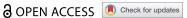


RAPID COMMUNICATION



Training socially accountable clinician-citizens: integrating clinical public health education in a medical school curriculum

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ABSTRACT

By adopting a holistic perspective that looks 'upstream' at the underlying determinants of health, physicians can develop more effective strategies for promoting wellness and reducing health inequities in an increasingly diverse and complex society. Public health focuses on disease prevention and promotion of health through organized efforts by individuals and society. Population health focuses on the health outcomes of a group of individuals. We designed the Clinical Public Health curriculum, a pedagogical framework designed at the George Washington University School of Medicine & Health Sciences that breaks down traditional silos between didactic public and population health teaching, patient care and community engagement for medical students. It aims to train socially accountable cliniciancitizens through an integrated, longitudinal curriculum across the four years of medical school. In this article we describe one aspect of the curriculum - four self-contained 'summits' - which can be used as a template for others seeking to develop a curriculum focusing on social accountability and engagement with community and governmental partners. During these multi-day applied educational experiences, medical students engage with key stakeholders, community members, community-based organizations, and state and national agencies to develop innovative approaches to engage in advocacy and population health. Enhanced medical school curricula focusing on the development of socially accountable clinician-citizens is an urgent need to develop more meaningful clinical-community interventions, support professional development, put context on the impact of health-related social needs on patients and families, and transform healthcare delivery and policy through greater community connection and advocacy.

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Clinical public health education; population health initiatives; community health engagement; social accountability in medical education; curriculum innovation in medical training

Introduction

To practice medicine effectively in an increasingly diverse society and to prepare for roles physicians must take on to address 'upstream' factors that affect health inequities, medical students must be trained to understand social determinants of health and broaden their scope of practice to include addressing health promotion through advocacy and community engagement [1]. In 2000, the Association of American Medical Colleges and the Centers for Disease Control and Prevention partnered to award Regional Medicine-Public Health Educational Centers across the country to promote population health curricula in U.S. medical schools [2]. While it may appear that many medical schools have responded to this call [3] most provide population and public health exposure as isolated, short-duration courses of limited focus, with few providing options for longer immersion programs [4]. This

fragmentation in public health education as well documented with other social sciences may attenuate the value of the topic in medical education, othering population health as a specialty rather than an integrated and core principle of meaningful healthcare [5]. Thereby decreasing the confidence, knowledge, and skills of future providers. Although not a regional award recipient, we share our experience integrating public and population health, health policy and community engagement into the curriculum since 2014 at the George Washington University School of Medicine & Health Sciences (GW) through our novel Clinical Public Health (CPH) curriculum. CPH integrates population health, public health, health policy, and community engagement in the MD program. Its goal is training medical students to be 'clinician-citizens,' a model which charges medical professionals to improve systems of care and population health through advocacy and community participation [6]. In addition to required coursework at GW, 'Summits' are the hallmark of the CPH curriculum [7]. These 'Summits' are composed of applied educational experiences using experiential learning frameworks that comprise a series of unique multi-day real-world collaborative field projects that are integrated into the GW clinician education requirements building on clinical and public health curricula throughout the four years of medical school [8]. GW is one of the few US schools of medicine to integrate comprehensive public and population health throughout the preclinical and clinical curriculum for all students.

GW is located in the heart of Washington D.C. in proximity to a number of state/federal agencies, public health and policy resources. Through four uniquely designed summits in the MD program, students build foundational knowledge and skill-building in public health and population health, public health research techniques, critical and creative thinking, teamwork and leadership skills, community engagement, and translation of knowledge into action (Table 1). In this article we illustrate how the curriculum, summits, and community partnerships have shaped CPH education at our institution. The CPH curriculum and our ongoing community partnerships contribute to preparing our students to meet the challenges of a rapidly changing healthcare landscape and to play a leading role in addressing the complex factors that drive health inequities. Key features of this curriculum can be adapted by other medical schools to develop an integrated approach to public health in medical education, shaping the next generation of physicians to be equipped to improve both individual patient outcomes and population health on a broader scale.

Description of summits

The topics of the four summits (Table 1) were chosen with input from community stakeholders and the educational and experiential objectives were designed by expert faculty based on their local practice experience and analysis of public health data for the region. Each summit is coordinated by a clinical public health trained physician faculty member with topic expertise, in addition to having oversight from the Associate Dean of Clinical Public Health. This course is part of the mandatory curriculum for the entire class of approximately 180 students throughout their 4 years of medical school and successful completion is required for graduation. The first two summits occur in Medical School Year 1 (MS1) the third summit takes place between Medical School Year 2 (MS2) and Medical School Year 3 (MS3) and the fourth summit is a longitudinal year-long project culminating in spring of Medical School Year 4 (MS4). The policy, academic, and community based organizations and stakeholder volunteers are selected through physician and faculty leaders and partners. Allowing for a diverse regional experience for medical student learners. In addition, throughout the curriculum students are able to work alongside other public health professional students, patient advocates, and key stakeholders ensuring a more robust interdisciplinary learning opportunity. Lastly, medical students are evaluated using a series of quantitative and qualitative surveys, written reports, oral presentations, and professionalism. Medical students are required to pass this course to matriculate in their medical education, and these data are also used to iterate the design of the curricula each year to better meet the learners needs.

Summit one: how clinicians can help end the HIV epidemic - prescriptions for state and city action plans

The HIV Summit takes place over the course of 3 days at the end of MS1 fall semester. It is organized in partnership with the National Alliance of State and Territorial AIDS Directors (NASTAD) and features guest speakers including senior national leaders on HIV/AIDS policy, state HIV/AIDS directors, local leaders in HIV care and research, and patient advocates representing communities most affected by HIV (Table 2). It is constructed in the model of a threeday scientific, multidisciplinary conference, structured around key tenets of federal strategy including the 'Ending the HIV Epidemic' initiative and the National HIV/AIDS Strategy. The HIV Summit also serves as the capstone project for the first semester of the CPH curriculum.

The HIV Summit challenges the students to apply their medical knowledge and demonstrate their skills as physician-advocates by working in groups to craft original proposals (Table 1) addressing the HIV epidemic at the level of their assigned jurisdiction (state or major city). On the last day, each proposal is presented by student group representatives and critiqued by a panel of experts including NASTAD leadership, senior public health faculty, and high-level officials from the U.S. Department of Health and Human Services.

Summit two: how clinicians can help eliminate childhood asthma in Washington, DC

The second summit focuses on asthma and spans 3days during MS1 (Table 1). This summit is a collaboration between Children's National Hospital's program Improving Pediatric Asthma Care in the District of Columbia and our medical school. The summit highlights local disparities related to asthma and how future clinicians can help eliminate childhood asthma in Washington, DC.

As part of the experience, students work in groups to develop proposals which focus on prevention

(Continued)

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Table 1

Summit 1: How Clinicians Can Help End the HIV Teams of 20–25 stubilities to the HIV Teams of 20–25 stubilities by Epidemic Jurisdiction-special objectives: (1) Discuss the socio-cultural context in which HIV/		Evalliple Floject	Selected Stadellt Leedback
<u>Ā</u>			
	ent a the National lemic –	A State Action Plan for lowa proposing the expansion of confidential and accessible services for HIV diagnosis, treatment, prevention, and response by offering mail-	2023 HIV Summit Quantitative Feedback: Evaluations were collected for the first semester of CPH curriculum, for which the HIV Summit serves as capstone.
•	Structured along the following domains: Diagnose all people with HIV as early as possible.	based and mobile app-based programs for prevention and treatment of HIV, training community providers in counseling and harm reduction, and building a coalition	91% (105/115) Medical students agreed or strongly agreed that they achieved the Learning Objectives for the CPH curriculum and HIV Summit.
• •	Ireat people with HIV rapidly and effectively to reach sustained viral suppression. Prevent new HIV transmissions by using proven	of locally influential communicators on HIV.	58% (67/115) Medical students agreed there was sufficient integration between CPH and the basic science curriculum overall. Multiple student comments
early intervention to promote the nearth of indivi- duals and diverse populations.	interventions. Respond quickly to potential HIV outbreaks by pro-		singled out the HIV Summit as a positive example of content integration.
(3) Compare and contrast the state and local epide- miology and health systems for the HIV/AIDS epidemic among the identified iurisdictions. Each student te	viding prevention and treatment services. Each student team develops a written proposal to end		Exemplary Medical Student Quotes: The HIV summit went beyond the scope of the classroom towards how
orting ntified	the HIV epidemic for their assigned jurisdiction. The proposal represents a cohesive synthesis of the above		timily work in the real world. Thave a better appreciation for the people tackling these issues and the constraints they have?
HIV/AIDS domains and jurisdictions. four key strateg (5) Describe factors that contribute toward working the medical sci	four key strategies, reflects foundational knowledge of the medical science of HIV/AIDS, and builds upon		The state of the s
effectively on teams with respect and collaboration known jurisdict in decision-making processes.	known jurisdiction-specific responses to end the epidemic. Students are advised to make recommenda-		classociative depty are insured or realized in the classociative to real-vord settings. It was very meaningful to under a transmith a realized by the second a proposal
uide research efforts, isits for action plan	tions specific to the hardest-hit communities, and take into account how proposals fit into other public health		to work as a team with a stakeholder to create a proposar to help increase HIV diagnoses and treatments in the city where I went to college.'
development. (7) Practice designing and presenting population- hood integration for UTIV/ATDS that and and present its production for the product	health outcomes. Each team crafts a written summary		
sly	and presents it for a paner of expens who provide critiques. Evaluation: Students are evaluated on their final writ-		
capacities for the jurisdiction. ten proposals a key stakeholder assesses for cortion, cohesiven	ten proposals and verbal presentations as a group by key stakeholders and faculty. Evaluation rubric assesses for comprehensiveness, effectiveness, innova- tion, cohesiveness, and delivery of content.		

Table 1. (Continued)

Summit Topic & Objectives	Assignment	Example Project	Selected Student Feedback
Summit 2: How Clinicians Can Help Eliminate Childhood Teams of 4–5 students develop clinical	ā	ublic health ideas An Op-Ed entitled, 'A Breath of Fresh Air: Utilizing	2023 Asthma Summit Quantitative Feedback: Evaluations
Asthma in Washington DC	using advocacy and/or innovation to decrease the	Community Health Advocates (CHA) and Student	are collected for the course that the Asthma Summit

Recognize the major determinants of and contri-Asthma in Washington DC Objectives:

burden of childhood asthma in Washington, DC. Teams

choose one of the following deliverables:

Discuss the challenges and opportunities for prebuting factors for asthma. \equiv

venting and eliminating asthma in Washington, D. 6

Describe major determinants of and contributing factors for asthma. (3) 4

Explain local pediatric asthma epidemiology and its connection to health care disparities.

preventing and eliminating asthma in Washington, Recognize the challenges and opportunities for

(2)

living in Washington, DC. Submissions are submitted Create a pitch for an innovative product/tool/applica-

tion that will improve care for children with asthma

care). The top 3 are published by the DC Chapter of

the American Academy of Pediatrics.

defined sector (housing, school, after-school, health-

in Southeast Washington, DC that focuses on a

Understand family stressors that can be addressed to improve quality of asthma care.

9

6

Identify current Washington, D.C. programming designed to address asthma prevalence, attacks, and/or treatment.

stakeholders and faculty. Evaluation rubric assesses for

comprehensiveness, effectiveness, innovation, cohe-

siveness, and delivery of content

Evaluation: Students are evaluated on their final opinion piece or innovative proposal as a group by key

prizes and mentorship from entrepreneurial experts. to a university-wide venture competition with cash

> Practice designing population-based interventions tively utilize system and community resources and for childhood asthma in Washington DC that are evidence-based, culturally competent, and effec-8

Develop an innovative idea to combat a specific aspect of childhood asthma in Washington, D.C.

capacities.

6

program with a two-pronged approach mobilizing CHAs 'Asthguard' innovation seeks to identify asthma allergens Educators to Combat the Asthma Epidemic in Southeast Washington, DC Schools' promotes an evidenced-based for education promotion community-wide for children Community Health Advocates (CHA) and Student with asthma. https://www.aapdc.org/asthma/ in the home of children with asthma. • Craft a 1,200-word opinion piece ('Op-Ed') proposing a way to improve care for children with asthma living

falls under. Only qualitative feedback is collected on the encourages us to become involved in helping community Exemplary Medical Student Quotes: 'It encouraged us with other students and to use our creativity and research members. The Asthma Summit allowed us to collaborate skills to create a project to help reduce asthma in the D.C. our surrounding environments. It helps students connect are collected for the course that the Asthma Summit to think critically about a real-world problem affecting Asthma's Summits contribution to student learning. area. This was a great opportunity to learn how to with some of the issues their community faces and collaborate with our peers.

think that this exercise allowed students to build a unique future with health information that can help people, and I Physicians may need to reach out to the public in the skill set to communicate effectively with people in a macro scale.'

Determinants of Health (SDOH)], we could utilize the tools problems our patients face, as we should be expected to 'By placing us in a position to examine a complex medical issue, exacerbated by healthcare disparities and [Social we had to try and create innovate solutions to the as practicing physicians.' (Continued)

Fable 1. (Continued)

2023 Obesity Summit Quantitative Feedback: 86% Selected Student Feedback Example Project Summit 3: How Physicians Can Engage Obesity with Summit Topic & Objectives

Tools of Health Equity & Empathy in Washington, DC Objectives:

addressing, preventing, and reducing obesity rates Discuss the clinical public health challenges of in Washington, DC \equiv

factors of obesity through a health equity lens in Describe major determinants and contributing 5

Washington, DC Describe the role weight bias and obesity stigma play in the care and management of individuals and populations with obesity (3)

Apply research and field work to proposal development for addressing obesity at the individual, community, and policy levels 4

Demonstrate effective communication in advocating for recommendations to organization, state agency, and public health leaders on effectively addressing obesity in Washington, DC (2)

Feams of 30 students develop proposals using the health problems faced by community organizations and state equity of obesity framework* to address real-world agencies. This framework includes:

Increasing healthy options (i.e., grocery stores, food

Reducing deterrents to healthy behaviors (i.e., predatory marketing practices, safety concerns).

Improving social and economic resources (i.e., federal programs, nutrition security).

Building community capacity (i.e., community education, community collaboratives).

crafts a written summary and presents it for a panel of Course directors meet with organizations and agencies organization/agency requests, centralize health equity, Evaluation: Students are evaluated on their final written proposals and verbal presentations as a group by incorporate the lived experiences of key stakeholders assesses for comprehensiveness, effectiveness, innovaare forwarded to partner organizations and agencies. tions, who provide critiques. Final written proposals they interview and avoid weight stigma. Each team experts and representatives from partner organizaadvised to ensure their proposals directly address prior to the summit to select topics. Students are key stakeholders and faculty. Evaluation rubric tion, cohesiveness, and delivery of content.

Working individually or as small teams, students select and A team of students entering Anesthesia and Internal chosen medical specialty and develop an 'Action Plan' to topic. Students select a topic at the end of third year and complete this project over the course of their final year of medical school, developing a written Action Plan using a provided template. Students orally present their projects to third year medical students and chairs and leaders in project presentation by faculty members in their planned relevance, stakeholder engagement, and adherence to address, improve, remediate, or advance their chosen research a clinical public health-related topic in their Evaluation: Students are provided feedback on their their chosen specialty fields to gain feedback and stimulate ideas for the next group of students. medical specialty. Evaluation asseses for clarity, proposal template.

Summit 4: Population Health Summit – Your Residency

Choice and Your Career

Identify population-based health problems relevan

to a specific specialty using epidemiologic princi-

ples, health systems analysis, and evidence-based

methods to interpret information about health

WIC in children above the age of 1 year old to counteract and clinical based intervention to support the uptake of Children(WIC), students developed a policy, community, Special Supplemental Program for Women, Infants, and In response to a request by the District of Columbia's the precipitous decline in participation. The activities at the Obesity Summit greatly contributed to my professional development. By actively participating

summit allowed them to place what they learned about

80%(106/132) Medical students agreed the obesity

Learning Objectives.

(114/132) Medical students agreed they achieved the

basic sciences into a public/population health context.

Exemplary Medical Student Quote:

skills pertaining to the field of obesity. The presentations activities, I acquired valuable knowledge, insights, and

experiences with peers enhanced my critical thinking and approaches in managing obesity. Engaging with experts and fellow professionals broadened my network, leading latest research, evidence-based practices, and innovative workshops offered a platform to stay updated on the to valuable connections and potential collaborations. Moreover, engaging in discussions and sharing problem-solving abilities.

hospital Director of Pharmacy, a general surgeon, a pain Medicine conducted a systematic review of the literature stakeholders (2 community pharmacists and the Medical Director of a local community health center). Using this, institutional stakeholders (hospital Chief Quality Officer, they developed a proposed hospital protocol for safe management physician, and several patients from a on safe opioid disposal methods. They interviewed chronic pain clinic). They interviewed community disposal of opioids.

conference and presented as a poster at the institutional They submitted finding as an abstract to a national esearch symposium.

2023 Population Health Summit Quantitative

incorporated public health efforts into their careers. I also found the student panel really helpful in terms of hearing 56% (55/98) of Medical students rated the summit as Exemplary Medical Student Quotes: 1 enjoyed the faculty panel and hearing about how people have projects, their advice and tips. The flexibility and independence was nice for our brainstorming/ 'Good' or 'Very Good' on a 5-pt Likert scale. about people's experiences with their

I really liked the brainstorming group with the surgical attendings. They provided a lot of great feedback and workgroups.'

ruly collaborative in helping us flesh out our ideas.

*Obesity Equity Framework designed by Dr. Shiriki Kumanyika from the University of Pennsylvania School of Medicine [9].

21st century health systems, integrating roles as an

Demonstrate an expanded scope of practice for

apply self-directed learning strategies.

excellent clinician, public health and community

health leader, and physician citizen.

actions by physicians and partners by integrating

Formulate and propose tangible ways in which

needs.

 $\overline{\mathfrak{S}}$

population health can be improved through

biomedical, clinical, epidemiological, and social-

behavioral sciences.

(3)

4

Work collaboratively as a member of a team and

Table 2. Stakeholders and partners.

	Stakeholders and r	partners partici	pating in	the	GW-NASTAD	Clinical Public	Health	Summit on	HIV	(2014-2021)	
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Category Selected Past Participants Community Prevention Access Campaign Capital Trans Pride Casa Ruby Community Education Group National Alliance of State & Territorial AIDS Directors Community Advisory Board for the DC Center for AIDS Research Health Care GW Medical Faculty Associates **GW Clinical Trials Unit** DC Veterans Administration Medical Center Whitman Walker Health Family and Medical Counseling Services Unity Health Care Providence Hospital DC Center for AIDS Research Academic GW School of Medicine and Health Sciences GW Milken Institute School of Public Health Georgetown University Congressional HIV/AIDS Caucus, Department of Health and Human Services – Office of the Assistant Secretary for Health, and Government HIV/AIDS Directors from multiple states/cities US White House Office of National AIDS Policy US National Institutes of Health, National Institute of Allergy and Infectious Diseases US Health Resources and Services Administration, HIV/AIDS Bureau US President's Emergency Plan for AIDS Relief DC Department of Health HIV/AIDS, Hepatitis, STD and TB Administration (DC is one of approx., 20 states that have participated over the years)

Stakeholders and partners participating in the GW Clinical Public Health Summit on Asthma (2018–2021)

Category

Selected Past Participants

Community/Non-Profit Organizations

American Academy of Pediatrics (DC Chapter)

Asthma Home Visiting Program

Children's Law Center

Yachad

AmeriHealth Caritas District of Columbia

Children's School Services

Child Health Advocacy Institute at Children's **Health Care**

National Hospital

IMPACT-DC

Academic Children's National Hospital

GW School of Medicine and Health Sciences GW Milken Institute School of Public Health

GW New Venture Competition

Stakeholders and partners participating in the GW Clinical Public Health Summit on Obesity (2014–2022)

Selected Past Participants Local/Regional Community

American Heart Association (AHA) (Greater Washington Region) Arcadia Center for Sustainable Food and Agriculture **Organizations/Non-Profits**

Capital Area Food Bank (CAFB)

DC Action for Children DC Central Kitchen DC Hunger Solutions Food & Friends **FRESHFARM** Martha's Table (MT) Spaces in Action

Summit Health Institute for Research & Education (SHIRE)

The Green Scheme

Town Hall Education Arts Recreation Campus (THEARC)

Ward 7 Health Alliance Network

Washington Nationals Youth Baseball Academy

Young Men's Christian Association (YMCA) of Metropolitan Washington

National Non-Profits Organizations

American Heart Association (AHA) (National)

American Planning Association Build our Kids' Success (BOKS)

Center for Science in the Public Interest (CSPI)

Common Threads

Culinary Medicine Specialist Board

Food Corps

Food Research & Action Center (FRAC)

Giant Grocery Store KABOOM! Mom's Meals

National League of Cities Obesity Action Coalition (OAC)

Parks Rx America

Partnership for A Healthier America (PHA) **Playworks**

Rudd Center for Food Policy and Obesity

Step Afrika!

The Pew Charitable Trusts The Trust for Public Land

Women and girls advancing nutrition dietetics and agriculture (WANDA)

Table 2. (Continued).

Category	Selected Past Participants					
rivate Organizations	Giant Foods					
	Lebanese Taverna					
	Sodexo US					
alth Care	AmeriHealth Caritas					
	Burke Pediatrics, LLC					
	Children's National Hospital- Improving Diet, Energy and Activity for Life (IDEAL) Clinic					
	Children's National Hospital-Child Health Advocacy Institute (CHAI)					
	DC Health Matters					
	Fairfax County Health Department					
	Georgetown University					
	GW Medical Faculty Associates					
	Holy Cross Health Network					
	Mary's Center					
	Medstar Washington Hospital Center					
emic	CentroNía					
	DC Bilingual Public Charter School					
	GW Food Pantry-'The Store'					
	GW Milken Institute School of Public Health					
	GW Office of Innovation & Entrepreneurship					
	GW School of Medicine and Health Sciences					
ernment	Association of State and Territorial Health Officials (ASTHO)					
	DC Department of Corrections					
	DC Department of Health (DC Health)					
	DC Food Policy Council					
	District of Columbia Public Schools (DCPS)					
	Fairfax County Health Department					
	Food & Drug Administration (FDA)					
	Office of the State Superintendent of Education (OSSE)					
	The National Institutes of Health National Heart, Lung, and Blood Institute (NHLBI)					

The participants listed below are representative of local, regional, and national stakeholders across approximately eight years for Summits 1–3 with some variation based on availability and focus

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

strategies that address childhood asthma prevalence, exacerbations, and/or treatment.

Summit three: how physicians can engage obesity with tools of health equity & empathy

The summit on obesity is the third in the series with intermittent events that span 3 months beginning in MS2 (Table 1). In the first phase, students learn about the clinical and population level dimensions of obesity through implicit weight bias assignments and expert and patient lectures. In phase two, local community-based organizations and state agencies propose real world challenges (Table 2) for students to solve working alongside the organizations' leaders. Students engage with key stakeholders, community members, and local and national experts. The culminating experience requires students to present proposals to their peers, community organizations, and state agency representatives.

Summit four: population health: how physicians can help improve population health in every specialty

The Population Health Summit spans 12 months, commencing in a 2-day kickoff experience at the end of the MS3 year, and culminating in a final presentation at the MS4 conclusion.

Unlike the established topics of the previous summits, in this summit students self-select a CPHrelated topic that relates to their intended medical specialty and then develop and propose an action plan individually or in small groups utilizing best practices in public health to identify a clear problem, target population, relevant stakeholders, and evaluation metrics for their proposal (Table 1). There is an additional wellness and resilience component to this summit which is not discussed in detail in this article.

Conclusion

Now more than ever, it is important to graduate 'clinician-citizens' who are prepared to deliver excellent patient care in 21st-century health systems and who can identify and address important health system-, community- and policy-level issues that impact the health of individuals and diverse populations. The cutting-edge nature of our summit curriculum has caught the attention of medical schools, physicians, and public health experts [10]. There has been growing interest in integrating public health into medical education [11-14]. However, students often report feeling disillusioned, disengaged, and disappointed with public health curricula [15,16]. Students overwhelmingly report positive experiences with the summits and indicate that this focus on

Clinical Public Health was a major contributor to selecting the medical school. In addition, community organizations and state agencies express appreciation for the opportunity to train medical students, annually return to join our curriculum, and regularly use the novel thought leadership in organizational proposals, grants, and interventions. Factors which promote student engagement in our curriculum include (1) application of their clinical and public health learning to work on real-world community health problems, (2) formation of community partnerships, and (3) guidance by faculty from diverse backgrounds with public health experience who serve as citizen-clinician role models for our students. The process of including higher level Kirkpatrick program evaluation for CPH has been noted to be challenging [17]. At GW we are endeavoring to collect data related to graduating students' expanded scope of practice, as part of their professional toolkit regardless of specialty choice. We also continue to work on improving the integration of public health with clinical experience in the curriculum. Although our experiences are unique due to proximity of the federal government and other agencies, they may readily be replicated at other institutions by identifying and listening to community stakeholders concerning areas of possible collaboration, identifying local physician champions and faculty members with unique expertise in particular clinical public health topics of local interest, engaging with state and local jurisdictional public health agencies, and intentionally identifying curricular time to integrate training into medical school curriculum. Longitudinal research examining the career trajectories and community engagement of graduates exposed to this innovative curriculum, compared to those from traditional medical education programs, would provide critical insights into the approach's long-term effectiveness. Furthermore, investigating the curriculum's adaptability across diverse institutional settings and evaluating the influence of faculty public health training on student performance could generate valuable evidence to advance medical education strategies. Limitations of our study include data collection at a single urban institution and access to faculty with public health backgrounds. As the program grows we plan to undertake higher-level program evaluation to address the impact of the program.

Lastly, we would like to point out that the term 'clinical public health' has been coined by our institution to reflect the integration of public and population health with clinical training. This has been in response to the critique of public and population health as being siloed and isolated from real life community problems. Since launching the CPH curriculum and Summits, we have continuously received enthusiastic positive feedback from students as well as stakeholder participants. These affirmative experiences reported by students and community organizations highlight the acceptability of these less fragmented and more integrated curricula for public health in medical education. Future clinicians will find themselves engaging in food/nutrition insecurity, housing insecurity, and patient transportation challenges inside the clinical encounter, but with this knowledge and skill building students may feel more equipped to take the opportunity to impact change outside of the four walls of clinical settings. Therefore, we would encourage other educators to explore clinical public health as a pedagogical approach to help develop clinician-citizens and to share their experiences with the medical education community, aiming to ultimately not just provide our students with better learning experiences but to also to prepare them for their future roles in society. Medical educators and institutions play a crucial role in transforming how future physicians perceive their responsibility and their ability to engage in healthcare. Clinical public health must be envisioned not as a specialty practice for a few physicians but as an core institutional necessity for each and every future physician.

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Authors contributions

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