 2014; Calhoun, Ramiah, Weist, & Shortell, 2008; CEPH, 2016). This form of education supports long-term career success by developing stronger self-awareness, better understanding of how practitioners integrate with and serve their environment, and commitment to ongoing self-assessment and lifelong learning (Rissi & Gelmon, 2014).

The 2016 Council on Education for Public Health (CEPH) criteria require accredited MPH programs to ensure student competence in at least 22 areas of practice (CEPH, 2016). To support competence development, MPH programs are encouraged to integrate real-world activities that develop useful products for public health into curriculum and to engage in *applied practice experiences* with field sites that result in deliverables that are useful to the host partner (CEPH, 2016). This follows trends in other professional, medical, and allied health training programs (Meredith et al., 2017).

## Rationale—A New Opportunity for Public Health Education

In 2016, after years of consideration, Cornell University began planning processes to develop and offer an MPH degree. Motivations for this new degree offering included helping to meet defined and emergent public health workforce needs, helping to integrate public health theories and practice into multiple disciplinary approaches already taught at the university, and helping to develop public health strategists equipped to address the complex interplays affecting present and future human health and ecosystem health (Meredith, Baker, & Travis, 2018).

Given the freedom to develop a professional public health degree training program *de novo*, the MPH Program development team sought to identify potential opportunities to simultaneously meet student learning needs, support community capacity needs, and facilitate community-centered public health planning and action for community health improvement.

## Methods

A sequential two-phased approach was used to answer two research questions. As a novel MPH program that is a part of a land grant institution committed to community engagement, (1) What competencies should we be ensuring among our trainees, and (2) Which pedagogical methods are indicated to support both community engagement and competence development? Primary methods used were identification and triangulation of literature and best practices and context-specific validation through strategic planning with community stakeholders.

## Phase 1—What Competencies Should We Be Ensuring?

The Cornell MPH Program was developed at a time when the requisites of accredited MPH programs were shifting. To develop a framework to guide the Cornell MPH curriculum, we sought to identify—and understand alignment between—the competencies required by our trainees, both MPH students and the public health workforce, in order to ensure workforce readiness.

Published grey and white literature was identified via web-based searches of national public health leadership and accreditation committees, Google Scholar, and citations noted in key documents. Documents were reviewed and competence themes summarized in thematic tables in Microsoft Excel. A thematic comparative analysis across sources was conducted using the CEPH foundational competency domains for MPH programs as *a priori* codes.

While the iterative and evidence-informed development of public health competencies for university-based training programs and government-level public health agencies were well defined, competence needs for the non-governmental frontline public health workforce was wanting. Thus, an additional research question emerged: Who is not accounted for in the existing public health workforce capacity assessments, and what capacities might they need?

An additional review was conducted to explore literature related to community-based public health practice including collective impact, community organizing, and Public Health 3.0. To “ground truth” the emergent themes, and to develop a locally relevant understanding, the literature review was cross-referenced with notes taken during a series of informal semi-structured interviews, community meetings, and focus groups with front-line public health workers, conducted as a part of the MPH Program’s community engagement and strategic planning processes. Thematic analysis was conducted across the literature and qualitative input to summarize priority capacity building focal areas for frontline workers involved in collaborative public health work at community levels. These findings were then cross-walked with the first phase to present a comprehensive picture of competence needs of public health practitioners across sectors.

## Phase 2—Which Pedagogical Methods Are Indicated to Support Community Engagement and Competence Development?

To consider pedagogical methods that could be used to meet MPH Program goals, including engaging students with community partners for partnership, learning, and public health improvement, consultation was sought from multiple entities. Based on the summary of key terms and priorities identified—such as community collaboration, field work, service learning, reciprocity, and community development—community engaged learning was suggested as a model to consider. A literature review was used to identify and review indicators, processes, outcomes related to CEL in public health education and related fields. A thematic analysis based on emergent codes was used to identify core outcomes for community partners, students, and universities.

## Findings

Findings from the literature reviews and stakeholder input elucidated multiple areas of alignment between MPH competence domains, workforce capacity development needs, and the potential benefits of CEL. This section presents findings to address each research question individually.

## Phase 1—What Competencies Should We Be Ensuring?

The data reviewed indicates extensive overlap between the competencies graduates of accredited MPH programs must demonstrate, the competencies accredited public health department staff must demonstrate, and the competence needs of the non-governmental frontline public health workforce.

**Competencies graduating MPH students must demonstrate.** The CEPH defines 22 competencies that an MPH program graduate must demonstrate organized into eight domains: evidence-based approaches; public health and health care systems; planning and management; policy; leadership; communication; interprofessional

practice; and systems thinking (Table 1; CEPH, 2016). These domains were used as a priori codes to group and summarize other workforce competencies.

**Public health workforce competence needs.** Workforce competence needs were outlined based on public health department accreditation criteria and self-assessment of needs by current practitioners.

*Expected workforce competence domains.* As a part of a national initiative to standardize services and improve outcomes, the governmental public health workforce may participate in accreditation processes overseen by the Public Health Accreditation Board (PHAB) (PHAB, n.d.). Health departments seeking accreditation need to meet standards and present compliance in a self-study report (PHAB, 2015). To ensure requisite workforce competence domains, the Council on Linkages Between Academia and Public Health Practice (2014) developed a set of 90 competencies within eight domains that reflect the foundational skills professionals working in public health should have. Areas include analytics/assessment, policy development/program planning, communication, cultural competence, community engagement, public health science, financial planning and management, and leadership and systems thinking (PHF, 2014).

Thematic analysis of the PHAB workforce competencies cut across CEPH themes, meaning many of the eight PHAB competence domains—and the related indicators—could be mapped to two or more CEPH competencies; all CEPH competencies overlapped with PHAB competencies (Table 1). Additional themes also emerged that appeared to crosscut the predefined competencies: community engagement, community-centered work, cultural competence, collective leadership strategies, and use of data to inform action (Table 1).

*Existing workforce competence gaps.* In 2014, and again in 2017, a Public Health Workforce Interests and Needs Survey (PH WINS) was distributed to understand how equipped the public health workforce is to meet public health challenges expected to emerge within the next five years. The nationally representative findings, from more than 10,000 respondents in 37 states, report that there are significant gaps in the public health workforces' self-assessed abilities to meet the demands of their jobs (Bogaert et al., 2019; Sellers et al., 2015).

PH WINS suggests that the government public health workforce at local, county, and state levels seeks competence development in 12 core areas: policy analysis and development, business management, budget and financial management, systems and strategic thinking, understanding of the social determinants of health, evidence-based public health practice, collaborative practices and partnerships, methods to engage diverse communities to solve complex problems, developing a vision for a healthy community, change management, cultural competence, and effective communication (Table 1; Bogaert et al., 2019; Sellers et al., 2015). These data indicate domains where public health graduates could bring extra skill and value to the workforce in the future and also show that there is substantial potential for existing workforce capacity building through professional training programs.

**Additional considerations—National perspectives.** Additional competence needs were identified based on the skills and knowledge called for in emerging frameworks linked to public health and community development.

*Public Health 3.0.* A new paradigm for interdisciplinary and cross-sector public health improvement was released by national public health leaders in 2016 (DeSalvo et al., 2016). Public Health 3.0 re-centers the focus of public health on community and the social determinants of health and explicitly calls for cross-sector engagement to do so, suggesting that communities must work together to identify and generate collective impact

**Table 1**  
***Crosswalk of Public Health Competence Needs of the Existing and Future Workforce***

Future Workforce—MPH graduates CEPH foundational competence domains <sup>1</sup>	Existing workforce			
	Competencies for public health department accreditation: CoL <sup>2</sup>	Workforce self-assessed competence development goals: PH WINS <sup>3</sup>	Skills needed for Public Health 3.0: de Beaumont <sup>4</sup>	Skills needed by frontline public health workers: Review <sup>5</sup>
<b>Evidence-based approaches</b>				
• Able to collect, analyze, use quantitative + qualitative data to understand issues and disparities and inform action	✓	✓	✓	✓
<b>Public health &amp; health care systems</b>				
• Able to understand the drivers of health inequities (bias, social inequities, racism) at multiple levels and how the health care, public health, and regulatory systems work	✓			✓
<b>Planning &amp; management</b>				
• Able to assess population needs, assets, and capacities and develop, manage, and evaluate a culturally appropriate policy, program, project, or intervention design, including human and budget resources	✓	✓		✓
<b>Policy</b>				
• Able to use ethics and evidence to engage stakeholders, foster partnership, advocate to evaluate, implement policies to reduce inequities	✓	✓	✓	✓
<b>Leadership</b>				
• Able to use leadership, governance, management, negotiation, mediation to create a vision, empower others, foster collaboration to address challenges	✓	✓	✓	✓
<b>Communication</b>				
• Able to use written and oral communication strategies with cultural competence for different audiences	✓	✓	✓	✓
<b>Interprofessional practice</b>				
• Able to perform effectively on interprofessional teams	✓	✓		✓
<b>Systems thinking</b>				
• Able to apply systems thinking tools to public health issues	✓	✓	✓	✓
<b>Crosscutting themes<sup>1</sup></b>	<b>CoL<sup>2</sup></b>	<b>PH WINS<sup>3</sup></b>	<b>de Beaumont<sup>4</sup></b>	<b>Frontline<sup>5</sup></b>
• Cultural competence	✓	✓	✓	✓
• Equity			✓	✓
• Determinants of health		✓		✓
• Community and partner engagement	✓	✓		✓
• Collective leadership	✓	✓		✓

<sup>1</sup>CEPH, 2016.<sup>2</sup>PHF, 2014.<sup>3</sup>Bogaert et al., 2019; Sellers et al., 2015.<sup>4</sup>de Beaumont Foundation, 2017.<sup>5</sup>Thematic analysis of multiple sources, including CDC, 2017; Collective Impact Forum, 2014, 2015; Devia et al., 2017; Freudenberg et al., 2011; Hanleybrown et al., 2012; Kania & Kramer, 2011; Wolff et al., 2017; and MPH Planning notes, derived from multiple stakeholder and community meetings.



to address their most pressing needs, bridging health care and community-wide public health interventions (DeSalvo et al., 2016, 2017a, 2017b). This may be facilitated by a community-based “health strategist” who can ensure community engagement, development of structured cross-sector partnerships, increased availability and use of granular and actionable data, workforce competence, and enhanced funding for public health (DeSalvo et al., 2016, 2017a, 2017b).

*Strategic skills needed for Public Health 3.0.* Related to the Public Health 3.0 framework, the de Beaumont Foundation released a set of eight strategic skills needed within the workforce to support and lead community health improvement (de Beaumont Foundation, 2017). These skills—systems thinking, change management, persuasive communication, data analytics, problem-solving, diversity and inclusion, resource management, and policy engagement—overlap explicitly and implicitly as themes with most of the CEPH competence domains (Table 1; de Beaumont Foundation, 2017). Themes that appear to crosscut these strategic skills are equity, engagement, cultural competence, collective leadership strategies, and use of data to inform action.

*Collective impact.* Collective impact is a delineated process of collaboration used to helping solve complex social problems (Kania & Kramer, 2011). Under the model, community leaders work collaboratively to build and adopt a shared agenda, invest in local capacity building, and align collective resources to approach and improve an outcome (Kania & Kramer, 2011, 2013; Weaver & Cabaj, 2018). The collective impact model has been adopted by many funders and implementers as a way to align efforts, braid funding, and achieve measurable change; however, there are indications that the current public health workforce needs greater capacity to take this on (Collective Impact Forum, 2014; Sellers et al., 2015). Foundational needs for achieving collective impact include coalition building, diverse voices, a shared commitment to problem definition, and development of a shared vision for problem-solving (Hanleybrown, Kania, & Kramer, 2012). Success comes with long-term commitment (years), trust, investment in local capacity, an explicit focus on identifying and addressing the social and structural barriers, and a commitment to generate and use shared data to inform collaborative work (Bartczak, 2014; Collective Impact Forum, 2014; Wolff et al., 2017). The importance of building up community capacity to allow those most impacted to lead the change cannot be underestimated (Freudenberg et al., 2011).

*Frontline public health capacity needs for collective impact.* While every community may have different capacity building needs to be in a position to participate in, or lead, community action for public health improvement, a number of general needs were elucidated by the literature: community building, developing trust, supporting collaboration, understanding of social and structural determinants of health, communication, community empowerment, leadership, negotiation, data collection and use, quality improvement, problem-solving, fiscal and human resource management, systems thinking, change management, and policy development (CDC, 2017; Collective Impact Forum, 2014, 2015; Devia et al., 2017; Freudenberg et al., 2011; Hanleybrown et al., 2012; Kania & Kramer, 2011; Wolff et al., 2017). Despite different nomenclature in the cited literature, themes appear to crosscut CEPH competence domains either explicitly or implicitly (Table 1).

**Additional considerations—Local perspectives.** In an effort to adapt and/or validate the literature-based perspectives to the community and contexts affiliated with the Cornell MPH Program, themes from the review were summarized into a conceptual framework, as a way to consider and ground/frame the Cornell MPH train-

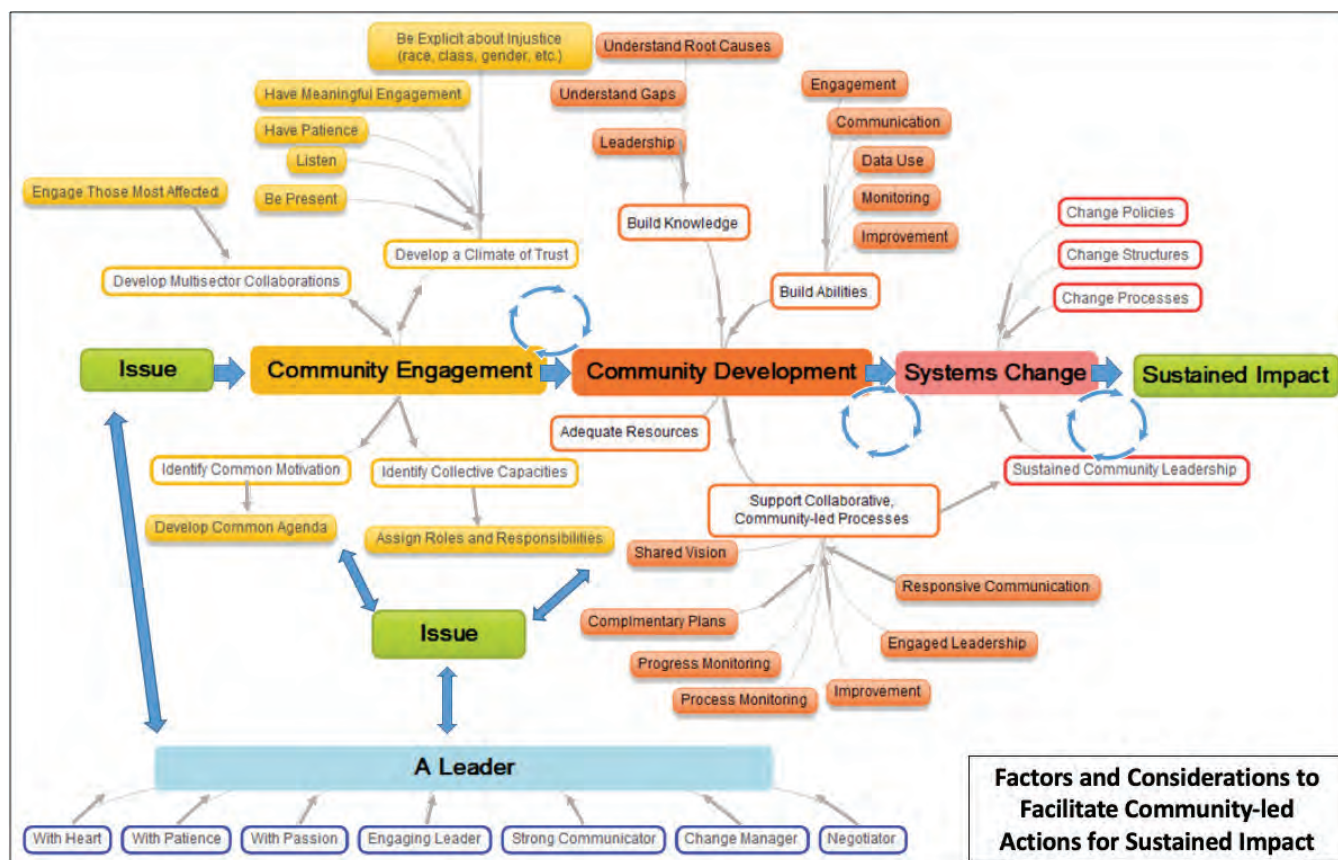


Figure 1. Community Capacity Needs and Factors that Facilitate Collective and Sustained Impact

ing. To ground truth the framework, and in line with themes emerging from stakeholder and community meetings used to help develop and inform the MPH Program, a collective/community capacity building framework was introduced and adapted via stakeholder meetings and local collective impact work (Figure 1).

In addition to general capacity building themes that were identified (such as coalition building, communication, negotiation, change management, trust building, strategic planning, data collection, data utilization), specific advice for community engagement also emerged. This included the importance of taking time to build trust with the community, spending time in the community (without action; learning), engaging the community, seeking diverse voices, ensuring a shared understanding and developing shared nomenclature, investing in community development, and building knowledge and understanding together.

**Summary.** Although a large number of documents and frameworks related to public health competencies were considered to inform the Cornell MPH curriculum, a crosswalk showed strong alignment and provided clear direction. The competence development foci of the existing and future workforce, the expressed competence development needs of the current workforce, and the capacity domains needed to implement collective impact and achieve Public Health 3.0 indicate that there is clear alignment in competence development efforts and needs (Table 1).

## Phase 2—Which Pedagogical Methods Are Indicated to Support Community Engagement and Competence Development?

Following definition of the competencies needed, the Cornell MPH Program development team considered potential program and pedagogical models. CEL was identified as an approach with a documented record of success that could effectively address competence needs while concurrently engaging the existing workforce, translating research into practice, and fostering community public health action. The findings linked to public health education are summarized here.

**Community engaged learning.** CEL is a pedagogical approach that facilitates learning through doing, as knowledge and skills are practically applied to specific and differing contexts (Jacoby, 2015). The method grew from John Dewey’s work that “established an educational pedagogy embedded in experience. . . . [and since then] service learning has become the principle mechanism for putting students in a more active and engaged role than that of a passive classroom learner” (Chupp & Joseph, 2010, p. 193). David Kolb further developed the experiential learning model that proposes four key elements that form a cycle: concrete experience, reflection on the experience, formation and synthesis of abstract/new concepts based on the reflection, and active experimentation that tests the concepts in new situations; learning deepens with each cycle (Jacoby, 2015; Kolb, 1984, 2015).

In ideal scenarios, CEL creates reciprocal co-learning environments that contribute to the capacity development of all involved, including students, community partners, and university faculty (Jacoby, 2015). To achieve this, there are four key characteristics: reciprocity, mutual benefit, meaningful relationships, and reflection (Jacoby, 2015). The first three explicitly link a university and faculty to the community partner (community co-educator), with the students acting as the catalyst.

*Reciprocity* implies that all parties have a stake in the project, including working together to develop the goals and practices of the project and to implement aspects of the project (Jacoby, 2015). This reciprocity links to *mutual benefit*, which recognizes that all parties should benefit from community engaged projects (Jacoby, 2015). To achieve this, “learning should be designed with the community to meet the needs identified by the community” (Jacoby, 2015, p. 4), as a result of authentic, sustainable relationships. These *meaningful relationships*, “when characterized by trust and a genuine desire to meet mutual aims, have the potential not only to contribute to student learning, but also to attend to persistent issues facing the larger community” (James & Logan, 2016, p. 17).

Community engaged learning works best when linked to a course in an organized fashion to help guide and deepen learning (Van de Ven, 2007), connecting students with the community so that “students apply their emerging knowledge and skills to situations in the “real world” . . . in a way designed to be beneficial or helpful to the community partners” (Olberding & Hacker, 2016, p. 26). To achieve the desired learning outcomes, the course should include structured opportunities for *reflection*, linking the community-based work to the course

**Table 2**  
***Documented Benefits of Community Engaged Learning, by Constituent***

	Construct	Benefits
<b>Student</b>	Academic learning	Depth of, meaningfulness of, and retention of learning and ability to turn theory into practice (Comeau et al., 2019; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015)
	Social + emotional learning + skill development	Compassion, cultural awareness, critical thinking, interpersonal skills, problem-solving, collective problem-solving, leadership, communication, presentation skills, community engagement, professional identity, and critical consciousness (Comeau et al., 2019; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015)
	Civic learning, social commitment + citizenship	Volunteerism, serving on nonprofit boards, participating in community groups, donating to charitable organizations, and voting (Budhai, 2013; Chupp & Joseph, 2010; Olberding & Hacker, 2016)
	Multicultural + intercultural competence	Cultural humility, including the ability to engage with and interact with various ethnic and cultural groups (Budhai, 2013; Chupp & Joseph, 2010; Sabo et al., 2015)
	Career development	Deeper investments in community engaged scholarship and “real-world” public health research (Comeau et al., 2019; Olberding & Hacker, 2016; Sabo et al., 2015)
<b>University</b>	Faculty	Extends research agenda, brings relevance to research, and facilitates impact from research (outputs and outcomes for communities and/or for scholarship) (Chupp & Joseph, 2010; Comeau et al., 2019; Olberding & Hacker, 2016)
	University profile	Improved university image, reputation, and brand Chupp & Joseph, 2010; Comeau et al., 2018; Olberding & Hacker, 2016)
	Community relations	Collective problem-solving (Gerstenblatt, 2014)
	Quality of life	Can help with recruiting and retaining students, faculty, and staff (Olberding & Hacker, 2016)
<b>Community</b>	Organizational capacity + reach	Expanded labor force, increased service provision, greater ability to serve clients, greater capacity to take on new projects, enhanced services, improved client outcomes due to student outputs, including reports, conference presentations, community/needs assessments, data collection, data analysis, provision of quality data and reports, strategic program design, proposal/grant writing, use of processes for community-centered decision-making, and meeting/workshop planning/facilitation (Budhai, 2013; Chupp & Joseph, 2010; Comeau et al., 2019; Driscoll et al., 1996; Edwards et al., 2001; Geller et al., 2016; Gerstenblatt, 2014; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015; Worrall, 2007)
	Organizational/ staff/ volunteer knowledge + skills	Advocacy, teaching techniques, improved presentation skills, patience, personal and collective problem-solving, resilience, digital technology, computer literacy, respect for intra-professionalism, and civic mindedness, helping inform tool/process development or refinement, improving volunteer management, fundraising, strategies, infrastructure and systems (Gerstenblatt, 2014; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015; Worrall, 2007)
	Economic benefits	Cost savings, development of potential new hires, expanded support networks, increased community involvement, increased fundraising, grant writing, or data-driven advocacy (Driscoll et al., 1996; Geller et al., 2016; Gerstenblatt, 2014; James & Logan, 2016; Olberding & Hacker, 2016; Worrall, 2007)
	Social benefits	Increased interactions, building personal relationships, community building, having role models, being able to serve as a role model, and developing enhanced connection with the community (Budhai, 2013; Gerstenblatt, 2014; James & Logan, 2016; Worrall, 2007)
	Empowerment + personal growth	New ideas, energy and enthusiasm, fresh perspectives, optimism, new approaches, collective planning, organizational development, enhanced ability to reach the organization’s mission (Budhai, 2013; Comeau et al., 2019; Gerstenblatt, 2014; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015; Worrall, 2007)

curriculum and readings and building skills in critical thinking, information literacy, and collaborative problem-solving (Comeau et al., 2019; Jacoby, 2015; Olberding & Hacker, 2016; Sabo et al., 2015).

**Benefits of community engaged learning.** Research on the benefits of CEL is a growing area. Much of the existing research builds from a framework that Gelmon et al. developed in 2001 as a part of the Campus Compact, a coalition of more than 1,000 colleges and universities that are committed to the public purpose of higher education (Campus Compact, n.d.; Gelmon et al., 2001). The framework is made up of three categories focusing on (a) student learning and development (awareness of community, self-awareness, communication, commitment, involvement, sensitivity to diversity, career development, understanding of course content); (b) faculty approach/considerations (motivation, impact on teaching, impact on scholarship, areas of emphasis, professional development, awareness, satisfaction, barriers, facilitators); and (c) community benefit (capacity to fulfill organizational mission, economic benefits, social benefits) and partnership design/success (nature of relationship, nature of interaction, satisfaction, sustainability; Gelmon et al., 2001).

Looking across the literature, the benefits of CEL touch all involved (Table 2). Students experience improvements in academic learning, social and emotional learning and skill development, civic learning and citizenship, career development, and ability to turn theory into practice (Budhai, 2013; 2016; Chupp & Joseph, 2010; Comeau et al., 2019; James & Logan, 2016; Olberding & Hacker, Sabo et al., 2015). Universities and faculty may extend their research agendas, see more relevance in research, develop pathways for impact from research, contribute to the development of community relations, and show potential to improve quality of life in the community (Chupp & Joseph, 2010; Comeau et al., 2019; Gerstenblatt, 2014; Olberding & Hacker, 2016). Community members may appreciate an increase in organizational capacity and reach, organizational and personal knowledge and skills, tool and/or process development or refinement, economic benefits, empowerment and personal growth, organizational development, an enhanced ability to reach organizational mission, and an increased ability to influence policy and outcomes (Budhai, 2013; Chupp & Joseph, 2010; Comeau et al., 2019; Driscoll, Holland, Gelmon, & Kerrigan, 1996; Edwards, Mooney, & Heald, 2001; Geller, Zuckerman, & Seidel, 2016; Gerstenblatt, 2014; James & Logan, 2016; Olberding & Hacker, 2016; Sabo et al., 2015; Worrall, 2007).

**Community engaged learning and public health workforce capacity building needs.** Triangulation of the data show clear overlap between the competence development needs of the public health workforce (Phase 1) and the competence building affordances of CEL (Phase 2). Specifically, CEL has the potential to support learning and capacity growth in many of the areas prioritized for public health workforce development, including communication, collaboration, community engagement, cultural competence, empowerment, evidence-based planning and action, equity and determinants of health, leadership, management, policy development, problem-solving, and systems thinking, benefiting both students and the community collaborators (Table 3).

**Challenges of community engaged learning.** CEL does not come without challenges related to institutional structures and expectations and implementation. From an implementation standpoint, CEL requires commitments between faculty and community collaborators to develop trust and relationships that can ensure the fundamental aspects of reciprocity and mutual benefit (Chupp & Joseph, 2010; Comeau et al., 2019; Gelmon et al., 2001; Gerstenblatt, 2014; Jacoby, 2015; James & Logan, 2016; Olberding & Hacker, 2016; Waters & Anderson-Lain, 2014); this requires time and a long-term commitment (Collective Impact Forum,

**Table 3**  
***Crosswalk of Public Health Student and Workforce Competence Needs and Competence Domains  
 Build via Community Engaged Learning***

	Public health student and workforce competence needs	Competence built via community engaged learning
Collaboration	✓	←
Communication	✓	←
Community engagement	✓	←
Cultural competence	✓	←
Empowerment	(likely, but not explicit in review)	←
Evidence-based planning, action	✓	←
Equity/determinants of health	✓	←
Leadership	✓	←
Management	✓	(likely, but not explicit in review)
Policy development	✓	←
Problem-solving	(likely, but not explicit in review)	←
Systems thinking	✓	←

2014, 2015; Devia et al., 2017; Freudenberg et al., 2011; Hanleybrown et al., 2012; Kania & Kramer, 2011; Wolff et al., 2017). In this respect, the availability of time—faculty time, partner time, and even student time—can challenge this learning approach, limiting important preplanning where trust is built and community-voiced needs emerge; limiting important faculty-led student training, mentoring, and supervision; and limiting project and process monitoring, feedback, evaluation, and modifications for improvement (Gerstenblatt, 2014; Jacoby, 2015; James & Logan, 2016).

Human resources and finances can also limit the feasibility or success of CEL. These influence time and teaching/mentoring/supervision and can also limit the types of students or community partners that are able to be a part of this learning model. Institutions may seek to provide fiscal support to facilitate engagement of students regardless of means, offsetting costs related to travel or income loss for immersive and/or intersession travel (Jacoby, 2015). Institutions may also seek to provide support and funding to community partners to recognize the time given to student mentoring and supervision or to support implementation of projects or ideas that result as a part of the collaboration (Comeau et al., 2019).

Achieving reciprocity and mutual benefit in the engaged learning relationships can also be a challenge. This can manifest for many reasons, including inherent power dynamics between universities and communities or other characteristics of participants (gender, race, geopolitics); a tendency to want to help communities, or do something for communities, rather than with communities; because participants are reluctant to engage in a meaningful way (if the experience is required rather than self-directed); and because it can be challenging for people to talk about needs and benefits (Jacoby, 2015; James & Logan, 2016).

Institutional structure may also challenge or limit implementation of CEL, influencing human and fiscal

resources, how faculty spend their time, and the types of pedagogical resource available. Major research institutions have specific priorities and expectations that may perhaps dis-incentivize innovation in teaching and mentoring of masters-level students and engagement with community-based projects (Alperin et al., 2019; Frenk et al., 2010). Conversely, universities that are a part of the national extension program (land grant institutions) or the Campus Compact network (commitment to civic and social responsibility, “developing the next generation of citizens and leaders for our communities”; Campus Compact, n.d.) may have an expectation of community engagement, research, and mentoring, thus facilitating field-based learning (Alperin et al., 2019).

Although research on the outcomes and impacts of CEL is a growing field, gathering and analyzing data on the outcomes and impacts of many people involved in and touched by projects can be challenging (Budhai, 2013; Jacoby, 2015; James & Logan, 2016). This can be further limited by funding and time limitations and by real or perceived institutional pressures.

**Summary.** Looking across the literature-enumerated benefits of CEL, thematic alignment with the public health competence domains and crosscutting themes were noted. When time and resources and institutional support are available, CEL can support community engagement and partnership; can help build cultural competence and support inter-professional collaboration; and bi-directional capacity building and collective leadership can emerge as collaborators work together to define needs, identify themes, share respective abilities, and plan, implement, and evaluate projects, interventions, and/or policy changes. Furthermore, students and faculty can bring knowledge and skills to the partner, and the partner can bring knowledge and skills to students and faculty, helping extend knowledge, understanding, and development of a shared vision for a future state, and problem-solving and learning can occur in a community-centered way.

## Discussion

The data compiled in this review show two key themes that link CEL and interprofessional public health workforce capacity development. First, there is a clear alignment of the skills and abilities needed and desired by current and future public health leaders across multiple sectors. Priority areas include communication, collaboration, community engagement, cultural competence, empowerment, evidence-based planning and action, equity and determinants of health, leadership, management, policy development, problem-solving, and systems thinking. Second, CEL has the potential to support shared development of these abilities among both public health students and those already in the workforce.

## Application to Cornell University MPH Program Design

The nascent Cornell University MPH Program sought evidence to inform program and curriculum design, with aims to address public health workforce needs and to improve health and well-being, equitably for all people and sustainably for the planet. In-depth operationalization of predefined MPH competencies via Phase 1 of this project helped the Program define component knowledge, skills, and values or attitudes needed for effective

performance of each competence, which helped identify specific learning methods for each component part. Based on the evidence compiled and triangulated in Phase 2, CEL methods were prioritized for teaching in the Program.

Community engaged learning was specifically adopted as the primary pedagogical approach for a series of three “methods” courses focused on public health needs assessment, public health intervention planning, and public health intervention monitoring and evaluation (M&E) for improvement. These three courses were designed with community collaborators and practitioners to align with the new CEPH accreditation standards, above and beyond the applied practice and integrated learning experiences expected of all MPH students in the United States, with goals to also help build community capacity in 12 domains (communication, collaboration, community engagement, cultural competence, empowerment, evidence-based planning and action, equity and determinants of health, leadership, management, policy development, problem-solving, and systems thinking), and improve community health outcomes via collaborative work.

Design of this suite of practice-focused courses was informed by community stakeholders and encouraged by the potential literature-supported benefits related to workforce capacity building and opportunities for collective planning and action that could lead to public health improvement. MPH Program leadership was specifically interested in the potential to deepen student learning in many areas prioritized by the new training standards; the potential to assist community partners extend their service and reach; and the potential for faculty to be encouraged to co-develop community-centered applied research agendas with pathways to impact. These potential benefits are being evaluated within the Cornell MPH Program context through community conversations and surveys of students, faculty, and partners.

Understanding the potential limitations to CEL—including limits on time, resources, and university reward systems—the Program also considered and is piloting other methods to support faculty-led community engagement as a way to achieve measurable progress in understanding, addressing, and impacting critical issues related to health equity and environmental sustainability. These methods include extending the definition of faculty service to include community engagement; adapting annual review and reporting tools to include a section on community engagement and community engaged research; collaborating with university units that support engaged learning (faculty training, fellowships, community partner grants, and student grants); and prioritizing resources for community partners support, low teaching/mentoring ratios, and M&E processes.

Aligned with CEL theory, investment in meaningful relationships, trust building, and co-identification of projects that are of mutual benefit has been a priority for the Program. To achieve this, many MPH faculty have been hired with engaged teaching, research, and service prioritized as part of their role. This has allowed faculty to engage with communities, learn from communities, and find partnerships where their backgrounds complement community collaborators and where community collaborators provide exciting opportunities for student learning and applied research. In the four years since Program inception, five faculty, 32 students, and 12 organizations have co-developed collaborative, community-centered projects in areas related to climate change resilience, vector-borne disease prevention, chronic disease prevention and risk mitigation, well-being, environmental stewardship, food safety, and antimicrobial resistance. Many of these projects have extended and expanded year-to-year, as community and faculty leads maintain projects while students pass the torch to the next cohort.



## Assessing and Evaluating Processes, Outcomes, and Impacts

From inception, community collaborators played a role in co-developing the MPH Program to facilitate public health improvement. From there, the Cornell MPH Program has involved faculty, students, and community partners in assessing processes of and outcomes from CEL, including benefits to students, community collaborators, and faculty.

Student competence development is evaluated via course assignments, including the co-production of authentic work (needs assessments, epidemiologic profiles, conceptual frameworks, project plans, grant proposals, M&E frameworks) with and for community partners. Rubric-led evaluation is complemented by community partner input on the process of collaboration and the utility of the collaborative work products. Students also assess their own competence development through systematic reflection processes, including journal assignments, discussions, and summarizing their iterative competence development in a portfolio.

Benefits to community partners are evaluated in formal and informal ways. Each semester, partners work closely with students and faculty to create plans for each community engaged project so that partner needs are central to the work. As courses progress, faculty and partners work together to identify challenges and successes and co-identify solutions to improve mutual benefit, such as rethinking the focus of a project to better meet all parties' needs, or adapting time lines for execution. More formally, the MPH Program distributes a Community Co-Educator Survey to partners following each engaged course offering, asking questions about the skills and knowledge students applied in their work, the value of the student work, benefits to the organization, and burden to the partner. The survey also asks partners questions about the focus of their role with MPH students and how supported and satisfied the partners felt in different aspects of the CEL process. Preliminary results suggest that partners feel CEL is useful and beneficial to their organizations in multiple ways, including many suggested by the literature.

Faculty-perceived benefits of CEL have not yet been formally assessed. However, based on informal input from the five faculty involved in the courses that are largely community engaged, in just two years, multiple new community engaged research agendas have emerged and resulted in co-developed grant proposals, public health interventions, and increased funding availability for some interventions.

## Relevance for Public Health Impact

Community engaged learning benefits many via the explicit investment of resources (time, people, funding) and via processes used, including developing meaningful relationships, allowing project foci to be guided by the needs of the community, building trust, investing in shared learning and project work that benefit all, and adoption of reflective practices. These benefits align with the primary foci of public health in this era: being directed and led by community voices, bridging clinical care community public health, catalyzing shared resources for collective impact, and driving systems-level change to address the social determinants of health. Processes used via CEL align with key tenets of Public Health 3.0 and collective impact, suggesting that adopting these methods

might catalyze support for meaningful collaboration and planning for collective action. Sustained over months or years, these processes may contribute to systems change for public health impact, akin to processes and outcomes seen via community-based participatory research (Freudenberg et al., 2011).

## Relevance for Universities Seeking to Influence Change

In public health, as well as other health-related professions, engaged and applied learning is becoming a priority (CEPH, 2016; Frenk et al., 2010; Meredith et al., 2017). For SPPH, the new competence-based accreditation criteria call for an explicit focus on applied practice experiences, in which students engage with community partners to develop products that are mutually beneficial to the host site and the student's career goals. Furthermore, SPPH are encouraged to integrate interdisciplinary practitioners into their teaching model and to use real-life projects and scenarios as a way to assess student competence. This shift is in line with shifts seen in other professional education sectors, including social work, occupational therapy, education, medicine, and veterinary medicine, where community engaged learning methods—such as participatory research, community service, extension service, field studies, internships, mentorships, and service learning—are already used.

Competence is developed when learners can test and apply skills in various settings, receiving and reflecting on feedback about the processes used and outcomes seen such that assumptions and paradigms shift and future behavior is adapted. In real-world settings, and when working in partnerships, this process can also improve learning and capacity and reach within a community; Jacoby (2015) highlights the “asset-based community development” that happens when projects are grounded on needs defined by the community, build upon the community's assets, and “concentrate on the problem-solving capacities of local residents and institutions” (p. 8). To this end, as leaders for education, community development, and social justice, universities and their units—including schools and programs of public health—might also consider CEL as a pathway to impact, as via this process, “individuals with varying expertise and experience gather around the table, listen to one another, strive to understand, and work together to determine a course for collective action” (James & Logan, 2016, p. 17).

## Considerations for Implementation

As institutions and academic departments, including schools and programs of public health, adopt CEL as a pedagogical method to benefit competence development of students, strengthen competence within the public health workforce, and/or engage in community-centered public health action for impact, there are multiple considerations related to implementation and evaluation. Four key learning are shared below.

First, CEL can be implemented in many different ways with different goals and objectives. For example, the literature suggests that student learning is deepened most through the use of reflection and that collaborative impact comes from long-term investment when many people collaborate to support community-led action. As they consider which CEL approach(es) to adopt, academic units should first consider what their outcomes of

focus are. The Cornell MPH Program prioritized three outcomes: student learning, community development, and collaboration for collective impact. As a small and new program, this has not come without challenges. For example, related to systematic reflection, we have found that it is not a routine or natural process for many. We have found that it takes time to orient students to its benefit and a commitment from faculty to invest in coaching on a weekly basis to support making it a routine process. The use of specific prompts to help spur reflection has been helpful, as has using different modes for reflection (journals, dyads, group discussion). As it relates to collaboration for collective impact, although we have designed a time-sequenced suite of three community engaged courses that have the potential, over 16–20 months, to co-assess needs, co-design interventions, and collaboratively monitor and evaluate interventions for improvement, it doesn't always work seamlessly in practice. Community partner time and priorities are a primary consideration, sometimes shifting or pausing project focus; students' continued interest and availability (i.e., during intersessions) delay or accelerate progress, and faculty time can also delay or accelerate progress.

Second, a pedagogical need to develop different types of skills and abilities among learners may require course-specific considerations when designing CEL opportunities with partners. For example, different community-based activities may be more relevant to developing the competence “select quantitative and qualitative data collection methods appropriate for a given public health context” as compared to the competence “apply negotiation and mediation skills to address organizational or community challenges.” Clear communication between faculty and community partners to align needs and expectations is a must. The Cornell MPH Program addresses this in multiple ways. Students, partners, and MPH faculty or staff work together to develop work plans for community engagement, allowing MPH faculty and staff to help partners understand competencies and their definitions, and for students to practice articulating how they apply different competencies in community engaged work. Also mentioned above, some project flexibility can be necessary to meet the needs of both competence-based training programs and community organizations.

Third, benefits from CEL may be seen for students, community collaborators, faculty members, and/or a community of focus. Ideally, CEL can simultaneously benefit all, but this requires monitoring and communication. Where goals, reciprocity, and mutual benefit are articulated in the planning process and clear communication supported by trust occurs, process and outcomes M&E should be used assess and improve implementation. Evaluation of these benefits is a priority for the Cornell MPH Program, and routine data collection is underway. The Program is building from the Gelmon/Campus Compact framework and much of the aforementioned literature. Currently, through collaborative planning processes with partners, assessment of student work by faculty and staff, student self-assessments, and partner surveys, we are tracking

- student learning in many areas prioritized by the new training standards
- the potential to assist community partners to extend the capacity and reach of their services, expand their knowledge and skill sets, refine organizational tools and processes, engage in collective planning, and have greater influence

- the potential for Cornell MPH faculty to co-develop more community-centered, applied research agendas with pathways to impact, with support from leadership and university funding for engaged learning; and
- overall capacity building of partners, students, and communities.

Finally, given the potential benefits of CEL, methods to monitor and evaluate long-term impact should be considered and used to understand factors such as the longevity of university-community partner relationships and the projects and outcomes that emerge; the career pathways of students who experience CEL; the changes in perceived competence of frontline public health workers who may be a part of these learning collaboratives; faculty engagement and satisfaction from engaged and applied research; and even improvement in measures of community health. The Cornell University MPH Program aims to continue to monitor and evaluate the processes and outcomes of CEL to capture contributions to public health workforce capacity and collective impact as a pathway to public health improvement.

## Conclusion

Many complex interactions are affecting the health of communities in the United States. To improve the health of our communities, people and professionals from diverse backgrounds must work together to understand needs and their root causes and collaborate to co-create sustainable and equitable solutions. The interdisciplinary field of public health has defined a new era of public health—Public Health 3.0—with an explicit focus on collaboration for collective impact: building coalitions, understanding root causes, and building community capacity to generate ideas and actions to improve the social determinants of health.

University training programs, including schools and programs of public health, have a role to play in this: building workforce capacity, engaging with communities, and helping translate research into impact. Community engaged learning may be a vehicle to help. Community engaged learning brings substantial benefit to students, faculty, universities, individuals, and organizations within a community as well as to members of the community. Not only are organizations able to extend their reach or increase their benefit through engaged learning, but multi-directional learning occurs as partners co-create and co-implement a pathway to impact.

Specifically, from a public health training perspective, the benefits of community engaged learning align with and support expectations accreditation criteria for schools and programs of public health. This includes the specific foci on workforce capacity building, public service, and applied student learning, as well as implicit foci related to deep learning and the development of meaningful partnerships that support shared planning and action for longer-term impact.

There are more than 200 accredited public health training programs across North America. These programs exist in, and are a part of, communities with public health needs and therefore have incentives to partner with interdisciplinary fields and engage with communities for public service, to help translate research into practice, and to deepen student learning. Community engaged learning is a pedagogical approach that supports this tri-fecta and shows potential to catalyze collaboration and community capacity building for public health improve-

ment, a key tenet of Public Health 3.0. If interdisciplinary public health educators and community collaborators build trusting relationships, take the time to identify real community needs, and define parameters for success, then students, with faculty support, can act as conduits through which knowledge, skills, tools, and other resources flow between communities and universities, building capacity to better understand and address public health needs in a sustainable, community-centered way. By strengthening training, workforce development, and community relationships, adopting a CEL approach in public health training programs has the potential to improve health across communities, now and into the future.

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