

UNIVERSITY OF MEMPHIS

Partnering with High School Educators to Build Pathways to Disease Intervention Certification



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Contributors

This body of work was produced by the University of Memphis for reporting period October 1, 2024 – November 25, 2025:

Prepared by:

Ashish Joshi, PhD, MBBS, MPH

Facilitators:

Ashish Joshi, PhD, MBBS, MPH

Dean and Distinguished University Professor

Nichole Saulsberry-Scarboro, PhD

Director, PH IDEAS Workforce and Strategic Partnerships

Lori Ward, PhD, MS

Associate Professor of Teaching and Undergraduate Program Coordinator

Ashley Ross, MPH

Sr. Project Director

Project Staff:

Amaree Austin

Graduate Research Assistant

Esthela Rios

Graduate Research Assistant

This body of work was overseen and coordinated by the Association of Schools and Programs of Public Health (ASPPH):

Emily Burke, EdD, MPH, CPH

Senior Director of Workforce Development and Applied Practice

Beth Handler, MPH

Director of Public Health Credentialing and Continuing Education

Sara McDowell, MPH, CPH

Senior Manager of Public Health Training and Credentialing

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Summary

The purpose of this project was to emphasize the need to expand and integrate disease intervention (DI) concepts within high school pathway programs that include experiential learning components in public health settings. This objective aligns with the strategic goal of building a robust, skilled, DI workforce that can respond to future health crises. The research aim was to determine the overall feasibility and efficacy of implementing a high school pathway program encompassing a work-based learning opportunity tailored to the DI domains to prepare students to sit for a certification in disease intervention. This was accomplished by addressing the sub-objectives below.

The actionable sub-objectives that build towards the primary project objective are as follows:

1. To assess existing high school pathway programming within academic institutions in the fields of public health, health sciences, medicine, and other interdisciplinary programs
2. To assess current public health literature and identify existing DI high school education pathway programs and high school trainings
3. To scan current DI workforce jobs examining education requirements, experience, skills and competency requirements to prepare high school students for the DI workforce and CDI eligibility
4. To scan, identify, and analyze the types of high school student support needs that are essential for future high school pathway, career, and college programs
5. To conduct listening sessions to assess DI career interest, learning preferences, student participation barriers, and feasibility of establishing a DI high school educational pathway program
6. To explore the feasibility and provide recommendations for building external partnerships to support a high school pathway program that includes a work-based learning opportunity
7. To identify existing courses that could align with CDI exam domains and to identify strategies that support curriculum alignment with CDI exam domains and high school student engagement within the curriculum

Overall Methodology and Activities Undertaken

1. Seventeen programs were identified from academic institutions. The programs were reviewed for the inclusion of health-related opportunities for high school students. Information was extracted from the educational institutional websites to assess the following: program type, discipline—relative to public health—fees associated with programs, and outcomes.
2. A literature review was conducted to assess existing literature on DI educational programming and workforce opportunities for high school students in which the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) 2020 recommendations were followed. Potential articles were identified by searching the following three databases: Sage Journals, PubMed, and Google Scholar. The following data were extracted from five full-text articles: citation information, location of

study, study inclusion criteria, and outcomes assessed.

3. A comprehensive list of 21 DI job titles was compiled, some from Google Job Search. Each job title was searched across three search engine platforms—ZipRecruiter, Glassdoor, and Indeed—one at a time. After the searches yielded applicable jobs relative to the title, each posting was reviewed, and 63 jobs were selected, (21 from each job portal and one job title search and selection per each engine). One duplicate was removed. Data on all public health jobs were collected for analysis via three job search engines ZipRecruiter, Glassdoor, and Indeed. Job analysis was conducted on 62 job postings and data were extracted into Microsoft Excel sheets for the following: job location (state/region), posting organization, posting organization type and educational requirements, skills (preferred/required), competencies (preferred/required), experience (preferred/required), and special qualifications.
4. Data on high school student support needs were searched and collected from April 8, 2025 to June 3, 2025 using the University of Memphis Libraries research database platform, EBSCO. Twenty-two articles focused on high school student support needs. And of those 22 publications, two were requested via the Interlibrary Loan Program for review. Articles were narrowed down by screening the title and abstract. Afterwards, full-text articles were read. Articles that met all inclusion criteria were extracted into a Microsoft Excel spreadsheet by article title, date of publication, key identified support needs categories, notes, article links, and support needs count.
5. A total of four listening sessions were conducted: high school student/recent graduates (one session), high school and College, Career, & Technical Education (CCTE) staff (one session), and workforce partners (two sessions). The University of Memphis staff utilized existing public health club partnerships within Memphis Shelby County Schools (MSCS) to identify, select and coordinate listening sessions for high school teachers/CCTE staff and high school students. Official invitations to participate in listening sessions were sent via email. All sessions were held via Microsoft Teams except for one in-person session. All listening sessions were recorded for transcription purposes using Microsoft Teams. Sessions were transcribed using a combination of Teams transcription software and aTrain transcription software. The responses and resulting discussions in each session were used to generate codebooks via thematic analysis. A codebook was developed for each listening session, with the potential for collation of the themes into overarching themes for the total exercise. Textual data, codes, and themes were organized into codebooks via Microsoft Excel.
6. A list of work-based learning organizations, community-based organizations (CBOs) and federally qualified health centers (FQHCs) was created. The list was then narrowed down by the following: upcoming community-based outreach events, services provided, tasks/skills that could be gained through work-based learning (WBL) opportunities, and DI competencies that students could develop through partnerships. Thirty-three organizations were identified. The University of Memphis School of Public staff met to identify existing partnerships with CBOs. CBOs were called to assess their willingness to offer WBL opportunities currently or in the future for high school students. CBOs were then categorized by those who were open to providing WBL opportunities to high school students, who were not, and who would consider it in the future. Documents pertaining to experiential learning were drafted as examples for future use.
7. Six dual enrollment course offerings at the University of Memphis School of Public Health (UofM SPH) were examined for appropriate alignment with DI workforce skills and CDI exam domains. Course syllabi were reviewed, and course instructors for the six offerings were contacted to discuss course alignment. Overarching skills essential to the DI workforce were assessed to determine if these skills were applicable within the UofM SPH dual enrollment course offerings. In addition to the 11 DI workforce skills, the CDI exam domains were assessed for content alignment with UofM SPH dual enrollment course offerings.

Project Purpose and Background

Disease intervention (DI) professionals are an essential part of the public health workforce, supporting the prevention and control of infectious diseases through activities such as case investigation, contact tracing, partner services, care coordination, outbreak response, and community engagement. Although DI work has historically focused on sexually transmitted infections (STIs) and tuberculosis (TB), DI professionals increasingly support responses to emerging and re-emerging public health threats. As the scope of disease intervention has expanded, so has the need for a standardized approach to preparing, training, and recognizing this workforce.

To address this need, the Centers for Disease Control and Prevention (CDC), in collaboration with national public health partners, initiated efforts to establish the Certification in Disease Intervention (CDI) program. The CDI program is designed to standardize and validate the knowledge, skills, and abilities of DI professionals, improve the quality and consistency of disease intervention services, and strengthen recruitment, retention, and professionalization of the workforce.

The CDI project has advanced through several phases over more than a decade. In 2013, CDC and the National Association of County and City Health Officials (NACCHO) collaborated on a feasibility assessment to evaluate the potential for a national DI certification program. NACCHO supported stakeholder engagement and contracted with International Credentialing Associates to assess workforce needs, training gaps, operational requirements, and sustainability considerations. Beginning in 2014, the Public Health Accreditation Board (PHAB) served as the coordinating organization for the assessment phase, leading foundational activities such as the DI workforce registry, Job Task Analysis, workforce enumeration studies, and evaluation of certification models. This work helped define DI competencies and supported the selection of a test-based certification model.

In 2022, the Association of Schools and Programs of Public Health (ASPPH) assumed leadership of the CDI project through a CDC-funded cooperative agreement. In partnership with the National Board of Public Health Examiners (NBPHE), subject matter experts, and national public health partners, ASPPH has supported certification infrastructure, examination development, stakeholder engagement, and strategies to strengthen pathways into the DI workforce.

As the CDI program moves toward implementation, establishing early educational pathways into the DI profession has become increasingly important. Building awareness of disease intervention careers among high school students can help strengthen workforce recruitment, expand the public health pipeline, and create opportunities for students from diverse backgrounds to pursue careers in disease intervention. Flexible educational pathways that align with DI job domains and competencies can support long-term workforce development while increasing access to CDI certification and related career opportunities.

To support these efforts, ASPPH awarded a subaward to the University of Memphis School of Public Health to design frameworks, models, and recommendations for educational pathway programming that prepares high school students in grades 9–12 to enter the disease intervention workforce and pursue CDI certification.

The project focused on identifying pathway models aligned with DI job domains and tasks while emphasizing flexibility, accessibility, and broad applicability across educational settings. By exploring how secondary education can serve as an entry point into disease intervention careers, this work seeks to strengthen recruitment, training, and retention efforts and support the development of a representative, sustainable, and future-ready disease intervention workforce.

The findings and recommendations from this project are intended to inform future efforts to establish high school-based educational pathways that support both entry into the DI profession and long-term participation in the CDI certification program.

Objectives

Program Scan

- Part A: Scan of Current Disease Intervention-Related Educational Program Models Evaluation at Academic Institutions

To assess existing high school pathway programming within academic institutions in the fields of public health, health sciences, medicine, and other interdisciplinary programs that prepare high school students to be eligible to sit for the Certified in Disease Intervention (CDI) certification

- Part B: Literature Scan of Current Disease Intervention-Related High School Pathway Training Programs

To assess current public health literature and identify existing disease intervention (DI) high school education pathway programs and high school trainings

- Part C: DI Job Portal Scan

To scan current disease intervention (DI) workforce jobs examining education requirements, experience, skills and competency requirements to prepare high school students for the DI workforce and CDI eligibility

- Part D: High School Student Support Needs Literature Scan

To scan, identify, and analyze the types of high school student support needs that are essential for future high school pathways, college programs, and careers

Listening Sessions

To conduct listening sessions to assess disease intervention (DI) career interest, learning preferences, student participation barriers, and the feasibility of establishing a DI high school educational pathway program

Feasibility of High School Pathway Program

To explore the feasibility and provide recommendations for building external partnerships to support a high school pathway program, which includes a work-based learning opportunity

Curriculum Integration

To identify existing courses that could align with CDI exam domains, identify strategies that support curriculum alignment with CDI exam domains, and identify strategies for high school student engagement within the curriculum

Program Scan

Part A: Scan of Current Disease Intervention- Related Educational Program Models Evaluation at Academic Institutions

Methods

A total of 17 programs were identified from various educational institutions. These programs were scanned for health-related opportunities for high school students. Data were extracted from academic institutional websites to assess program type, outcomes, and cost, from April to October 2025. These programs were selected because of their successful implementation and integration of high school level pathway programs. The data was extrapolated into a Google Sheets spreadsheet for easier identification of program trends. The spreadsheet was organized as a tracking tool to document the program evaluation process. Each row corresponds to an evaluation of a high school program, while the columns highlight specific program data: title of program, name of institution, program disciplines, major program highlights (type, cost, outcomes), and other program details (target audience, marketing materials, program dates). This spreadsheet supported the organization of programs based on the high school programs' discipline area. Programs were assessed for similarities and differences across disciplines and cost associations.

Results

A. Pathway Program Types & Disciplines

This program model evaluation scan assessed institutional programs, including high school pathways, dual enrollment programs, and summer programs at postsecondary institutions (n=17). Fifteen programs were summer programs at various post-secondary institutions that provided students with exposure or training in health-related concepts during out-of-session periods. Two programs were situated within public schools that offered high school students opportunities for dual enrollment. Programs were categorized by the discipline that hosted the program or contributed to its' outcomes. Program disciplines include public health (3), health sciences (6), and interdisciplinary programs (8). Interdisciplinary programs were programs that were hosted or facilitated by various disciplines, including medicine, nursing, biology, and/or technology. All 17 programs require completion of an online application for participation. **Table 1** provides an overview of academic institution health-related pathway programs for the high school students reviewed.

B. Pathway Program Location

Programs are located throughout the US. Forty-seven percent of programs were located in the Northeast, 23.5% in the South (all South Atlantic), and 11.76% in the West (all Pacific). Only one program, the Global Health Leaders Conference, hosted by John Hopkins Center for Global Health, was hosted completely virtually (*The Global Health Leaders Conference (GLOHEA) | Johns Hopkins Center for Global Health, 2019*). No programs were identified from the Midwest, East or West South-Central region of the US.

C. Pathway Program Fees for Participation

Fifty-nine percent of programs were free for students and their families. Of the 41.2% of programs that required students to pay for participation, three cost less than \$500 (depending on how many college hours were taken and whether the student's family was a resident of the university city). Other programs cost students and their families between \$900 and \$6,445. Of the programs that cost between \$900 and \$6,445, three were health science-based programs and one was an interdisciplinary public health program. In these two disciplines, no programs costing less than \$500 were available for participants. Program costs were allocated to meals, lodging, field trips, and overall participation. Only two of the 17 programs offered student stipends for completing their program.

D. Student Eligibility for Program Participation by Grade:

Among the programs scanned, Georgetown University hosted the only program that allowed 8th through 12th graders to apply (Hoya Summer High School Sessions). For 5.88% of the programs

scanned, only high school seniors were eligible to apply. For 31.25% of the programs, only high school juniors and seniors were eligible to apply. For 5.88%, only high school juniors were eligible and for 11.76% of programs only sophomores, juniors, and seniors could apply. Another 11.7% of programs allowed only sophomores and juniors to apply. Meanwhile, 35% of programs allowed all high school students to apply (9th through 12th graders).

Table 1: *Academic Institution Health-related Pathway Programs for High School Students*

Host Institution	Program Name	Program Type	Program Cost	Program Outcome
Public Health				
Drexel University, Dornsife School of Public Health, Philadelphia, Pennsylvania	Public Health Summer Institute	One-week summer program for rising 11th and 12th graders	\$400	Students receive exposure to advocacy and policy making, health administration and management, preventive health, the environment and its impact on health outcomes, and epidemiology.
Harvard University, T.H. Chan School of Public Health, Cambridge, Massachusetts	Data Science in Action	One-month summer high school program for rising 11th and 12th graders	No cost	Students participate in non-college credit group research projects, labs, lectures, and mentorship from graduate data science and computing student.
Select Pittsburgh High schools, University of Pittsburgh, Pittsburgh, Pennsylvania	Public Health Science Academy	Four-week summer program for current 10th and 11th graders	No cost	Students learn core public health concepts and apply public health knowledge through hands on research projects and field trips. Students who complete the academy will receive \$1,000.
Health Sciences				
Rochester Institute of Technology, National Technical Institute for the Deaf, Rochester, New York	Health Care Careers Exploration program	One-week summer program for rising 10th, 11th, and 12th graders	\$900	Students that are hard of hearing or deaf receive exposure to mentorship, health and healthcare related career opportunities, and non-college credit group projects.
Virginia Commonwealth University, Massey Comprehensive Cancer Center, Richmond, Virginia	Community High School Engagement and Learning Program (CHSEL)	Five-week summer internship for rising 11th and 12th graders	No cost	Students participate in a mentored research experience, present summer research at Massey's Summer Research symposium, and receive 125 hours of lab experience.
UMass Chan Medical School Morningside Graduate School of Biomedical Sciences	High School Health Careers Program	Four-week summer program for current 10th and 11th graders	No cost	Students interested in biomedical and biotechnology can participate in research projects, networking with health care professionals, and receive internships.
UT Health San Antonio, Office of Recruitment & Outreach, San Antonio, Texas	BEAT Academy (Biomedical Excellence and Academic Training)	Five-day summer program 9th through 12th graders	\$1,000	Students are exposed to medical and biomedical research which cover labs, career development workshops, and college prep. Students receive a certificate upon completion of the academy.
Wake Forest University, Summer Immersion Program, Winston-Salem, North Carolina	Medicine Institute	Six-day overnight summer program 9th through 12th graders	\$3,400	Students cover topics such as internal medicine, cardiology, pulmonology, neurology, ultrasound, cancer care, surgery, and practice patient diagnosis techniques at local hospitals.

Table 1 Continued: Academic Institution Health-related Pathway Programs for High School Students

Host Institution	Program Name	Program Type	Program Cost	Program Outcome
Health Sciences				
Yale University Yale School of Public Health, New Haven, Connecticut	Young Scholars Summer Program in Biostats and Clinical Research	Two-week summer program for 11th and 12th graders	No cost	Students who are Connecticut residents are exposed to statistics, computer programming, and medical research. Students learn R computer language and receive completion certificate. This program includes five weeks of peer mentorship.
Interdisciplinary				
Alexandria Public Schools, George Washington University, Alexandria, Virginia	Governor's Health Sciences Academy	High school pathway for 9th through 12th graders	No cost	Students are able to receive up to 18 college credits from the George Washington School Of Medicine and Health Sciences. Some students are eligible to receive a certification in Sterile processing, Nurse Aide, Phlebotomy, Personal Trainer, EMT-Basic, Health Informatics (Medicine, Health Sciences, and Nursing).
Georgetown University, Washington, D.C.	Hoya Summer High School Sessions	One to three week summer program for current 8th, 9th, 10th, 11th, or 12th graders	\$3,025 \$6,445	Students receive exposure to networking opportunities with current medical students, school faculty, and practicing physicians. Students also receive a certificate of participation (Medicine, Health Sciences, and Nursing).
John Hopkins University, Center for Global Health Baltimore, Maryland (virtual)	Global Health Leaders Conference	Three-to-four-week virtual conference for domestic and international 9th through 12th graders	\$99	Students attend a virtual conference with one-to-two virtual events on the weekend to learn about issues in global health, public health, and medicine from world leaders in these fields through lecture and networking. Students have the opportunity to present their own global health work and participate in student speaker series.
Harvard University, T.H. Chan School of Public Health, Cambridge, Massachusetts	Stat Start	Two-week summer day camp for rising 9th through 12th graders	No cost	Students are introduced to machine learning through lectures and coding by producing a self-driving tour car.
Stanford Medicine, Stanford, California	Stanford Medical Youth Science Program	Five-week summer program for 11th graders	No cost	Students participate in an enrichment program focused on science and medicine (Medicine, Health Sciences). Only 24 students are selected for the program.
University of California, Global Health Institute San Francisco, California	Summer Researchers in Global Health	Six-week summer internship for rising 12th graders	No cost	Students receive a \$2,000 stipend for their participation in lectures and projects. Public Health Global Health, Health Sciences.
Virginia Commonwealth University Richmond, Virginia	Allied Health Career Exploration	Two-week summer program for 10th, 11th, and 12th graders	No cost	Students participate in hands on activities with each discipline in the Allied Health department, practice interview skills, and resume development
West Virginia University Morgantown, West Virginia	High School ACCESS Early College Program	High school pathway for eligible 11th and 12th graders	Tuition is \$25 per credit hour for WV residents and \$75 per credit hour for non-residents	Students who are Connecticut residents can fill their General Education Foundation credits through accredited courses at WVU.

E. Program Participation Student Outcomes:

Each program exposed students to post-secondary institutions, professors, and collegiate academia. Fifty-two percent of programs offered students an opportunity to present in a research symposium, hosted research showcases for students, or aided students in the development of a project. However, programs that did so were more costly to students. Meanwhile, 23.5% of the programs mentioned some kind of mentorship for high school students. Among these programs, 11.8% offered students an opportunity to gain college credits.

Discussion

While conducting the program evaluation, 17 articles were identified that offered high school pathway programming within educational institutions in the fields of public health, health sciences, medicine, and other interdisciplinary disciplines. The following categories were derived from the program evaluation so as to compare each program: program type, program outcomes, and program cost. Opportunities exist to expand the current number of high school pathway programs across the US, improve students' access to these programs, and ensure that students gain college and career exposure. Institutions are more likely to create programs that involve more than one discipline. However, there are a limited number of public health focused or hosted high school pathway programs. Only one program discussed DI concepts, but this program is an interdisciplinary program: Summer Researchers in Global Health | UCSF Institute for Global Health Sciences, 2025. In addition, no public health programs discussed opportunities for students to present their research during the program. These gaps indicate a need to expand high school pathway programs that promote DI concepts and give high school students experiential learning opportunities. By offering health-related DI

pathway programs, educational institutions could expose students to DI knowledge and career pathways.

There was no correlation between program type, the length of high school pathway programs, and the target grade-level population with the discipline focus of pathway programs. Health science-based programs and interdisciplinary programs consistently offered students an opportunity to present in a research symposium, hosted research highlights for students, and aided students in the development of a project. However, these programs were more costly for students and their families. Cost association did seem correlated to the amount of time high school students spent within the programs. At Georgetown University's Hoya Summer High School Session, students could participate for one-to-three weeks, with costs ranging from \$3,025 to \$6,445 (Georgetown SCS, 2025). At the same time, the cost of some programs was not associated with program duration. For example, Stanford Medicine's Medical Youth Science program is free of charge to high school juniors. However, only 20 slots are available (2025 estimate).

Since 14 out of 17 programs were offered in the summer—some with associated costs—other educational institutions could expand student uptake by running programs during the academic school calendar year. If applicable, government supplemental funding could be used to cover program cost. Cost implications indicate that additional high school programs are needed to support the needs of low-income students seeking early-career and higher-education exposure. Only two programs communicated (via their websites) an interest in expanding the visibility of career opportunities in various health-related career workforces for their students. First, at the National Technical Institute for the Deaf at Rochester Institute of Technology, the Health Care Careers Exploration program, which targets students who are heard of hearing or deaf, take steps to support these students through mentorship and exposure to health careers of which they might not otherwise be aware (Health Care Careers Exploration Program | National Technical Institute for the Deaf | RIT, 2025). Second, the interdisciplinary program Stat Start at the T.H. Chan school of Public Health at Harvard University mentions its commitment to targeting first-generation and low-income students and highlights the fact that it offers students the opportunity to enroll in its program. One way to make DI professions more accessible to all students could be for institutions, as have the two above, to be intentional about expanding the overall health-related career workforce in recruitment and marketing efforts. Lastly, with no program models in the Midwest, East or West South-Central region of the US, educational institutions could expand accessibility by making sure high school pathway programs—and thus DI concepts, skills and educational training—are widely available throughout all regions.

Limitations

Only pathway programs from academic institutions were included in this program for model scan and they came from a robust resource list. Other programs exist at community and government organizations, and their program outcomes, types, and program costs should also be evaluated for additional high school pathway opportunities. Moreover, this scan may not have included all high school pathway programs that offer some DI related components. Further detailed searches should be conducted to gain an understanding of all the pathway programs that are focused on DI concepts. Additionally, as new programs are being developed, it is imperative to stay abreast of opportunities open to high school students in the field.

These evaluation results are limited to a small number of health-related high school pathway programs, and only within the US. Programs included were identified as high school pathway opportunities at academic institutions with a strong history of health-related programs. Programs that are more accessible to high school students who reside internationally, in the Midwest, and in the southernmost part of the US are not included and should be considered for further review. Future evaluations should consider associations between program locations and socioeconomic trends near high school pathway programs.

Program Scan

Part B: Literature Scan of the Current Disease Intervention-Related High School Pathway Training Programs

Methods

A review was conducted to assess existing literature on DI educational programming and workforce opportunities for high school students. Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) 2020 recommendations were followed.

Data Sources and Search Strategy

Potential articles were identified by searching three databases: Sage Journals, PubMed, and Google Scholar. These databases were chosen because they allowed for a broad national search and are commonly used for public health topics. The databases were searched from beginning of databases through May 19, 2025, for articles related to DI education programs and workforce opportunities for high school students. Search terms were originally restricted to using the following key terms: “disease intervention specialist”, “degree programs”, “high school training”, and “education”. To enhance the search, a combination of keywords was used. If the search yielded more than 1,500 articles (or fewer than one article), the keyword combination was excluded and not screened. The following combinations were excluded from the search: “high school training” and “degree programs”, “disease intervention specialist program”, “career”, or “summer program”. These search words did not yield any related articles on DI education programs and workforce opportunities for high school students. For more keyword search combinations, refer to *Appendix A*.

From these initial criteria, some search term combinations were unsuccessful and did not support the literature search so they were excluded from the initial PRISMA screening. After implementing the search engine criteria, the first 10 article titles were reviewed for each successful combination. If the first 10 titles did not match the article’s search criteria (information about DI education programs and workforce opportunities for high school students), they were excluded from the initial PRISMA screening.

Based on combinations of keywords, it was noted that search engines produced articles that broadly addressed the usefulness of disease specialist interventions or the need for disease specialists in the public health workforce. The following search combinations successfully yielded information about DI education programs and workforce opportunities for high school students: (keyword) “disease intervention specialist” AND “education.” Search terms were restricted to “disease intervention specialist” and “education” for better selection. These keywords were chosen because they are directly correlated to the construction of DI programs in higher education and high schools. These keywords yielded 683 articles across all three databases.

Eligibility Criteria and Study Selection

Articles were restricted to relevance to public health education and DI programs. The inclusion criteria for articles were as follows: 1) mention of early career exposure, 2) applicable to high school pathways, disease intervention specialists, or community-level programs, 3) demonstrated some public health relevance, and 4) conducted in the US. Articles were excluded if they were reports, conference abstracts, editorials, opinion pieces, or non-English publications. Each full text article was reviewed independently.

Data extraction

Data was extracted into a Microsoft Excel sheet and organized as a tracking tool to document the literature review process. Each row corresponds to a database search using the same keyword, while the columns highlight the progression of articles at different stages of PRISMA screening. At the bottom of the sheet, a summary row aggregates results across all databases, showing the total number of articles identified, excluded, and retained for screening. The following data were extracted from five full-text articles: citation information, location of study, study inclusion criteria, and outcomes assessed.

Results

As shown in the PRISMA Flow Chart (Figure 1), the initial search for articles yielded n=683 articles from the three databases searched (five from PubMed, 36 from Sage Journals, and 642 articles from Google Scholar). Two duplicate articles were identified across the search terms and were removed. A total of 681 article titles and abstracts were screened, while 624 articles were excluded by title. Forty-nine articles were excluded after the abstract review. Eight articles were sought for retrieval, and eight full-text articles were assessed for eligibility. Articles were removed if they did not meet the eligibility criteria because they were not conducted in the US (n=0) or did not apply to any high school component (n=2). Six articles were identified that offered rationale or critical insight into DI workforce pathways. The articles were double-checked and screened based on search term combinations, article criteria, and project requirements. The data was extracted into a Microsoft Excel sheet for easier identification of literature trends. The following outcomes were identified across the full text articles: cost-effectiveness of DI specialist training, DI specialist postsecondary education and training, and DI specialist early exposure.

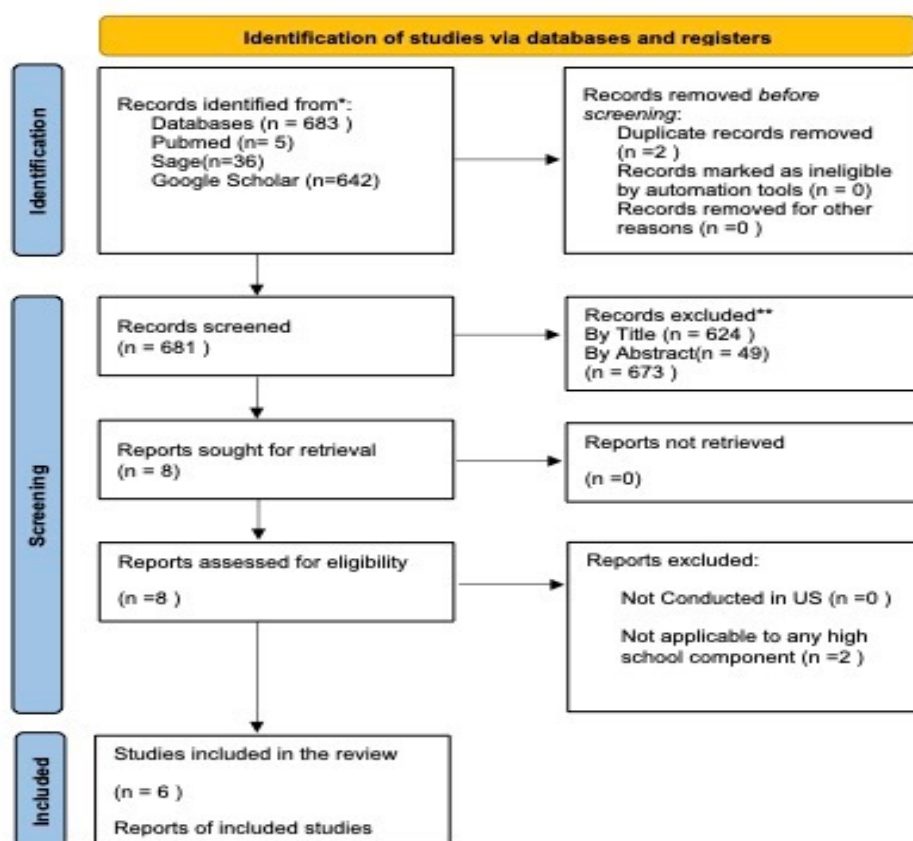


Figure 1: PRISMA Diagram of Searches

The six articles included in the review are summarized below. See **Table 2** for outcomes identified by article. The outcomes included were cost-effectiveness of DI specialist training, DI specialist postsecondary education and training, and DI specialist early exposure.

Table 2: Outcomes Identified by Article

		(Becher et al., 2023)	(Cope et al., 2018)	(MacDonald et al., 2007)	(Mase et al., 2018)	(Williams and Thomas, 2023)	(Young, 2021)
Outcome 1: Cost-effectiveness of DI specialist training		X	X	X		X	
Outcome 2: DI specialist post-secondary education and training					X		X
Outcome 3: DI specialist early exposure			X		X		X

Williams et al. (2023) and Becher et al. (2023) discuss the effectiveness of disease intervention and federally funded methods to ensure the expansion of DI specialist expertise using cost-effective analysis. The discussions frequently mentioned challenges regarding federal defunding and/or inadequate public workforce structures for DI specialist training programs, which include high school pathway programs. Therefore, limited opportunities for career mobility may affect entry-level DI specialist workers, especially those entering the workforce directly from high school with limited work experience and limited work-based learning opportunities.

Cope et al. discuss challenges in DI specialists' traditional performance measures for population health regarding partner notification and suggest that "poor pay...[and] time in the field locating patients and their partners" will continue to result in high DI staff turnover, leading to a critical staff crisis (Cope et al, 2018). Focusing on a case study of the North Carolina Health Department's infrastructure and DI Specialist training, Cope et al. suggest that an increase in technological data tracking for surveilling sexually transmitted diseases and prioritizing outbreak response has shifted the DI training landscape from being heavily focused on fieldwork to being more focused on office-based tasks (2018). As roles and responsibilities shift away from the field, high school students interested in disease distribution or population health communication should be exposed to a range of public health topics.

Moreover, with a higher reliance on data entry and technological literacy for DI specialists, Cope et al. recommend rising DI specialist "should be well versed on the latest smartphone applications and websites patients use to meet sexual partners and how to navigate these online venues to refer sexual partners for prevention services," emphasizing creativity in health communication and intrapersonal soft skills that may be more easily implementable in high school pathways (Cope et al, 2018). Primary and secondary education institutions have an opportunity to expand their education strategies and curricula to promote digital literacy and implement service-learning projects or peer health communication as a way of offering students interested in DI roles foundational exposure.

Mase et al. performed a gap analysis of current Council on Education for Public Health (CEPH) requirements for accredited Bachelor of Science in Public Health (BSPH) programs, using the Georgia Southern University's Jiann-Ping Hsu College of Public Health as a case study. Their study aimed to understand how formal public health academic programs align with specified DI workforce tasks. Mase et al. investigated their findings against the background of the changing landscape of the DI specialists' scope of practice (2018). In their investigation, researchers discovered that Jiann-Ping Hsu College of Public Health's BSPH curriculum "aligned with 75% of the DI specialist job tasks and 42% of the DI specialist knowledge competencies," suggesting growing opportunities to update public health curricula to align with upcoming changes in DI workforce pathways (Mase et al., 2018). Along with the evolving role of the DI specialist, high school programs may offer flexible opportunities to embed in courses the intrapersonal and technical skills needed to manage emerging infections. For instance the authors highlight key knowledge competencies such as "gathering information from medical records," investigation activities, including the use of "people search engines (i.e. Facebook, Google)," "out-of-jurisdiction practices and process," "health system collaboration and quality improvement (i.e. laboratory operational procedures)," "clinical support services (i.e. communicable disease treatment guidelines and standing orders)," "case analysis," and "case management" services as competencies that were missing from either Georgia Southern University's Jiann-Ping Hsu College of Public Health BSPH or MPH curricula as accredited by CEPH (Mase et al., 2018). These missing competencies suggest gaps in the formal education preparing rising DI specialists to enter the workforce, creating opportunities for education planning and skills incorporation. Building the capacity of high school students to develop written health communications, knowledge of regional context, and basic informatics may increase the sustainability of a critical yet underfunded role in the public health workforce. Young et al. focused on the Centers for Disease Control and Prevention (CDC)-initiated program, CDC Undergraduate Public Health Scholars (CUPS), which was developed to expose underrepresented students to public health career pathways (2021). Researchers underscore the utility of early exposure to public health curricula for entry-level public health workers and report that 77.4% (600) of 775 participants reported either the program or the mentors, or both, were extremely or very influential to their career path. Students claimed that the CUPS program had "opened their eyes, inspired their interest, cultivated their passion... and fueled their drive to find solutions to and in social determinants of health and contribute to health equity." (Young et al., 2021) These findings present an opportunity to implement DI skills-building in primary and secondary education, showcasing not only exposure to skills but also mentorship that can support and sustain the overall public health workforce. Ultimately, Young et al. suggest that the success of public health undergraduates can be supported through continuous exposure to non-dominant public health and medical careers in the public health workforce. With the success of CUPS in mind, mentorship and experiential learning courses in high school settings may further support students who are interested in DI training. See **Table 3** below for a description and assessment of the articles included.

Discussion

Internal assessments of public health curricula, courses, and topics would help to identify educational pathways within existing programming at postsecondary institutions to ensure alignment with DI domains and identify gaps. Recognizing workforce gaps as a critical challenge to sustaining the DI workforce, high school students' pathways may provide a valuable pipeline that can meet this growing demand for talent. Mase et al.'s (2018) discussion of Georgia Southern University's College of Public Health includes recommendations for addressing workforce gaps and ensuring that high school students are ready to fill them through preexisting curricular and work-experience opportunities. Health science and communications courses that are required in high school curricula may provide an opportunity for integration with the Public Health Accreditation Board's recognized DI job tasks. Health science classes that are focused on social behavior concepts might consider emphasizing lectures and lab experiences that convey the importance of collecting and transporting specimens on the job. At the same time, communications courses might

implement activities and projects that encourage high school students to use alternative electronic tools such as social media, as well as legislative and public health department databases.

Table 3: *Description and Assessment of Included Articles*

Author (Year)	Location of Study	Study Inclusion Criteria	Outcomes Assessed in Study
(Becher et al., 2023)	Not available	Authors offer commentary on the cost-effectiveness of a secure DI specialist workforce and encourage other DI specialist teams to standardize cost-effectiveness analysis tracking.	Shows how innovative approaches to DI specialists (i.e., less reliance on field time or travel of DI workers) can offer job retention.
(Cope et al., 2018)	The North Carolina Department of Health and Human Services, North Carolina, USA	Authors evaluate the changing landscape of public health interventions due to technological advancements and consider how reliance on technology has shifted DI specialist job tasks (including operational expectations of local public health departments).	- Authors highlight the financial, political, and skill readiness challenges faced by public health departments. - This offers an indication of how critically aligned job force opportunities would need to be in pathways offering secondary and primary education to support a future pipeline of public health workforce employees.
(MacDonald et al., 2007)	Not available	Authors describe the purpose and responsibilities of a DI specialist in response to emerging diseases and the potential for other traditional training required in a bioterrorism incident.	Authors highlight the historical background of DI specialist programs and list competencies for public emergencies to discuss the flexibility of the DI specialist workforce.
(Mase et al., 2018)	Georgia Southern University, Jiam-Ping Hsu College of Public Health, Georgia, USA	Authors conducted a comparative analysis of the GSU Master's and Bachelor's Public Health curricula with a DI specialist to understand whether academic public health training programs have the necessary content to train rising DI specialists.	- Authors highlight missing skill domains within formal CEPH-accredited curriculums critical for DI specialist job tasks such as health system collaboration and quality improvement. - This offers elective course models that might support the implementation of skill domains in high school settings.
(Williams and Thomas, 2023)	Not available	Authors take a cost-effective analysis approach to evaluating the retention of DI specialists in communities.	- This optimizes DIS as an intervention by educating high school students to support a diversifying public health industry. - This highlights DIS the workforce shift from STD tracing to more emergent outbreak tracing (i.e., COVID-19).
(Young, 2021)	Not available	Authors discuss the CDC Pipeline program, Undergraduate Public Health Scholars (CUPS) program. A program designed to expose underrepresented students (racial and ethnic minorities, differently abled students, LGBTQIA students, etc.) to mentorship, career counseling, and academic enrichment courses in public health and medicine.	- This presents a logic model for the CUPS program, which highlights key components, including improved academic skills, maintenance of grades, and professional support. - This includes testimonials from the 573 respondents who reported that CUPS was extremely helpful or influential.

Furthermore, electives that prioritize scenario-testing and role-playing activities and are focused on DI fieldwork prep and communications can expose a wide range of students to the operation of navigation tools, client/participant encounters, and interviewing skills. To support the implementation of DI high school educational pathway programs for early education and training, institutions would need to increase interest in DI professions. Institutions could also embed in their programs field trips to public health agencies and organizations to facilitate interest through visual observations—which expose students to public health services, workflows, electronic medical system performance and utilization, and laboratory operational procedures—and to build rapport with DI stakeholders. Internships also provide an opportunity to highlight the importance of health system collaboration in DI roles, as they offer on-the-job training for high school students who show interest in public health-related disease intervention. Young et al. (2021) highlight the success of the CDC's CUP program in promoting the importance of mentorship in job readiness for health service pathways. High school students could gain insights from networking opportunities with advanced DI professionals and institutions, particularly in DI workforce opportunities. For example, existing forums and school clubs could offer high school students support as they navigate health service pathways.

Limitations

Using the Sage Journals, PubMed, and Google Scholar databases may have resulted in limited findings related to existing educational pathway programming. However, these databases were selected because they are

strong academic literature sources. Additionally, literature that may not have been indexed online may have been missed in this search. This review did not include a meta-analysis, so comparisons of findings across studies are limited.

Current public health literature tends to focus on DI projects and outcome reports, but it rarely explores workforce development pathways for high school students. Additionally, DI educational programs or pathways for high school students might be more easily identified if authors and research teams were to include relevant search terms in article titles and abstracts that address topics such as “high school,” “training programs,” and “disease intervention specialist programs.” Future research teams might also consider expanding their key search terms beyond “disease intervention specialist” to include “public health” or “health service” to broaden their literature search (Cope et al., 2018). Since the search terms were limited to “disease intervention specialist” focused pathways, the search was not inclusive of public health and health science programs in high schools. Similarly, because this literature scan was conducted in the US and in Standard English only, international search engines and potential pathways were not identified either. As a result, articles about high school programs and pathways may have been overlooked.

Program Scan

Part C: DI Job Portal Scan

Methods

The CDC approved *This Is Disease Intervention* working definition of a DI professional was used for the purposes of this project. DI professionals are essential members of the national public health workforce. They reduce community spread of infectious diseases through contact tracing, partner services, health education, and facilitating access to health care. A DI professional is defined as any public health professional who conducts disease intervention activities including, but not limited to the following:

- Person-centered interviews
- Collection of enhanced surveillance and community assessment data
- Contact tracing
- Field specimen collection
- Field investigation in outbreaks
- Emergency preparedness
- Community outreach
- Collaboration with medical providers

As the team worked to examine public health jobs categorizing which ones were specific to disease intervention, the goal was to investigate the criteria needed to obtain such DI roles preparing students for the DI workforce and CDI eligibility. Therefore, the data on all public health jobs were advertised and collected for analysis via ZipRecruiter, Glassdoor, and Indeed, from April 22 to May 19, 2025. These three job search engines were selected because they allowed for a broad national search populating hundreds of jobs. Search terms were originally restricted to Disease Intervention Specialist Jobs within the Google Jobs search engine. This initial search, which populated 25 DI job postings, provided the following job titles: Disease Intervention Specialist/ Public Health Rep 4, Communicable Disease Investigator Level I/II, Public Health Investigator II, Infection Prevention Specialist, Disease Research and Intervention Specialist and HIV Prevention Coordinator. These same job titles were used on the other job boards to expand the search, compiling a more extensive list of 21 total DI job titles to use for searching job postings on ZipRecruiter, Glassdoor, and Indeed. Each job title was searched across all three platforms one at a time. The search of titles was restricted to the following job titles with no quotations:

Disease Intervention Specialist/ Public Health Rep 4, Communicable Disease Investigator Level I/II, Public Health Investigator II, Infection Prevention Specialist, Disease Research and Intervention Specialist, HIV Prevention Coordinator, STD Disease Intervention Specialist, Public Health Representative, Public Health Educator, Infection Preventionist, Public Health Officer, Health investigator, Health Promotion Specialist, Community Health Worker, Public Health Coordinator, Community Health Specialist, Public Health Specialist, Community Health Outreach, Community Health Navigator, Outreach Specialist, and Outreach & Community Engagement Specialist.

Job postings were restricted to job title relevancy and job position relevancy. Inclusion criteria for job posting selections were as follows: job descriptions had to note education requirements, job titles had to contain at least 2/3 of the originally searched job titles, and job descriptions had to have some public health relevancy. Search terms were restricted to US, full-time, and entry-level to yield the most relevant job descriptions.

Each posting was reviewed independently, and the initial searches took place between April 22, 2025 and May 19, 2025. The postings selected for each title were the first that met all three criteria. Sixty-three jobs were selected, (21 from each job portal), one job title search and selection per each engine (ZipRecruiter, Glassdoor, and Indeed). One duplicate was removed, and 62 job postings remained. Data such as educational requirements, job location by state, job region, and hiring organization type (staffing agency, government, healthcare provider, educational institution, medical center, non-profit organization, insurance company, hospital, and other) were examined and extracted. Sixty-two postings were screened for job location (state/region), posting organization, posting organization type and educational requirements, skills (preferred/required), competencies (preferred/required), experience (preferred/required), and special qualifications.

The job postings that met the necessary criteria were extracted into an Excel spreadsheet. After finalizing the list, the first data analyst double-checked all postings based on search term, search criteria, and consensus rules. The data extraction included the following:

Job title: Job titles were compiled from Google Jobs (six), and the search for job titles was then expanded using ZipRecruiter, Glassdoor, and Indeed. After the search was further expanded to look at other entry-level public health jobs within the three job portals, six job titles (Disease Intervention Specialist/ Public Health Rep 4, Communicable Disease Investigator Level I/II, Public Health Investigator II, Infection Prevention Specialist, Disease Research and Intervention Specialist, HIV Prevention Coordinator) were used to maximize the search for more DI jobs. The DI professional job title list increased from six to 21. The list of job titles can be found below in **Table 4**.

Each job title was extracted into an Excel spreadsheet and re-entered two more times in a separate column according to the job platform from which it was extracted and its respective job title category. For example, a job posting for Disease Intervention Specialist/ Public Health Rep 4, was entered three times—one time per ZipRecruiter, Glassdoor, and Indeed. And Communicable Disease Investigator Level I/II, was entered across all three job platforms—one time for ZipRecruiter, Glassdoor, and Indeed. For additional information and details on data extraction into the Excel sheet, please contact the research study team.

Table 4: *List of Job Titles Searched (n=21)*

Job Titles
Disease Intervention Specialist/ Public Health Rep 4
Communicable Disease Investigator Level I/II
Public Health Investigator II
Infection Prevention Specialist
Disease Research and Intervention Specialist
HIV Prevention Coordinator
STD Disease Intervention Specialist
Public Health Representative
Public Health Educator
Infection Preventionist
Public Health Officer
Health Investigator
Health Promotion Specialist
Community Health Worker
Public Health Coordinator
Community Health Specialist
Public Health Specialist
Community Health Outreach
Community Health Navigator
Outreach Specialist
Outreach and Community Engagement Specialist
Total = 21

Educational Requirements: A second column was added to capture educational requirements for each job posting selected per job platform. The data from 62 job postings was extracted and organized according to the pertaining education requirements: high school diploma, associate's degree, and bachelor's degree. Only 56 of the 62 job postings included such information. From these 56 job postings, educational requirements were extracted and coded. Refer to *Appendix B, Table 1B* for educational coding details.

Location: Additionally, two columns were added to identify job postings' states and regions. All job postings were from the US and states were identified and categorized according to the five regions (West, Northeast, Southwest, Northeast, Southeast and Midwest) (U.S. Census Bureau, 2000). Only 56 of the 62 job postings included such information on location. To see job posts by region, see **Table 10** in the results section below

and for States Distribution by Region see *Appendix B, Table 2B*.

Organization type: The organizational type categories listed below are adapted from previous research conducted by Kedia et al. (2023). To see the original organizational type categories from Kedia et al. (2023), see *Appendix B, Table 3B*. Job organization types were identified and nine organizational types were extracted for use from Kedia et al., 2023 list: (1) government, (2) healthcare provider, (3) non-profit organization, (4) staffing agency, (5) educational institution, (6) medical center, (7) other, (8) hospital, and (9) insurance company. Only 56 job postings included such information from the 62 total job postings captured. For additional information on organization type from the job postings, see **Table 5** under the results section.

Experience Requirements: The experience requirements listed below were adapted from previous research conducted by Kedia et al. (2023). To see the original experience requirements categories from Kedia et al. (2023), see *Appendix B, Table 4B*. Seven work experience requirements categories were extracted from Kedia et al. (2023) and two additional categories were added. All the work experience requirements are as follows: (1) less than one year, (2) one year, (3) one-to-three years, (4) four years and above, (5) some experience, (6) extensive experience, (7) higher education in lieu of experience, (8) not listed, and (9) specialized experience w/no time specification. Work experience “required” and “preferred” used the same list. In-depth analysis was performed on 49 job postings, and all postings were searched for both “required” experience and “preferred” experience. The number of work experience years required for each role and the number of work experience years preferred for each role was extracted and coded into Microsoft Excel. Refer to *Appendix B, Table 5B* for coding details.

Special Qualifications: Special qualifications were extracted and coded into the following six categories: (1) driver’s license, (2) ability to travel frequently, (3) occasional moderate physical activity, (4) potential exposure to communicable diseases, (5) other, and (6) flexible schedules. Refer to *Appendix B, Table 6B*, for coding details.

Required and preferred skills and competencies: A list for required skills and a second list for “required” competencies were adapted from Kedia et al. (2023). To see the original list of required skills and competencies categories from Kedia et al. (2023), see *Appendix B, Table 7B*. These same two lists were used to identify “preferred” skills and competencies. Twenty-four skills, 20 of which were from Kedia et al. (2023), were searched across 49 job postings to determine if they were “required” or “preferred” skills. Each of the required and preferred skills were coded in Microsoft Excel. Twenty competencies, all from Kedia et al. (2023), were also searched across 49 job postings to determine if they were “required” or “preferred” competencies. They were extracted into Microsoft Excel and coded. See *Appendix B, Table 8B and Table 9B* for coding details.

Results

Hiring Organization Types

Many DI jobs were posted by governmental agencies (28.57%). Healthcare providers were also responsible for a large portion of DI job postings (23.21%). Non-profit 501(c)(3) organizations fell slightly behind, accounting for 14.29% of all postings while staffing agencies only represented a rate of 10.71% of postings. Educational institutions, medical centers, hospitals, and other organizations were least likely to have DI job placement opportunities available. See **Table 5** below for more information.

Table 5: Organization Type (n=56)

Organization Type ^a	n	%
Government	16	28.57%
Healthcare Provider	13	23.21%
Non-profit Organization	8	14.29%
Staffing Agency	6	10.71%
Educational Institution	4	7.14%
Medical Center	4	7.14%
Other	2	3.57%
Hospital	2	3.57%
Insurance Company	1	1.79%
Total	56	100%

^a List of organization types is adapted from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>.

Job Titles and Hiring Organization Types Throughout the US

In a sample of 56 job postings, education requirement in conjunction with organization type was analyzed. Thirty DI professional job postings (53.60%) required a bachelor's degree, and these were mostly represented by government agencies (19.60%). Staffing agencies followed, with 8.90% of postings requiring a bachelor-level degree for job placement. Lastly, educational institutions and non-profit organizations both accounted for 5.40% of DI job postings requiring a bachelor-level degree. Other types of organizations posting bachelor-level DI public health jobs are as follows: medical center (3.60%); hospital (1.80%); and other (1.80%). No insurance company posting(s) required a bachelor-level degree. Postings that did not have an organization listed, were missing an organizational type, or were duplicates were not included in this count (six). See **Table 6** for organization type and educational requirements.

Table 6: Organization Type and Education Requirements (n=56 job postings)

Organization Type by Sector	Bachelor's required n	Bachelor's required %	Associate's required n	Associate's required %	High School Diploma required n	High School Diploma required %
Government	11	19.60	1	1.80	4	7.10
Staffing Agency	5	8.90			1	1.80
Healthcare Provider	4	7.10	1	1.80	8	14.30
Non-profit Organization	3	5.40			5	8.90
Educational Institution	3	5.40	1	1.80	0	0
Medical Center	2	3.60			2	3.60
Other	1	1.80			1	1.80
Hospital	1	1.80			1	1.80
Insurance Company					1	1.80
Grand Total	30	53.60%	3	5.40%	23	41.10%

Education and Work Experience Required

In a total study sample of 62 DI professional job postings (where one duplicate was removed), most postings (54.84%) required a bachelor's degree. Many postings (40.32%) required a high school diploma but not an associate's degree (4.84%). Twenty-seven out of 43 job postings required at least "one-to-three years of professional experience" (62.79%). Seven out of 43 (16.28%) required "one year of professional experience." Lengthy experience was not a strong requirement across DI job postings. In fact, only five out of 43 job postings (11.63%) required "four or more years of experience." However, a few postings—four out of 43 (9.30%)—did allow for the substitution of "higher education in lieu of experience." No job postings required a master's degree or PhD. There were also no postings that required extensive experience, specialized experience with no time specification, some experience, or less than one year of experience. See **Table 7** for educational requirements from job postings below and **Table 8** for experience requirements. For detailed information on educational preferences (*Appendix B, Table 10B*) and experience preferences (*Appendix B, Table 11B*) identified in job postings, see *Appendix B, Table 10B and Table 11B*.

Table 7: Education Requirements (n=62)

Education Requirements	n	%
High school degree or equivalent	25	40.32%
Bachelor's degree	34	54.84%
Associate's degree	3	4.84%
Master's degree	0	0
Doctorate or PhD	0	0
Grand Total	62	100%

Table 8: Experience Requirements (n=43)

Experience Requirements ^a	n	%
One-to-three years	27	62.79%
One year	7	16.28%
Four years and above	5	11.63%
Higher education in lieu of experience	4	9.30%
Less than one year	0	0.00%
Some experience	0	0.00%
Extensive experience	0	0.00%
Not listed	0	0.00%
Specialized experience w/ no time specification	0	0.00%
Grand Total	43	100%

^a List of experience requirements adapted from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>.

Special Qualifications

Most jobs require some special qualifications from their applicant(s)—a total of 59 special qualifications listed across 49 job postings. Over 40%—22 (44.90%)—of those postings required a valid driver's license, to qualify as an applicant for the role. Thirteen postings (26.53%) required the applicant to be able to perform some level of occasional moderate and physical activity and to travel frequently. Less frequently mentioned special qualifications included “being comfortable with the potential exposure to communicable diseases” (noted four times). Flexibility of schedule was represented three times, and some other special qualifications that could not be categorized according to the list below were mentioned four times. See **Table 9** below for special qualifications.

Table 9: *Special Qualifications Listed for 49 Job Postings (n=59)*

Special Qualifications	n	% ^a
Driver's license	22	44.90%
Ability to travel frequently	13	26.53%
Occasional moderate physical activity	13	26.53%
Potential exposure to communicable diseases	4	8.16%
Other	4	8.16%
Flexible schedules	3	6.12%
Grand Total	59	

^a The percentage column does not equal 100% as the 49 job postings included multiple special qualifications across the job descriptions.

Job Locations

A total of 56 out of 62 job postings listed location. From these, the Southeastern region of the US accounted for 64.29% of job postings, 36 out of 56. This regional concentration reflects the elevated burden of infectious diseases in the Southeastern US, where persistent public health challenges contribute to higher incidence rates. These challenges may include limited access to care, workforce shortages, and other community-level factors. The findings underscore the need for a robust public health workforce to support disease intervention efforts. It can be determined based on these findings that more DI jobs and professionals are needed to help combat the current state of health, including the following: HIV, sexually transmitted infections (STIs), tuberculosis, and other communicable diseases. The heavily populated area of the Northeastern region of the US represented 12.50% of job postings (seven out of 56). The Midwestern region had six out of the 56 job postings (10.71%). Less densely populated areas with lower rates of diseases such as the West and Southwestern region represented 7.14% and 5.3% of job postings (four out of 56 and three out of 56 respectively). See **Table 10** below for a distribution of job posts by region.

Table 10: *Distribution of Job Posts by Region (n=56)^a*

Region	n	%
Southeast	36	64.29%
Northeast	7	12.50%
Midwest	6	10.71%
West	4	7.14%
Southwest	3	5.36%
Grand Total	56	100%

^a Regions were identified from the U.S. Census Bureau. (2000). Census regions and divisions of the US. https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf

Required and Preferred Skills and Competencies

A. Required and Preferred skills mentioned in more than 50% of job postings:

Required job skills. Communication skills (verbal and written) were represented in 65.31% of 49 job postings. Yet, out of a total representation of 199 required jobs skills, communication skills (verbal and written) appeared at a rate of (16.08%) as a requirement for DI professional employment. Thus, these skills are important in the public health workforce when working with community members as well as with clinicians regarding performing outreach and case management duties. See **Table 11** below for skills required. No preferred job skills appeared in more than 50% of job postings from the analysis conducted.

B. Required skills mentioned in between 25 and 50% of job postings:

Required job skills. Also noted as important, postings required software competency—MS Office and data analysis software skills—(48.98%), administrative and organizational skills (42.86%), collaboration and partnerships (36.73%), problem solving and critical thinking (34.69%), customer/client/patient-centered services (32.65%), case management skills—referrals and assessments—(30.61%), and multi-agency/cross-sectoral communication (28.57%).

Preferred jobs skills. Job postings mentioned software competency—MS Office and data analysis software—seven times (28%) as a preferred job skill. For further detailed information on preferred job skills across the 49 job postings, see *Appendix B, Table 12B*.

C. Required and Preferred skills listed in between 10 and 25% of job postings:

Required job skills. Traits that demonstrate success personally and professionally were mentioned at a rate of 14.29%. Skills in documentation and reporting of project activities, communication (using media for health promotion) and experience with electronic health records all occurred at rate of 10.2% from 49 job postings and reoccurred at a rate of 2.51% across the 199 required skills. Some skills were too specific in nature to be categorized due to the possibility that they would not appear as recurring public-health related DI skills. These “other skills” were observed at a rate of 22.45% of job postings.

Preferred job skills. Being bilingual was mentioned as a preferred skill five times (20%). Case management skills (referrals and assessments) were referenced four times (16%) as a preferred job skill. To see a distribution of the 25 preferred skills across the 49 job postings, see *Appendix B, Table 12B*.

D. Required and Preferred skills listed in less than 10% of job postings:

Required job skills. Less frequently mentioned required skills revolved around data analysis, reporting, and qualitative research skillsets such as the following: Data collection and analysis appeared four times (8.16%), developing and conducting survey was referenced three times (6.12%), needs assessment skills and financial management, budget, grant management skills were both listed one time (2.04%). Required skills not referenced at all were literature review and reporting, food and water safety concerns and bilingual.

Preferred job skills. The following skills were less likely to be mentioned or not mentioned at all: “Other” skills that could not be categorized were listed twice (8.00%). Customer/client/patient-centered services appeared one time in conjunction with communication skills (verbal and written), collaboration and partnerships, problem solving and critical thinking skills and financial management, budget, grant management skills (4.00%). The following 10 preferred skills were not mentioned at all: Administrative and organizational skills, data collection and analysis, documentation and reporting of project activities, literature review and reporting, developing and conducting surveys, communication (using media for health promotion), food and water safety concerns, experience with electronic health records, needs assessment, and traits that demonstrate success personally and professionally. To see a distribution of the 25 “preferred” skills across the 49 job postings, see *Appendix B, Table 12B*.

Table 11: *Required Skills (n=49)*

Skills ^a	n	% out of 49 job postings ^b	% out of total 199 skills required
Communication skills (verbal and written)	32	65.31%	16.08%
Software competency—MS Office and data analysis software	24	48.98%	12.06%
Administrative and organizational skills	21	42.86%	10.55%
Collaboration and partnerships	18	36.73%	9.05%
Problem solving and critical thinking	17	34.69%	8.54%
Customer/client/patient-centered services	16	32.65%	8.04%
Case management skills (referrals and assessments)	15	30.61%	7.54%
Multi-agency/cross-sectoral communication	14	28.57%	7.04%
Other skills	11	22.45%	5.53%
Traits that demonstrate success personally and professionally	7	14.29%	3.52%
Communication (using media for health promotion)	5	10.20%	2.51%
Documentation and reporting of project activities	5	10.20%	2.51%
Experience with electronic health records	5	10.20%	2.51%
Data collection and analysis	4	8.16%	2.01%
Developing and conducting surveys	3	6.12%	1.51%
Needs assessment	1	2.04%	0.50%
Financial management, budget, grant management	1	2.04%	0.50%
Literature review and reporting	0	0.00%	0.00%
Food and water safety concerns	0	0.00%	0.00%

Bilingual	0	0.00%	0.00%
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^a List of required skills was adapted from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509.

^b Column total exceeds 100% since job postings contained multiple skills

A. Required and Preferred competencies mentioned in between 25 and 50% of job postings:

Required job competencies. Infectious and chronic disease prevention and control was represented at a rate of 30.61% out of the 49 job postings. Yet, out of all 105 required job competencies, it was mentioned only 15 times (14.29%). Following slightly behind this competency, sensitivity to population-specific issues and evidence-based intervention and best practices competencies both appeared 13 times (26.53%). See **Table 12** for competencies required. There were no preferred job competencies that appeared between 25 and 50% of job postings from the analysis conducted.

B. Required and Preferred competencies listed in between 10 and 25% of job postings:

Required job competencies. Competencies representing public health skills addressing creating awareness were listed less frequently across all 49 job postings. Public health communication and campaigns (outreach/intervention) and public health education and promotion were both listed nine times at 18.37%. Some competencies were too specific in nature to be categorized due to the possibility that they would not appear as recurring public-health related DI competencies. These “other skills” that could not be categorized were also captured at 18.37%. Competencies in health policy development, implementation, and analysis (14.29%), health program evaluation and improvement (12.24%), and public health leadership (12.24%) were listed between six and seven times.

Preferred job competencies. Postings mentioned health policy development, implementation, and analysis, six times at (22.2%) and infectious and chronic disease prevention and control five times (18.52%). Public health communication and campaigns (outreach/intervention), and “other” competencies were captured three times (11.11%) each. To see a distribution of the 27 preferred competencies that appeared across the 49 job postings, see *Appendix B, Table 13B*.

C. Required and Preferred competencies listed in less than 10% of job postings:

Required job competencies. The less frequently mentioned required competencies revolve around various areas including but not limited to evaluation, qualitative methods, and health planning. Project development, implementation, management, and compliance appeared four times (8.16%), as did work with at-risk populations. Quantitative research methods and statistical analysis was referenced three times (6.12%). Epidemiology and disease surveillance was mentioned two times (4.08%). Qualitative research methods and analysis, technical writing, grant writing, reports, and manuscripts, behavioral and mental health issues, environmental (health planning, investigation, and assessment) and environmental (industrial hygiene and occupational safety) competencies were only mentioned explicitly one time (2.04%). Competencies not referenced at all were disaster preparedness and emergency management and developing and implementing behavior change intervention plans.

Preferred job competencies. The following skills were less likely to be mentioned: Project development, implementation, management, and compliance, public health leadership, work with at-risk populations, and evidence-based intervention and best practices. These four competencies each appeared two times across postings at a rate of (7.41%). Falling right behind these competencies were public health education and promotion, and epidemiology and disease surveillance. These two competencies were both listed only once (3.70%). The following 10 preferred competencies were not

mentioned at all in the identified job postings: sensitivity to population specific issues, health program evaluation and improvement, quantitative research methods and statistical analysis, disaster preparedness and emergency management, developing and implementing behavior change intervention plans, qualitative research methods and analysis, technical writing, grant writing, reports, and manuscripts, behavioral and mental health issues, environmental (health planning, investigation, and assessment) and environmental (industrial hygiene and occupational safety).

Table 12: *Competency Requirements (n=49)*

Competencies ^a	n	% out of 49 job postings ^b	% out of 105 competencies
Infectious and chronic disease prevention and control	15	30.61%	14.29%
Sensitivity to population-specific issues	13	26.53%	12.38%
Evidence-based intervention and best practices	13	26.53%	12.38%
Public health communication and campaigns (outreach/ intervention)	9	18.37%	8.57%
Public health education and promotion	9	18.37%	8.57%
Other skills	9	18.37%	8.57%
Health policy development, implementation, and analysis	7	14.29%	6.67%
Health program evaluation and improvement	6	12.24%	5.71%
Public health leadership	6	12.24%	5.71%
Project development, implementation, management, and compliance	4	8.16%	3.81%
Work with at-risk populations	4	8.16%	3.81%
Quantitative research methods and statistical analysis	3	6.12%	2.86%
Epidemiology and disease surveillance	2	4.08%	1.90%
Qualitative research methods and analysis	1	2.04%	0.95%
Technical writing, grant writing, reports, and manuscripts	1	2.04%	0.95%
Behavioral and mental health issues	1	2.04%	0.95%
Environmental (health planning, investigation, and assessment)	1	2.04%	0.95%
Environmental (industrial hygiene and occupational safety)	1	2.04%	0.95%
Disaster preparedness and emergency management	0	0.00%	0.00%

Developing and implementing behavior change intervention plans	0	0.00%	0.00%
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^a List of required competencies adapted from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>.

^b Column total exceeds 100% since job postings contained multiple skills

Discussion

This DI job portal scan analysis is an exploratory effort to understand existing DI job requirements so as to develop and strengthen high school pathways in conjunction with the university's public health curriculum and to ensure that both align with the needs of the current DI workforce. While conducting this job portal scan, the team was able to identify and examine 62 disease intervention (DI) professional job postings over the course of one month in 2025. The identified DI job postings highlighted which DI job skills and competencies are required and are necessary to build future DI high school pathway student programs, strengthen college curriculums and prepare the youth of tomorrow for roles as public health workforce professionals. Since the COVID-19 pandemic, the field of public health has adopted new health approaches, behavior change models, methods for emergency preparedness and response, and ways to deal with rising epidemics. Shifts in preferred methods and approaches within the field of public health will create new demand in the DI job market for public health professionals who possess these skills and competencies. Monitoring these trends would benefit current and future professionals in the field.

Although the majority of the 56 job postings in the job portal scan required a bachelor's degree—30 (53.6%)—almost half (23) did not. This suggests ample opportunity to use high school pathway programming to prepare students to enter the DI workforce and to be eligible to sit for the Certified in Disease Intervention (CDI) certification. Educational high school DI programming would make DI jobs more attainable and would help close the workforce gap. Since students looking for higher-level DI professional careers must be equipped with a bachelor's degree and appropriate skills, high school DI pathway programs are even more vital for early access to college-level courses/credit hours, specifically for the DI discipline. Many job postings in the scan were from governmental organizations (28.57%). Government job postings requiring a bachelor's degree accounted for 19.60% of all 56 job postings. Governmental employers do not hire individuals without key skills, competencies, training, or public health degrees.

To succeed in obtaining a DI job, students need to be aware of public health before they enter formal education. This enables them to develop strong verbal and written communication skills and strong software competency, particularly in MS Office and data analysis software. To become efficient public health professionals across the DI workforce, they also need strategic competencies. In the scan, these competencies were as follows: infectious and chronic disease prevention and control (14.29%), sensitivity to population-specific issues (12.38%), and evidence-based intervention and best practices (12.38%). Although the field of public health includes various jobs, this scan shows that sensitivity to population-specific issues and communication are foundational skills for any job that is related to DI processes and public health-related careers.

Students should enroll in high school DI educational pathway programs and take on extracurricular activities before leaving high school. Findings from this scan suggest that to be suitable for most roles, more than half of postings (62.79%) require one-to-three years of work experience and no less than one year. To develop a robust and sustainable DI educational pathway, high-demand skills, competencies, and work-based learning opportunities must be woven into the curriculum at secondary level. This will also provide universities and high school staff with an understanding of what support needs to consider when creating model DI high-school pathway programs, as a community approach is essential for programs to be successful and sustainable.

Limitations

This scan occurred within a limited time duration. During the scan, several public health-related, disease intervention jobs were removed due to ongoing termination of public health programs, grant funding, and elimination of government positions. Therefore, the study results are only inclusive of a limited number of DI job postings. Only three job portal search engines were used for this search, in-conjunction with 21 DI professional job titles, which were analyzed from each of the three job portals. There is a possibility that results could have varied if DI job titles that may not have been posted at the time of this search had been included. Additionally, while three main job search engines were used for this scan, but other existing portals were not used. The study was restricted to job postings in the US, limiting the generalizability of these findings outside of the US. There was no examination of possible regional differences across multiple DI jobs regarding workforce demands, skills, and competencies. Since variances are likely in both skills and competencies in different US regions, this should be explored as well.

Program Scan

Part D: High School Student Support Needs Literature Scan

Data shows that many students have an aptitude for health science and the potential to excel in health science-based careers. However, the public health workforce is approaching a mass shortage, which presents an opportunity to engage high school students in disease intervention (DI) public-health related careers. In its report, “The 2025 State of the Future U.S. Workforce Report,” YouScience, the college and career readiness platform, examined unfilled jobs and unmatched student potential. Its findings are based on the YouScience Aptitude & Career Discovery assessment, a 2024 nationwide aptitude test of almost 500,000 high school and middle school students. The YouScience report revealed that while 36% of high school students possess aptitudes for health science professions, only 8% of these students express both aptitudes and interest in health science and health science-based careers. This highlights a mismatch between the aptitude of high school students for a career in health science and their interest in pursuing one, a 28% gap, which suggests there will be a healthcare workforce shortage that could have a negative impact on public health overall. Since many of these roles strengthen the economy (YouScience, 2025), this poses the following question: How can individual(s) and organizations help close the healthcare workforce gap by identifying high school student support needs and attracting those both with and without aptitudes for public health professions by raising their awareness of public health concepts? To answer this question, a literature scan of high school student support needs was conducted.

Methods

Data on high school student support needs were searched and collected from April 8, 2025 to June 3, 2025, on EBSCO, the University of Memphis Libraries research database platform, ensuring that articles were free and available. EBSCO provides user-friendly filters that help locate specific, peer-review, publications. It is widely used by both college students and career professionals within the US and internationally. Twenty-two articles were located on the EBSCO publication platform. Of those 22, two were requested via the Interlibrary Loan Program for review. Search terms were restricted to high school student support needs, high school student pipeline program needs, pipeline programs, career pathways, and pathway programs. The search was limited to publications in the US. To retrieve advanced literature matches, filter criteria were used, including date (after 2000) and language (English only). Articles were included based on their relevance to high school students and their support needs. Exclusion criteria included any literature from outside the US, college and technical programs, and careers beyond the scope of DI professions. First, articles titles and abstract were screened to make sure they covered high school student serving pathway programs and discussed each program’s lessons learned in some capacity. Then full-text articles were read. Programs that focused on engaging high school students in pathway programs leading to higher education, technical school, certain career pathways, and health science subjects were reviewed for inclusion in the scan. Articles were excluded if they did not provide any insights into the student experience and how to improve it. No duplicate publications were located between searches. Articles that met all inclusion criteria were extracted into an Excel spreadsheet by article title, date of publication, key identified support needs categories, notes, article links, and support needs count.

- *Article title:* Titles from publications were recorded in column A of the spreadsheet.
- *Date of Publication:* Article publication dates were placed in column B.
- *Key Needs Categories (n=14):* Fourteen key categories were identified based on reoccurring themes across the 22 articles. Rates and types of high school student support needs were extracted from the 22 articles and placed according to the support needs category within column C.
- *Notes:* Specific additional notes, captured in Column D, supported the logic for the selection of the

appropriate support needs category placement within Column C.

- *Links*: Publication links were listed in Column E for ease of navigation back to the pertaining article.
- *Support Needs Count*: Column F served as a frequency field, providing the actual count of support needs that fell into each of the 14 support needs categories. Using Microsoft Excel, a descriptive analysis of the 22 articles was carried out to identify and report common and reoccurring support needs among high school students. The student support needs that were identified were extracted from the original Excel spreadsheet and condensed into 14 categories within a table displaying the numerical value and rate of their occurrences in percentages.

Results

Student Support Needs mentioned at a rate of 10% or more

To help students navigate high school pathway programs, they need some form mentorship (Burns et al., 2021; Cooper, 2002; Jopson et al., 2020; Patel et al., 2015; Pezzullo et al., 2023; Rivers et al., 2020; White et al., 2025; Yong et al., 2023). This need for mentorship was mentioned at a rate, 17.02% in the scan. The next most frequently mentioned student support need is post-high school career and education support (Burns et al., 2021; Committee for Economic Development, 2019; Cooper, 2002; ECMC Group, 2023; MRDC, 2018; Rivers et al., 2020; White et al., 2025). This occurred at a rate of 14.89%. Mental and emotional health (CDC, 2025; Cooper, 2002; ECMC Group, 2023; Gonser, 2020; Majtabai & Olsson, 2020; Wriston et al., 2023) were also reported frequently throughout the 47 high school students support needs, at a rate of 12.77%.

The scan results show that high school students need exposure to and awareness of careers (10.64%) to matriculate through pathway programs, make appropriate career choices, and develop knowledge bases for several different fields of studies in formal education (Cousin et al., 2025; Jopson et al., 2020; Pezzullo et al., 2023; Rivers et al., 2020; Seaman, 2023; Texas Education Agency, 2024). Students also need financial aid and guidance (Burns et al., 2021; Cooper, 2002; Cousin et al., 2025; Jopson et al., 2020; White et al., 2025). In the scan, this occurred at a rate of 10.64%. Student support needs related to barriers to access, such as transportation were mentioned less frequently (MRDC, 2018; Pruszyński et al., 2022; Seaman, 2023), as was a desire for academic enhancement (Bottoms, 2022; Gonser, 2020; Jopson et al., 2020). Both accounted for 6.38% of mentions. See **Table 13** below for more information on high school student support needs.

Table 13: High School Student Support Needs (n=47)

Support Needs	n	%
Mentorship	8	17.02%
Post-High School Career and Education Support	7	14.89%
Mental and Emotional Health	6	12.77%
Exposure and Awareness of Careers	5	10.64%
Financial Aid and Guidance	5	10.64%
Academic Enhancement	3	6.38%
Transportation	3	6.38%
Financial Literacy Knowledge ^a	2	4.26%
Engaging and Welcoming Environment ^b	2	4.26%
Physical Health ^c	2	4.26%
Awareness of Support Resources ^d	1	2.13%
Digital Access ^e	1	2.13%
Intrinsic Motivation ^f	1	2.13%
Scheduling Flexibility ^g	1	2.13%
Grand Total	47	100.00%

^aECMC Group, 2023; Patel et al., 2015. ^bBalfanz et al., 2024; Gonser, 2020. ^cCDC, 2025; ECMC Group, 2023. ^dRodriguez et al., 2023.

^ePruszyński et al., 2022. ^fMcMichen, 2023. ^gSeaman, 2023.

Discussion

While conducting this literature scan, the team was able to identify and examine 14 student support needs within one month in 2025. It provides an observation of the kinds of supports high school students may need in order to navigate high school pathway programs before beginning post-secondary education. While mentorship—in conjunction with post-high school career and education supports—is vital to students undergoing high school pathway programs, mentorship should also consider their mental and emotional well-being. All too often, students are left alone to make long-term decisions regarding their careers, formal education, finances for continued schooling, and adulthood. This scan shows that to make well-informed decisions on next steps post-high school, students need ongoing development and mentorship opportunities that create awareness of career field disciplines. To prepare youth, high schools should sensitize students to programs such as nursing, public health, STEM, and health sciences. More importantly, high schools should provide foundational forms of mentorship that can guide students as they make life-long decisions. Giving students opportunities to learn through experience can empower and encourage them to make smart decisions. Safe spaces allow students to discuss different topics regarding their needs, wants, and hopes for the future. High school pathway programs also allow like-minded individuals to co-work in broadly representative groups. Mentors support students by recognizing behavioral problems and addressing them early on. They can note emotional and or mental well-being changes in students and provide supportive resources/guidance and empower them to exercise their knowledge and voice in healthy ways. Given that suicide is the leading cause of death among adolescents aged 10-19 (CDC, 2025), high school pathway programs serve as critical outlets through which students can manage their emotions.

The University of Memphis School of Public Health has worked to incorporate these student support needs

into the following public health programs: the high school dual enrollment program, the undergraduate Bachelor of Science in Public Health (BSPH) degree program, and the Master of Public Health (MPH) graduate degree program. Faculty, staff, and the Director of Experiential Learning (DEL) all play vital roles in making sure students receive the necessary mentorship, high school career and education support, career exposure and awareness, and mental health support systems. This is done through a multitude of approaches. Mentorship is provided through the introduction and facilitation of public health clubs. The Associate Professor and Teaching Coordinator personally conducts kickoff meetings for public health club activation. As students become more acclimated, they are encouraged to ask questions during weekly project class times and to engage in open dialogue regarding selected health topics, project-centered curriculum, and DI careers. This creates and, over time, strengthens mentor-student rapport while sensitizing students to the field of public health. It also prepares students who decide to enroll in the University of Memphis School of Public Health high school dual enrollment program to interact with a range of faculty and staff. The high school student support needs identified above extend into the BSPH and MPH degree programs. Students undergo professional development workshops, network development, practicum and fieldwork experiences, career services, and mock interviews. This increases their awareness of careers, financial guidance, mentorship, and an engaging work environment. Graduate students meet and collaborate with the DEL at orientation, once in class, at professional development workshops, and then as much as they need. For any learning institution, this kind of consistent mentorship across the continuum of public health education programming is essential at all learning levels. To develop such pipeline programs for their students, high school institutions can partner with local foundations, hospitals, and other external organizations. Since most students learn to problem-solve and think cognitively in their primary and secondary years, exposing them to public health and public health approaches early on—whether through public health clubs or state-initiated public health programs—can help increase their public health awareness and develop their skills. It can generate career interest in public health among students and can minimize barriers to entering the field of public health while providing additional support by fostering a sense of community.

Lastly, transportation assistance to take student to and from high school pathway programs will also be needed, something that could be organized through state and government after-school programs that have busing services.

Limitations

For this student support needs scan for high school pathway programs, only publications from the US were used. Using international publications might have broadened the breadth of information collected, deepening the understanding of student support needs on an international level. Secondly, this scan did not address regional differences between student support needs. Yet the support needs of middle and high school students in different geographic regions and states may vary. Learning institutions should therefore investigate what needs are most important to the students they serve and determine how to meet those needs to ensure they have access to productive career experience opportunities. Using multiple sources for the scan might have brought up a different set of student support needs. Future scans should expand search criteria and include support needs assessment tools for students.

Listening Sessions

Partnering with DI
Workforce, High
School Staff, and
Students to Examine
Recommendations for
Building Pathways to CDI
Certification

Sufficient awareness of disease intervention (DI) concepts, student support, motivating factors, ideal learning modalities, and best practices for providing DI education are all fundamental to success as students progress through high school DI pathway programs. The absence of DI domain concepts and knowledge in secondary education often results in a lack of interest in studying the DI field or in DI careers, which leads to a shortage of frontline DI professionals. This thematic qualitative review provides an overview of research-based listening sessions that examined recommendations for increasing participation in the high school educational pathway programs that prepare students for successful DI careers. Using thematic analysis to organize the listening session findings allowed for cohesive cross-comparisons and analysis between findings. The review documents major themes and subthemes (discussed in the results section) that were raised during the sessions by the three participating groups: workforce partners, high school teachers/counselors and College, Career, & Technical Education (CCTE) staff, and high school students/recent graduates.

Methods

A total of four listening sessions were conducted among high school students/recent graduates (one session), high school teachers/counselors and CCTE staff (one session), and workforce partners (two sessions). These sessions were designed to gather recommendations for creating a DI high school educational pathway program. In preparation, University of Memphis (UofM) staff developed consent forms, email invitations to participate, and a listening session guide for consistency purposes, all of which were approved by the University of Memphis Institutional Review Board (IRB). After all project materials were approved, staff from UofM School of Public Health, Tennessee Department of Health (TDH) and Shelby County Health Department (SCHD) worked to identify and select the most appropriate DI professionals to participate in DI workforce listening sessions. UofM staff turned to existing public health club partnerships within Memphis Shelby County Schools (MSCS) to identify, select, and coordinate listening sessions for high school teachers/CCTE staff and high school students. Once potential participants were identified, an official invitation to participate in the listening sessions was sent via email. This invitation covered eligibility, details about the session, the value of participants' input, incentivization, and how to participate. Participants confirmed their interest by email. Survey Monkey surveys were sent to high school teachers and CCTE staff to determine their availability and to schedule listening session accordingly. For TDH workforce and high school student listening sessions, email correspondence was used to determine availability and scheduling. UofM staff conducted four listening sessions in which participants were asked open-ended questions. Most sessions were held via Microsoft Teams with the exception of one in-person session. All listening sessions were recorded for transcription purposes using Microsoft Teams. Prior to officially beginning each listening session, the consent process was conducted. The informed consent was read aloud to participants. Participants verbally consented to take part in the research study by stating their name, date, and explicitly agreeing to participate. Participants were informed that they could choose to stop participating at any point within the listening session. For consistency, the Senior Project Director, CDI Project (ASPPH Subaward to Memphis) read the listening session guide and its questions aloud, allowing participants to answer questions. Their responses were recorded both in note and electronically. After the listening sessions concluded, UofM staff reached out to high school students, high school teachers, and CCTE staff to determine how they would like to receive their gift-card incentive. Gift cards were delivered via mail and in-person only after gift-card distribution sheets were signed by each participant and co-investigator.

Listening session information was extracted and coded from all session video recordings. The questions were thematically consistent with altered language, depending on the respective audiences for each session. Sessions were transcribed using a combination of Teams transcription software and aTrain transcription software. The responses and resultant discussion in each session were used to generate codebooks via thematic analysis. Textual data was analyzed to generate codes (recurrent topics) that would be used as the foundation of themes. These codes concisely characterized the responses to the questions and discussions on the topic at hand. Further delineation between themes and codes was made depending on the complexity

of the data. A codebook was developed for each listening session, with the potential for collation of the themes into overarching themes for the total exercise. Textual data, codes, and themes were organized into codebooks via Microsoft Excel.

Results

Workforce Partners

The first listening sessions conducted were among local and state workforce partners. The overall themes, subthemes, and categories of the workforce partners' listening sessions are summarized in **Table 14**. The following themes emerged from the workforce listening sessions:

1. Ideal traits for a disease intervention professional
2. Characteristics of the current DI work environment
3. DI professional perspectives on a prospective DI high school educational pathway program

The following subthemes were also identified:

Theme (1): Ideal traits for a DI professional

A consistent subtheme across both local and state level DI workforce partners was communication and interpersonal verbal and non-verbal skills. Workforce groups felt that this was the most critical skill needed to engage with the population, regardless of subject matter. A couple of textual examples from the listening sessions for these subthemes can be found below.

- “We’re trying to do any disease intervention, communication, communication skills and interpersonal skills because trying to reach different populations, be it elderly, younger population. The Hispanic, Latino population with whatever the population is, you have to have those type of skills to even begin to be able to reach, to be able to reach them.”
- “Skills. Good interpersonal communication skills.”

Another reoccurring subtheme was empathy. DI professionals must practice empathy on a daily basis. Community members have various perspectives and levels of health information knowledge, and sometimes, very different lifestyles. To navigate complex relationships and build rapport when interacting with these individuals, practicing empathy is vital. Other subthemes emerged during the process of analysis such as sensitivity to population-specific issues, multitasking ability, and organizational skills. A couple of textual examples from the listening sessions for these subthemes can be found below.

- “You must have empathy and when you’re dealing with people.”
- “So somebody that is definitely interested in, you know, learning about other people and their ways of lifestyle.”

Theme (2): Characteristics of the current DI work environment

The first workforce subtheme focuses on high-priority position needs and best practices for educating employees on DI concepts. After exploring factors associated with staffing needs, it was found that workforce partners needed multiple positions filled to carry out DI workflow processes efficiently and serve clients appropriately. There was no overlap across DI positions. One DI workforce group listed public health nurses, women's health specialists, and community outreach specialists as current staffing needs. The other workforce group highlighted a high-priority need for frontline disease investigators and supervisors with frontline experience. A few textual examples from the listening sessions for this theme and subthemes can be found below.

- “public health outreach specialists and public health coordinators”
- “women health navigators”
- “public health nurses”
- “Right now would be frontline disease investigators”
- “Someone has to have some of the frontline experience as a DIS and actually [be] working in the field and the clinical setting before they can really transition to some type of supervisory position.”

The session also revealed that tailored DI training curriculums, on-the-job training, and formal instruction were strong predictors of high-quality training methods for DI professionals. This is important to note, as students can begin gaining these tools through work-based learning opportunities if high school pathway programs in DI are employed throughout the state of Tennessee. Another subtheme highlighted the importance of existing support systems, either those creating a culture of focused mentoring and establishing or harnessing existing collaborations with educational institutions to bolster DI skillsets and knowledge. Textual examples can be found below.

- “Some people like to read, some people... need more directional training. So I tailor my training to that and then I touch base back with it. So I've done like a hybrid.”
- “Everybody gets the same training.”
- “...allowing them to lead and giving the feedback and then allowing them to complete a whole assignment. So, I guess a tiered approach.”
- “We have the Tennessee train system that we use and it has the CDC modules that we have used previously to train DIS.”
- “I'll always be this face-to-face in person, live and in-person where you can actually model the concepts you're talking about and practice.”
- “Best experience is actually the on-the-job experience and developing those skills and being able to interact with people.”

Theme (3): DI professional perspectives on a prospective DI high school educational pathway program

The subthemes under this major theme highlighted the perceived barriers students may face while participating in a high school pathway program in DI and the proposed support systems to help them achieve success in the program. The findings aligned closely across local and state-level workforce groups. Both teams

highlighted potential barriers to program participation such as extracurricular activities, obligations outside of school, legal sanctions such as working with sensitive protected health information (PHI), and aligning school with clinic work hours. Local and state workforce groups also mentioned the use transportation as an ongoing barrier. A few textual examples associated with this theme and subthemes can be found below.

- “Have jobs or have other income needs”.
- “I think an obvious one would probably be transportation”
- “If their work or like the practicum or internship I think were outside of the normal school hours, if they had to work all the way until 4:30, like we do, that might be a challenge.”
- “So if you’re in high school and you might not be 18 yet, that would probably be a pretty big barrier because you would if there’s some kind of, I don’t know, field hour component that would limit your options to do that.”
- “A potential consideration to have to overcome, you know, is that even though a parent may say it’s OK for my child to be present in this clinic doing this kind of activity or work under the guidance of the program and it’s all through school, there may be some state restrictions that would complicate just their physical presence in that environment.”
- “Well, the first one that came to mind when you said that had to do with basically clinic hours and when... students will be able to actually be in the clock, in the clinic.”

By contrast, proposed support systems did not align across both workforce groups. The forms of support that some participants mentioned were the need for regular team meetings to discuss struggles and successes, trainings focused on management/logistics, and volunteer opportunities. The forms of support other participants mentioned were the integration into the high school DI pathway program of an in-person practicum, an online practicum, a mixed-modality practicum, and on-the-job-training for volunteers.

Table 14: Workforce Partner Listening Sessions Results

Workforce Listening Sessions Results		
THEME	SUBTHEME	CATEGORY
IDEAL TRAITS FOR A DI PROFESSIONAL	Communication skills	Verbal Non-verbal
	Sensitivity to population-specific issues	Acknowledgement of cultural variety in the community Willingness to engage with communities different from your own Avoiding bias and stereotyping empathy
	Multitasking & organization	Constant learning Subject location
	Empathy & understanding	Understanding a variety of lifestyles Inherent bias Understanding varieties of education and exposure
CHARACTERISTICS OF THE CURRENT DI WORK ENVIRONMENT	Current high-priority positions that need to be filled	Public health nurses Women's health specialists Community and outreach specialists Frontline disease investigators Supervisors (with frontline experience)
	Best practices for providing DI education to employees	Employee-tailored education Uniformly designed training On-the-job training Agency-designed curriculum In-person instruction
	Existing support systems	Educational-occupational partnerships Focused one-on-one mentoring
DI PROFESSIONAL PERSPECTIVES ON A PROSPECTIVE DI HIGH SCHOOL EDUCATIONAL PATHWAY	Perceived barriers to student participation	Obligations outside of school Logistical concerns Balancing the program with primary schooling Legal barriers Social and economic barriers
	Proposed support systems for hypothetical programs	Regular Team Meetings Management-focused training Allocated volunteer opportunities In-person practicum integrated into primary education Online practicum Combination practicum
	Barriers to success	Legal obstacles Logistic obstacles
	Existing support for a program	On-the-job training

High School (HS) Teacher and CTE Staff Partners

The second listening session was conducted with high school teachers, counselors, and CTE staff. The overall themes, subthemes, and categories identified in the listening session with high school teacher and CTE staff partners are summarized in **Table 15**. The following themes emerged from the high school staff listening sessions:

1. Facilitation of student participation
2. Potential best practices for DI education
3. Perceived barriers to student and program success

The following subthemes emerged from the listening sessions:

Theme (1): Facilitation of student participation

The subthemes identified in this section were facilitators of interest and motivating factors for student participation in a high school pathway DI program. High school staff recognized the importance of a career-adjacent study field of interest, monetary rewards, occupational training, and philanthropic motivation in engaging students in a pathway program. These observations suggest that students need exposure to high school pathway programs that align with their career interests. Sensitizing students early on to DI concepts can lead to new career interests and options, possibly closing the DI workforce gap. Certifications for additional learning programs and work-based learning opportunities also serve as key influences in engagement. A few textual examples from the listening sessions for these subthemes can be found below.

- “I have had some who have expressed direct interest in... healthcare. I might have had a few that have said public health in the past, maybe one or two.”
- “It was, ‘Let me just find something that is of most interest to me that might give me a little bit more of a foundation than when I transition into college then I’ll look more at that direction.’”
- “Money is definitely the driving force for a lot of the kids.”
- “We’re just seeing... more and more of students who are wanting some type of certification, some type of something they can walk away with other than just a diploma when they leave high school.”
- “[The awareness] that people that go into public health can make in other people’s lives would make, it would make an impact too.”

Theme (2): Potential best practices for DI education

Ideal learning modalities and necessary forms of student support were subthemes identified by high school teachers/counselors and CTE staff as important to ensure continued student success in high school DI educational programs. For DI high school pathway programs to spark interest and lead to student success, individual support is needed. Comprehensive learning approaches should include both hands-on application and technology-driven implementation. Having staff able to teach an understanding of DI concepts for a range of students is important. A few textual examples from the listening sessions for this theme and subtheme can be found below.

- “The more hands on you can do, the better.”

- “We know that they like the technology, they like to be able to watch something.”
- “But there again, that’s hands on and you’re actually seeing, you know, the actual human body and all that. But most of them, if you’re using technology, they love it. Getting out in the field, I think that was mentioned earlier. The... more you can get out and see people doing the things they’re interested in, the better.”
- “And then it all, to me, ties back into the inclusion because you’re going to have kids that are interested, that have 504s [Section 504 of the Rehabilitation Act, which provides accommodations for students with disabilities, giving them equal access to educational opportunities] that have IEPs [individualized education programs], students that are also ESL [English as a second language] students (U.S. Department of Education, 2025). So knowing that they’re going into a program and they are supported, whether they are having a one-on-one [or] somebody to come in and push in maybe a certain block during the day to help them fully understand and comprehend the content that is being taught to them. I think that’s how you get buy-in and then that’s how you also increase [student interest].”

Theme (3): Perceived barriers to student and program success

High school teachers and CCTE staff reported multiple barriers to student and program success: financial resources, logistical challenges, and external factors. Without availability of material and financial resources within both families and school districts, the cost of program fees and materials for ESL students can hamper the success of the program. Intrapersonal factors such as students’ out-of-school obligations, extracurricular activities, and external factors such as limited transportation also influence the success of students and the program. Lastly, barriers to participation include factors beyond students’ control, such as a limited number of program seats and the implementation phase (depending on what high school year the student is in). A few textual examples for these subthemes can be found below.

- “Practicum does call for students to have their families come out of pocket financially.”
- “There not being enough resources for those ESL for them to actually really flourish.”
- “There is some type of after-school commitment that could be a barrier, especially for students that are participating in extracurricular activities as well as transportation that being a hiccup of can they actually get picked up.”
- “A lot of our programming for CCTE in our district, we’re limited to 20 in a class, and if you can only if you need to finish out a program of study.”

Table 15: High School Teachers/Counselors and CCTE Staff Listening Session

High School Teachers & Counselors Listening Session Results		
THEME	SUBTHEME	CATEGORY
FACILITATION OF STUDENT PARTICIPATION	Facilitators of interest	Career adjacent study field of interest
	Motivating factors	Monetary reward Occupational training Philanthropic motivation
(POTENTIAL) BEST PRACTICES FOR DI EDUCATION	Ideal learning modalities	Hands-on learning Technology-driven learning Combination of both
	Necessary student support	Individualized support
PERCEIVED BARRIERS TO STUDENT AND PROGRAM SUCCESS	Barriers to student success	Financial barriers Resource barriers Logistic barriers External barriers

High School Students

The last listening session occurred among high school students/recent graduates. The overall themes, subthemes, and categories are summarized below in **Table 16**. The following themes were identified:

1. Student awareness of current DI landscape
2. Facilitation of student success/support
3. Existing resources available to students

The following subthemes emerged from the listening sessions:

Theme (1): Student awareness of current DI work landscape

Students were asked about their specific knowledge regarding DI practice, career interest in DI, and awareness of DI as a career field. The responses revealed that students were unaware of DI as a career field and lacked knowledge of DI concepts. Only one student expressed interest in DI as a career field and had awareness surrounding DI professions. The students’ lack of career interest in the DI work landscape was strongly linked to their lack of awareness of DI as public-health related discipline. A few textual examples from the listening sessions with high school students/recent graduates can be found below.

- “No, actually this is my first time hearing about them.”
- “Personally, I’ve kind of heard about a disease intervention specialist, but that’s about the extent of it.”

- “Well, yes, it does.”
- “I would say for me personally, I’m not particularly interested.”
- “It wasn’t something that was heavily taught in school.”

Theme (2): Facilitation of student success/support

Major subthemes to emerge included the following: motivation to join program, perceived barriers to program participation, preferred learning modalities, and perceived sources/modes of support. High school students need tangible benefits as an incentive to participate in a DI high school pathway program. This could be a certificate of completion or certification for program participation. To incentivize student participation and retention, DI high school pathway programs must also be aligned with their desired career paths. High school students identified several potential barriers to program participation: transportation, difficulties in balancing primary school education, DI curriculum, and extracurricular activities, as well as logistical barriers such as overlaps with school hours. When asked about teaching methods, some students favored online education only, one preferred in-person education, and another favored a mixed-methods approach (both online and in-person). More importantly, students needed support from family and social groups to feel motivated to complete a DI high school pathway program. A few textual examples from this listening session for these theme/subthemes can be found below.

- “A lot of people in my high school did work base kind of to get out of certain classes. So I think sometimes that’s kind of a factor.”
- “I think it would be interesting if you were considering...a biology or a science major.”
- “Having a job”
- “Yes, I definitely agree with books when it comes to, like, the workload of everything and also like trying to balance learning a new topic and also, like, work on top of that and just, like, the classes that you already take.”
- “I leave at 7:00, I come back at 4:00. So... if it’s a long-time class, I wouldn’t be able to participate because of it’s gonna be too much on me.”
- [regarding technology-driven communication] “Yeah, for the most part, yes.”
- “I always prefer not online.”
- “I think sometimes when you look it up on the internet, it can be a little overwhelming, and I think getting a nice mix of both is really helpful.”
- “So if you have a strong support system and like the people around you are encouraging you, everything like that, like it would benefit you in the long run because you’ll feel motivated to actually learn things and just try your best.”
- “Balancing that with school and extracurriculars and social life”

Theme (3): Current resources available to students

When asked about current resources available around DI education, many students highlighted the

presence of educational content relevant to DI concepts in their high school education. They believed some supplemental DI content was currently accessible to students through extracurricular activities and programs but that not all states had those resources available through extracurricular activities or high school course content. This highlights a discrepancy in DI course curriculums in high schools and high school pathway programs. A few textual examples from this listening session for this theme and subthemes are below.

- “I would say that biology and chemistry [are relevant to DI concepts]”
- “We had an actual like nursing program, and you could go to this community college called Collin, and you could get, like, your CNA certification.”
- “Your school didn’t provide a lot of [extracurricular] or programs classes.”

Table 16: High School Student Listening Session Results

High School Student Listening Session Results		
THEME	SUBTHEME	CATEGORY
STUDENT AWARENESS OF CURRENT DI WORK LANDSCAPE	Awareness of DI as a career field	<i>Unaware of the career field</i> <i>Aware of the career field</i>
	Interest in DI as a career	<i>Interested</i> <i>Uninterested</i>
	Extant knowledge of DI concepts & organization	Lack of knowledge
FACILITATION OF STUDENT SUCCESS/SUPPORT	Motivation to join a program	<i>Motivation via tangible benefits</i> <i>Motivation via proximity to desired career field</i>
	Perceived barriers to program participation	<i>Balancing extra-curricular responsibilities</i> <i>Balancing primary schooling</i> <i>Logistic concerns</i>
	Preferred learning modalities	<i>Online</i> <i>In-person</i> <i>Hybrid</i>
	Perceived sources/modes of support	<i>Social support</i> <i>Logistical support</i>
EXISTING RESOURCES AVAILABLE TO STUDENTS	Current access to resources	<i>Primary school core courses</i> <i>Primary school extracurricular courses</i> <i>Lack of resources</i>

Discussion

Overall, similar subthemes appeared in listening session across all three groups: local and state workforce partners, high school teachers and CTE staff, and high school students. Barriers were consistent across all groups, with agreement on transportation as crucial for participation in a DI high school pathway program. Limited family financial support and support in the form of materials and resources were also highlighted as areas of concern for all groups. This suggests that families and school districts need state-level governmental assistance to cover practicum fees, student participation fees (if applicable), and any program needs the school may incur in implementing a sustainable program. The listening session also confirmed the importance of in-person training/education in conjunction with a hybrid training and education models. Print materials as well as online models and field work would greatly enrich students' education and training.

More importantly, the students need tangible benefits—such as certificates, alignment with desired career, certifications and monetary rewards—to consider joining DI high school pathway programs. Support systems that help students balance extracurricular activities can also encourage participation. A supportive culture, student safety, hybrid training models, transportation resources, and structured systems for program time management all support a successful high school pathway program for students, staff, and college faculty.

Limitations

The listening sessions explored recommendations for building a DI high school pathway program for implementation. However, this portion was limited to workforce partner staff within the state of Tennessee. If workforce partners from different geographic locations had been included, more robust themes might have appeared, providing greater insights into needs and recommendations for the high school pathway program. Workforce partners were numerous, yet despite working in public-health related fields, few were involved strategically in the DI work landscape, which meant that only some workforce partners could elaborate on DI concepts and processes. The workforce groups had strong DI knowledge but also had skills and experience well beyond the DI discipline. Conducting sessions with other workforce groups could provide additional insights on DI workforce skills and needs in other settings. Moreover, since only three students took part in the listening session, a variety of in-depth answers was not received, and many students simply agreed with their counterparts. Also, one student was part of the University of Memphis School of Public Health initiative, so was aware of the dual enrollment program, which increased the likelihood of unconscious bias. Lastly, misquotes and misinformation may have arisen from the fact that some participants did not speak clearly or were too far from the recording devices, which meant that transcription software did not capture the comments accurately.

External Partnerships

Feasibility of Establishing a High School Pathway Program with a Work- Based Learning (WBL) Component & Experiential Learning

High school students can face challenges as they transition to being undergraduates, postgraduates, and career-driven professionals in various fields. Career readiness can depend on whether learning institutions offer multidisciplinary projects, professional development, work-based learning opportunities, and practicum experiences. And unfortunately, many implementation-based projects charge fees for student participation. MTa Learning, which designs, supplies, and facilitates training and development programs, defines experiential learning as learning through implementation or learning by doing. Although learning institutions and their students find experiential learning effective, when 72 schools were surveyed in 2022, only 48% had offices of experiential learning or a formal director of experiential learning (DEL) according to the Trend Report: Edu Sourced 2022 Experiential Learning Benchmarking, which also found that experiential learning offices were often run by faculty—not by a dedicated staff person directly involved with experiential learning. Students can excel in public health careers through early exposure to work-based learning opportunities and dual enrollment programs. Yet implementation of these opportunities requires several costly components: designated staff, external community stakeholder partnerships, sustainable funding options to cover program costs and participation, and performance metrics and evaluation. The following section explores the steps needed to initiate a high school pathway program and what successes have looked like thus far for the University of Memphis Office of Experiential Learning (OEL).

Methods

In April 2025, a list of work-based learning organizations, community-based organizations (CBOs) and federally qualified health centers (FQHCs) was created. The list was narrowed down by upcoming community-based outreach events, services provided, tasks/skills that could be potentially gained through WBL opportunities, and DI competencies students could develop through partnership. Thirty-three organizations were identified through a broad Google search using the following terms: community health centers, health non-profits, and HIV testing and services (Google, n.d.). The resources tab of End HIV 901, a collaborative effort to reduce infections by 90% by 2030, was also used to help build the list of community health organizations (Ending the HIV Epidemic in Memphis, n.d.). In June 2025, the CDI Senior Project Director (ASPPH Subaward to Memphis) and the Director of Experiential Learning at the University of Memphis School of Public Health (UofM SPH) met to identify existing partnerships with CBOs. CBOs were called to determine their willingness to offer workplace-based learning (WBL) opportunities currently or in the future for high school students. CBOs were then categorized by those open to providing WBL opportunities currently or in the future for high school students.

Results

The OEL had 17 pre-existing community partnerships with of the 33 CBOs identified. Many of the organizations did not offer any WBL opportunities to high school students. Five offered internship opportunities to high school students, and two required that students be at least 18 years of age or older due to the need to work with protected health information. Three organizations stated that they might offer some kind of internship in the future if it were to be put to senior leaders for discussions at a later date. Some organizations required their volunteers to complete rigorous interview processes as well as background checks. For more information regarding CBOs offering high schoolers WBL opportunities currently or possibly in the future, refer to **Table 17**. Most internship opportunities open to high school students under the age of 18 involved participating in community outreach events, community health needs assessments, field services-like preparation for HIV testing events, monitoring interviewing and case management activities, and data collection (activities with limited interaction with research patient subjects, confidential health data, and confidentiality of patients and their private information). The UofM SPH has developed close relationships with a number of CBOs and healthcare organizations, which has significantly aided in the placement of both undergraduate and graduate students for fieldwork.

Table 17: CBOs Offering WBL Opportunities Currently or Possibly in the Future for High Schoolers (n=8)

Organization Name	Yes	18+ Age Required	Maybe
SisterReach	1		
St. Jude Children's Research Hospital	1	1	
A Step Ahead	1		
Hope House	1		
Shelby County Health Department	1	1	
Memphis Health Center			1
Planned Parenthood of Tennessee and North Mississippi			1
Church Health Center			1

Discussion

There are many CBOs and FQHCs within the Memphis metropolitan area. When creating a successful high school pathway program, having an OEL can do much to build community stakeholder relationships that enable continuity of student intrapersonal and professional development. These relationships must be ongoing and will constantly evolve with leadership changes across partner organizations. The WBL placement process often involves having the OEL draw up agreements, such as a memorandum of understanding (MOU), particularly since the OEL and placement organizations want to protect their interests. This is especially important, given the risks to both students and placement organizations (from legal liabilities to health and safety issues) surrounding WBL opportunities. Among organizations contacted by the UofM OEL, only three offered WBL to high school students under the age of 18 years.

Schools can potentially circumvent problems by having students find their own WBL placements. Creating a brochure or WBL Program Overview providing objectives for the DI high school pathway program can help guide students in this. Such a document formalizes a structured public health and DI WBL program, emphasizes its goals, and sets out implementation procedures for all parties involved. Such a document not only provides structure to WBL opportunities. It also strengthens the DI workforce pipeline by sensitizing high school students to public health DI-related curriculum and experiences and showcases the objectives and outcomes of the entire dual enrollment high school pathway program. *See Appendix C, pages 12-14* for an example of a WBL Program Overview.

The OEL can create a WBL Opportunity Contract in conjunction with the student, faculty, and organization preceptor (teacher or instructor). This document covers instructions and guidelines on how to contact CBOs/ FQHCs that offer high school students' internships. *See Appendix D, pages 15-19* for an example of a WBL Opportunity Contract. While the OEL can draw it up, by establishing guidelines for relationships between the students and the WBL organization and stating what CDI exam domains will be covered, the contract helps the student forge relationship-building skills and removes the DEL as the point of contact after resources are received. The purpose of the contract is to formalize a plan for the DI pathway program practicum experience, setting out the following: learning objectives, learning expectancies, the likelihood of applying all six CDI exam domains, the competency skills the WBL opportunity will offer, the major activities that will be assigned,

and the times and dates when preceptor meetings will be held. The contract is signed by the student, the organizational preceptor, and the faculty advisor. Using online learning platform portfolios such as Digication can also help learning institutions to implement programs and track students WBL progress. Platforms such as Digication capture students work hours, accomplishments, WBL reflection logs, project content and relative preceptor feedback. They also help to build trust and rapport between the student and organizational preceptor, deepening mentorship support, while serving as a visual portfolio and evaluation tool of student and program success.

Limitations

In examining the feasibility of establishing a high school pathway program with a WBL component, this scan is limited to CBOs within Shelby County, many of which already have partnerships with UofM SPH. There may be CBOs and FQHCs that offer high school students under the age of 18 DI-focused WBL opportunities that are beyond the team's awareness. These organizations may have areas of focus that lie beyond the normal scope of DI that can strengthen students' knowledge, training, and understanding of CDI exam domains and DI concepts. UofM SPH is the only school on the university's campus that has an OEL and a DEL. Involving the career service offices of other schools and universities could create a continuum of public health workforce staff beyond dual enrollment, undergraduate, and graduate studies. At many other higher education institutions, faculty to run experiential learning programs. Having a dedicated staff member engaged in the organizational structure of the OEL, rather than a team, is a possible limitation. Given time constraints, the DEL can become overwhelmed in trying to help students identify WBL opportunities and support their completion and matriculation of core public health classes and WBL experiences while also working to deepen community partnerships. With limited or non-existent high school pathway programs at state level, it is not possible to compare the success of this high school pathway program with others within the surrounding areas. Some programs may function more efficiently than others, including the dual enrollment program at UofM SPH. Nationally, only one other program—located in the state of Texas—was embedded early in childhood education. Yet, this program, along with others, was not taken into consideration because it had not been located within the previous literature search. No cross-comparison could be performed since no high school pathway programs were located in the literature search that could be compared to the university's dual enrollment high school pathway program. Digication is the only online platform currently used for student WBL portfolios. It is costly and only currently applicable to graduate students at the university's SPH. Digication is not being used for undergraduate or for the dual enrollment high school pathway programs. Other programs may be more cost-efficient at university level, serve students better, and deliver benefits across all schools of public health programs.

Curriculum Alignment: Curriculum Integration and Alignment for a High School Pathway Program in Disease Intervention

Curriculum Integration and Alignment for a High School Pathway Program in Disease Intervention

Methods

The University of Memphis School of Public Health (UofM SPH) has a dual enrollment curriculum for high school juniors and seniors. This offers high school students an opportunity for an early start in gaining college credits towards a bachelor's degree in public health. The dual enrollment course offerings consist of six college-level courses within the UofM SPH. These courses were examined for appropriate alignment with disease intervention (DI) workforce skills and Certified in Disease Intervention (CDI) exam domains. A list of the UofM SPH dual enrollment course offerings is provided below in **Table 18**.

Course syllabi were reviewed, and course instructors for the six offerings were contacted to discuss course alignment. Overarching skills essential across the DI workforce were assessed to determine if they were applicable within the UofM SPH dual enrollment course offerings. A list of 11 DI workforce skills created by UofM research staff prior to this project was used to assess courses for alignment. For this list, national and academic resources were scanned to identify core roles within the DI workforce. These included disease intervention specialists (DIS), epidemiologists, public health nurses, health educators, infection control specialists, and health informatics specialists (Centers for Disease Control and Prevention, 2024; Public Health Workforce Interests and Needs Survey, n.d.; U.S. Bureau of Labor Statistics Occupational Outlook Handbook, n.d.). For each role, key job responsibilities were mapped, and essential competencies were identified using established labor and public health workforce frameworks (Association of State and Territorial Health Officials, n.d.; Public Health Informatics Institute—Competency Framework, 2024). Overarching, cross-cutting skills—such as crisis management, sensitivity to population-specific issues, and data fluency—were identified based on current workforce needs and insights gained during the COVID-19 pandemic (The Council on Linkages Between Academics and Public Health Practice, 2021). The goal of the process was to align education and training pathways with the real-world demands of DI roles while building a flexible and engaging pipeline for students interested in entering the public health workforce. These workforce skills were selected to create the list of 11 DI workforce skills found in **Table 19**.

Through a collaborative process with input from subject matter experts, including DI professionals and public health partners, six CDI exam domains were established (CDI Certified in Disease Intervention, 2025). These six domains include:

1. Collaboration
2. Surveillance & Data Collection
3. Planning & Case Analysis
4. Field Services & Outreach Activities
5. Interviewing & Case Management Activities
6. Outbreak Response & Emergency Preparedness.

In addition to the 11 DI workforce skills, the CDI exam domains were assessed for content alignment with UofM SPH dual enrollment course offerings. **Figure 2** includes CDI exam domains and the associated content percentages for each exam domain. Identifying content gaps to support preparation of DI workforce was also pertinent in course alignment.

Table 18. *UofM School of Public Health Dual Enrollment Course Offerings (Quoted as in original. Terminology reflects the source's usage.)*

Courses	Course Description
PUBH 2181 Population Health & Society	This course offers an overview of the study of population health and introduces students to the major social variables—social class, race, gender, poverty, income distribution, social networks/support, community cohesion, the work and neighborhood environment—that affect population health. Students identify and critique population-based approaches to addressing health disparities and delivering social justice in health.
PUBH 3120 Climate and Environmental Health	This course introduces the framework, methodologies, and applications of environmental health and public health impacts from and adaption to climate change. Students learn methods of studying associations between environmental exposure and health outcomes and regional and local environmental health topics, including air pollution, water quality, food safety, solid waste, radiation and healthy communities and buildings. They also study the adverse health consequences of climate change, specific preventive measures and policies and actions to address climate change to promote public health.
PUBH 3130 Social Determinants & Health Disparities	This course introduces students to the social and economic conditions that affect individual and population health. Students explore social influences (e.g., income, race, gender, education, employment, neighborhood, food security, healthcare and life course) that affect well-being and lead to health disparities. Students also examine the role of public health practitioners in improving health outcomes through their influence on policy, procedure and programmatic changes and measures, policies, and actions to address climate change to promote public health.
PUBH 3150 Health Data Analytics and Informatics	This course provides an overview of the source, flow, management, and analysis of health data, focuses on describing, presenting, and interpreting the empirical evidence in public health. It introduces the key elements of a data-driven approach for evaluating health programs and health policies. The course content covers essential knowledge of epidemiology, biostatistics, and health informatics.
PUBH 3160 Public Health in Action	In this course, students work on a health project that applies research methods, experiential learning, and public health practice to producing solutions to a specific public health issue.
PUBH 3170 Health Crises & Milestones in Global Public Health	This course introduces students to significant milestones in the field of public health, taking a global perspective when analyzing and exploring major public health events that have affected the health and well-being of people around the world.

Table 19: *Disease Intervention Workforce Skills*

Disease Intervention Workforce Skills
Crisis Management: The ability to respond swiftly to emerging public health emergencies by developing rapid response plans and coordinating with other agencies
Collaboration and Teamwork: Working within multidisciplinary teams and fostering communication among healthcare providers, community organizations, and government entities
Ethics and Sensitivity to Population-Specific Issues: Navigating cultural practices and ethical considerations, ensuring broad access to health services
Adaptability and Flexibility: Adjusting strategies in response to evolving disease patterns, research findings, and public health guidelines
Problem-solving and Critical Thinking: Tackling complex challenges, identifying solutions, and making informed decisions, especially in unpredictable circumstances
Public Speaking and Presentation: Communicating complex health information to the public, stakeholders, and policymakers through clear, compelling presentations
Technical Proficiency: Using specialized tools such as epidemiological software and electronic health records to enhance disease tracking and intervention efforts
Project Management: Planning and executing public health projects, managing budgets, and ensuring that objectives are met within specified timelines
Legal and Regulatory Knowledge: Understanding and complying with public health laws and regulations, ensuring that interventions adhere to legal and ethical standards
Emotional Resilience: Maintaining well-being and managing stress in high-pressure situations, especially during disease outbreaks
Interpersonal Skills: Building positive relationships with patients, colleagues, and communities, using empathy and active listening to address concerns

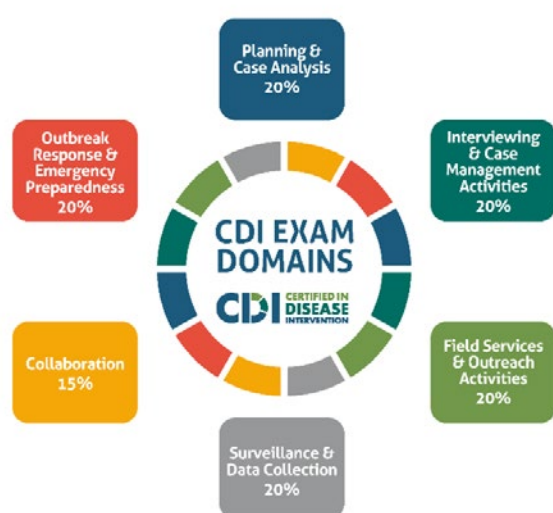


Figure 2: *CDI Exam Domains and Associated Content Percentages*

Results

Curriculum Alignment

The six course offerings by UofM SPH for dual enrollment are the following (Division of Undergraduate Studies and Global Engagement (USGE), 2025):

1. Population Health and Society
2. Climate and Environmental Health
3. Social Determinants & Health Disparities
4. Health Data Analytics and Informatics
5. Public Health in Action
6. Health Crises & Milestones in Global Public Health.

After reviewing the course syllabi and meetings with course instructors, each course offering aligned with at least two DI workforce skills and at least one CDI exam domain.

- *Collaboration*

Collaboration is a critical learning component of these course offerings, as partnerships with CBOs and healthcare providers is key to the role of DI professionals. Four of the five course offerings—Population Health and Society, Social Determinants & Health Disparities, Public Health in Action, and Health Crises & Milestones in Global Public Health—provide some form of training in collaboration.

- *Surveillance & Data Collection*

Strong skills in information collection and verification for completion and timely reporting of reportable conditions are needed to become CDI certified. Health Data Analytics and Informatics is the primary course addressing surveillance and data collection. It covers data sources, management, and analysis of health-related data.

- *Planning & Case Analysis*

This involves verifying reported information and using available data sources to obtain additional information. Being able to use various technologies, analyze cases, and identify community resources are among the skills needed for planning and case analysis. At least five of the courses—Climate and Environmental Health, Social Determinants & Health Disparities, Health Data Analytics and Informatics, Public Health in Action, and Health Crises & Milestones in Global Public Health—aligned with this domain.

- *Field Services & Outreach Activities*

These activities include preparation of testing and treatment supplies and conducting record searches. Two courses—Public Health in Action and Health Crises & Milestones in Global Public

Health—aligned with field services and outreach activities.

- *Interviewing & Case Management Activities*

Interview processes and effective communication skills are pertinent to intervening regarding disease intervention. Making detailed assessments and collecting relevant demographic information are skills that can be learned in the case studies series in the Public Health in Action course.

- *Outbreak Response & Emergency Preparedness*

This domain addresses the role of DI professionals during an outbreak or public health emergency. The Health Crises & Milestones in Global Public Health course is directly aligned with this domain. In addition, Population Health & Society covers an array of public health outbreaks/emergencies.

In addition to aligning the courses with the CDI exam domains and DI workforce skills, the types of assessments within each course also need to align with these domains and workforce skills. Each course has multiple methods of assessment, including reflections/discussion posts, exams, homework, projects, and presentations. **Table 20** below reports the Curriculum Integration for High School Pathway to Certification in Disease Intervention.

Content gaps in curriculum alignment

Identifying content gaps within the curriculum alignment is important. To fill these skills and knowledge gaps, educators could consider methods, such as assigning additional reading material and providing online training, scheduled seminars/webinars, and/or field trips aligned with CDI exam domains. Additional training could also include HIV/STD partner services training courses or COVID-19 related trainings.

Table 20. Curriculum Integration for High School Pathway to Certification in Disease Intervention

Courses Offered	CDI exam domains	Disease Intervention Workforce Skills	Assessments
PUBH 2181 Population Health & Society ^a	Collaboration Outbreak Response & Emergency Preparedness	1. Crisis Management 2. Collaboration and Teamwork 3. Ethics and Sensitivity to Population-Specific Issues 6. Public Speaking and Presentation	Weekly reflection/discussion assignments Healthy People assignment Windshield Survey project/presentation
PUBH 3120 Climate and Environmental Health ^{a,b}	Planning & Case Analysis	5. Problem-Solving and Critical Thinking 6. Public Speaking and Presentation 7. Technical Proficiency	Presentation, Discussion assignment Quizzes Paper
PUBH 3130 Social Determinants & Health Disparities ^{a,b}	Collaboration Planning & Case Analysis	2. Collaboration and Teamwork 3. Ethics and Sensitivity to Population-Specific Issues 5. Problem-Solving and Critical Thinking	Discussion/blog post assignment Covid-19 written assignment Midterm exam Final exam
PUBH 3150 Health Data Analytics and Informatics ^{a,b}	Surveillance & Data Collection Planning & Case Analysis	5. Problem-Solving and Critical Thinking 7. Technical Proficiency	Homework assignments Exams Project report
PUBH 3160 Public Health in Action ^{a,b}	Collaboration Planning & Case Analysis Field Services & Outreach Activities Interviewing & Case Management Activities	2. Collaboration and Teamwork 3. Ethics and Sensitivity to Population-Specific Issues 4. Adaptability and Flexibility 6. Public Speaking and Presentation 8. Project Management 9. Legal and Regulatory Knowledge 10. Emotional Resilience 11. Interpersonal Skills	Quizzes/Midterm Homework Public health case studies Final paper and presentation
PUBH 3170 Health Crises & Milestones in Global Public Health ^{a,b}	Collaboration Planning & Case Analysis Outbreak Response & Emergency Preparedness	1. Crisis Management 2. Collaboration and Teamwork 4. Adaptability and Flexibility 5. Problem-Solving and Critical Thinking 6. Public Speaking and Presentation	Class discussion/participation scientific writing and presentation Literature review and briefing note

^aDual Enrollment course ^bCertificate course

Course Offerings

To enable high school students to complete the courses and WBL components in time to sit for the CDI exam, it is important to align the courses to the two-year process for a DI pathway program. At least four of the six UofM SPH courses for dual enrollment offer online and/or in-person sessions every fall and spring semester. Junior and senior high school students can take one to two courses each semester and complete all courses prior to high school graduation. Additionally, one online course (Population Health and Society) is offered during the summer session. Another course, Public Health in Action, can be taken during the summer if needed. Summer offerings can be used to take one-to-two courses from the school year. If a student has sufficient flexibility in their schedule, they can take two courses over three semesters, giving them additional time to work on their community service hours and/or their one year of work experience/experiential learning. Consistency and flexibility in course offerings can increase student interest in the pathway program and make it easier for students to complete the pathway. **Table 21** shows a Gantt chart example with a two-year course offering scheduling sequence.

Table 21: Gantt Chart with Two-year Sample Course Offering Schedule

Courses	Sum 2025		Fall 2025		Spr 2026		Sum 2026		Fall 2026		Spr 2027		Sum 2027	
	O	IP	O	IP	O	IP	O	IP	O	IP	O	IP	O	IP
PUBH 2181 Population Health & Society ^a														
PUBH 3120 Climate and Environmental Health ^{a,b}														
PUBH 3130 Social Determinants & Health Disparities ^{a,b}														
PUBH 3150 Health Data Analytics and Informatics ^{a,b}														
PUBH 3160 Public Health in Action ^{a,b}							P						P	
PUBH 3170 Health Crises & Milestones in Global Public Health ^{a,b}														

^aDual Enrollment course; ^bCertificate course; O=Online; IP=In-person; P=Potentially offered, as needed

CDI Examination

To support CDI exam eligibility, high school educational pathways could incorporate experiential learning components into programming. According to the NBPHE requirement, “to sit for the for the CDI Certification exam, an individual must have at least one year of experience as a disease intervention professional and meet one of the following eligibility requirements: High school diploma or GED equivalent with two years of applicable community experiences in counseling or health outreach” (CDI Certified in Disease Intervention, 2025). High school students interested in preparing for the CDI should start by learning about the certification

requirements. Students should be referred to the CDI website for all information on CDI eligibility requirements, calculation of work experience, DI professional experience, and community experience.

Strategies for High School Student Engagement

While dual enrollment is an effective way to engage high school students with the public health curriculum, additional strategies should be considered for raising awareness of the program and keeping students engaged. If an institution has a dual enrollment office, a strong relationship should be established with that office early in the process, since it can help promote the program to the high schools the institution may already be engaging with. Externally, seeking opportunities to engage with high schools to expose their students to public health on a regular basis helps create a good rapport with schools and the community. Institutions can connect with high school students through collaborative opportunities that include campus visits (by arranging visits to the schools and inviting high schools to the university), public health days, public health clubs, high school research opportunities. These can raise awareness among high school students of public health initiatives and career opportunities.

Discussion

Aligning the high school curriculum with the educational requirements of the CDI certification is an innovative approach that can increase student awareness of/exposure to DI work-based learning opportunities. It also allows students to enter the workforce earlier and attain a certification in the field as early as high school graduation or shortly thereafter. Engaging high school students by creating a curriculum for a high school pathway or aligning an existing one requires multiple partnerships with organizations that include high school partners, university dual enrollment offices, and OELs.

Aligning existing dual enrollment courses with CDI requirements involves reviewing syllabi and working with course instructors to ensure continuity between their courses and the CDI exam domains and DI workforce skills. Work must also be done to ensure the learning formats and course schedules are convenient for high school students. This increases their likelihood of taking the courses, completing the sequence of courses required, starting their community service, and moving into the work experience requirements. Curriculum gaps for the skills required for the CDI exam could be filled through learning methods, such as additional reading material, online training, scheduled seminars/webinars, and/or field trips. This could vary depending on the program, but high school student engagement should be treated as an ongoing effort.

Limitations

DI curriculum alignment has some limitations. First, to complete the six courses prior to high school graduation, students must start course work early in their junior year. While this is not a requirement, it prepares them to be eligible to sit for the CDI exam on completing high school or shortly thereafter. Secondly, eligibility to sit for the CDI exam requires completing both the coursework and the experiential learning components. Some students may be able to start their community experience and documenting their hours while taking dual enrollment courses. However, this depends on their ability to manage program requirements and other high school related academic and extracurricular activities, and this can depend on what year of high school they begin their coursework for the DI workforce training. Some students may be able to start their work experience while at high school while others may need to wait until they graduate.

Overall Recommendations

Recommendation 1: Post-secondary institutions should look for opportunities to develop public health-centered school pathway programs that promote disease prevention, public health concepts, and hands-on research experiences. In doing so, institutions have the opportunity to expose high school students to DI field exposure and strengthen the public health workforce.

Recommendation 2: Academic institutions and organizations should seek federal, local, and philanthropic funding to offer free or subsidized programs to increase accessibility to high school pathway programs and to develop access to high-quality DI career opportunities. Such opportunities can lead students toward earlier access to career readiness in DI roles.

Recommendation 3: To prepare students for the public health workforce, DI-focused pathway programs must be developed in a sustainable way by integrating educational coursework and training into high school curricula. Pilots should be run that offer Public Health Career Exploration or DI elective courses to high school students in grades 9-12 and the impact of their effectiveness in preparing students should be measured.

Recommendation 4: Since most employers require one year or more of relevant work experience (22 of 49 job postings), high school pathway programs should provide experiential learning opportunities for students. High school pathway programs can leverage their relationships with community partners to place students in the field and allow students to experience a professional work setting, expose them to different public health careers, and develop their professional skills and competencies.

Recommendation 5: The literature scan of high school student support needs highlights the fact that high school students need ongoing exposure to career development and mentorship opportunities. This raises awareness of career field disciplines, which enables students to make well-informed decisions regarding their next steps post- high school. To best prepare youth, high schools should consider making students aware of programs such as nursing, public health, STEM (science, technology, engineering and mathematics), and health sciences. During the listening sessions, students noted that they had no knowledge of DI concepts while workforce partners highlighted a strong need for DI frontline staff. The introduction of health and STEM careers to high school students could help close the gap in the public DI workforce profession.

Recommendation 6: To meet the needs of all students, DI high school pathway programs should use a mixed-methods teaching approach. Some students learn best using the hybrid approach (online and in-person) while others prefer in-person only or online only. By incorporating both, educational institutions can provide a level of flexibility and comfort that will enable students to matriculate through the DI curriculum with efficiency.

Recommendation 7: Given that, as this research finds, many CBOs and FQHCs have concerns regarding minors working within their facilities—potentially exposing them to protected health information (PHI)—institutions should establish an OEL. This enables them to implement training systems, safety measures, and standard operating procedures that can address the most pressing concerns of WBL site partners. The OEL can work with legal teams to establish Memorandums of Understanding (MOUs) between the educational institutions and community partners. This will reduce concerns while establishing clear expectations of accountability for all parties involved.

Recommendation 8: Academic institutions should identify and align existing public health curricula within existing programs, enabling them to better serve students enrolling in DI dual-enrollment-based high school

pathway programs. They can use ongoing assessment of public health courses to assess the need for DI skills, competencies, and educational frameworks at both secondary and post-secondary levels, which will help them to integrate those skills, competencies, and educational frameworks into pathway programs.

Recommendation 9: Given that curriculum alignment suggests is a need for close contact between students and university faculty and staff, institutions should strengthen continuity in high school pathway DI programs by identifying university faculty who are willing to teach dual enrollment. This fosters student’s engagement, comfort, and comprehension. By closing the gap between faculty and students, this community connection supports their success as they progress toward Bachelor of Science in Public Health (BSPH) enrollments. If faculty are not available to teach dual enrollment, institutions should consider working with high school teachers who have the necessary credentials for teaching and/or assisting with course delivery through in-person or virtual learning modalities.

For an additional list of secondary over-arching recommendations, see *Appendix E: pages 20-26*.

Challenges

No project is completed without challenges. During this project, some delays had to be worked through. Delays in hiring staff to help with the execution of the project—as well as onboarding and other processes—resulted in project delays. However, thereafter, the project began to move forward. Another challenge was the Institutional Review Board (IRB) approval process. For various reasons, this took quite some time, delaying the start of the listening sessions and resulting in some schedule adjustments for participant recruitment and completion time for the listening sessions. Additionally, the delay in the listening session resulted in the need for a two-month extension of the project. However, these delays and the project extension allowed for meaningful sessions to be conducted among workforce partners (local and state), high school teachers/counselors/CCTE staff, and high school students/recent graduates while the extension was helpful in allowing for ample time to complete the deliverable.

Next Steps

Below is a list of the next steps after completion of these components of the project:

1. ***Undergraduate University Council.*** While these courses are already approved for UofM's dual enrollment curriculum, additional components for the DI curriculum may have already gone through proper approval internally through the University Undergraduate Council.
2. ***Promotional and marketing materials.*** Promotion and marketing materials will need to be developed to share with high school students. These materials should cover the course offerings and details of the CDI.
3. ***Promotion of DI opportunity to high school students.*** This would include current dual enrollment students and other students who may have an interest but are not taking dual enrollment courses. This should also be marketed to 9th and 10th graders to create awareness of this opportunity early on so that they can start taking courses at the beginning of their junior year.
4. ***Publications.*** There are multiple components included in this deliverable that could be submitted for publication. With approval from the CDC and ASPPH, manuscripts should be drafted for publication based on this work.

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Appendices

Disease Intervention Specialist Pathway Program Search Terms

Table 1A: PubMed Search Term Combinations Used

Search Terms
Successful Key Terms Combinations Searched
“disease intervention specialist” AND education
Unsuccessful Key Terms Combinations Searched
“disease intervention specialist” OR “career” OR “summer program” OR “high school”
“disease intervention specialist” AND “career” AND “summer program” AND “high school”
“disease intervention” AND “high school”
“disease intervention specialist” OR “highschool”
“disease intervention specialist program” OR career OR “high school” OR “high-school” OR “highschool”
“disease intervention specialist” AND summer
“disease intervention specialist” AND “summer training program”
"disease intervention specialist" and "high school training"
"disease intervention specialist" and "high school career"

Table 2A: Google Scholar Search Term Combinations Used

Search Terms
Successful Key Terms Combinations Searched
“disease intervention specialist” AND “education”
“disease intervention specialist” AND education
“disease intervention specialist” OR “career” OR “summer program” OR “high school”
“disease intervention specialist” AND “career” AND “summer program” AND “high school”
“disease intervention” AND “high school”
“disease intervention specialist” OR “highschool”
“disease intervention specialist program” OR career OR “high school” OR “high-school” OR “highschool”
“disease intervention specialist” AND summer
“disease intervention specialist” AND “summer training program”
"disease intervention specialist" and "high school training"
"disease intervention specialist" and "high school career"

Table 3A: Sage Journal Search Term Combinations Used

Search Terms
Successful Key Terms Combinations Searched
“disease intervention specialist” AND “education”
Unsuccessful Key Terms Combinations
“disease intervention specialist” OR “career” OR “summer program” OR “high school”
“disease intervention specialist” AND “career” AND “summer program” AND “high school
“disease intervention” AND “high school”
“disease intervention specialist” OR “highschool”
“disease intervention specialist program” OR career OR “high school” OR “high-school” OR “highschool”
“disease intervention specialist” AND summer
“disease intervention specialist” AND “summer training program”
"disease intervention specialist" and "high school training"
"disease intervention specialist" and "high school career"

DIS Job Scan

Table 1B: Education Codes

Education	Education Codes
High school diploma or equivalent	E01
Associate's degree	E02
Bachelor's degree	E03
Master's degree	E04
Doctorate or PhD	E05
Specialized training and certification	E06
Specialized licensure	E07
Work experience in lieu of higher education	E08

Table 2B: US Regions and Respective States

Northeast		Midwest	
Connecticut	Vermont	Illinois	Kansas
Maine	New Jersey	Indiana	Minnesota
Massachusetts	New York	Michigan	Missouri
New Hampshire	Pennsylvania	Ohio	Nebraska
Rhode Island		Wisconsin	North Dakota
		Iowa	South Dakota
South		West	
Delaware	Alabama	Arizona	Wyoming
Florida	Kentucky	Colorado	Alaska
Georgia	Mississippi	Idaho	California
Maryland	Tennessee	Montana	Hawaii
North Carolina	Arkansas	Nevada	Oregon
South Carolina	Louisiana	New Mexico	Washington
Virginia	Oklahoma	Utah	
West Virginia	Texas		
District of Columbia			

U.S. Census Bureau. (2000). *Census regions and divisions of the US*.

Table 3B: Organization Type Categories from Kedia et al. (2023)

Organization Type Categories
Government
Non-Profit Organization
Educational Institution
Hospital
Healthcare Provider
Staffing Agency
Medical Center
Community Center
Insurance Company
Patient Portal
Nursing Home
Other

Note: List of organization type categories derived from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor’s degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>

Table 4B: Experience Requirements Categories from Kedia et al. (2023)

Experience Type Categories
Less than one year
One year
One-to-three years
Four years and above
Some experience
Intermediate experience
Extensive experience
Not listed

Note: List of experience type categories derived from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>

Table 5B: Experience Codes

Experience	Experience Codes
Less than one year	X01
One year	X02
One-to-three years	X03
Four years and above	X04
Some experience	X05
Extensive experience	X06
Higher education in lieu of experience	X07
Not listed	X08
Specialized experience w/ no time specification	X09

Table 6B: Special Qualifications Codes

Qualifications	Qualification Codes
Occasional moderate physical activity	Q01
Driver's license	Q02
Ability to travel frequently	Q03
Potential exposure to communicable diseases	Q04
Flexible schedules	Q05
Other	Q06

Table 7B: Skills and Competencies Type Categories from Kedia et al. (2023).

Skills and Competencies Type Categories
Public health communication and campaigns
Public health education and promotion
Cultural competency (sensitivity to population-specific issues)
Project development, implementation, management, and compliance
Case management skills (referrals and assessments)
Administrative and organizational skills
Technical writing, grant writing, reports, and manuscripts
Data collection and analysis
Software competency (MS Office and data analysis software)
Documentation and reporting of project activities
Multi-agency/cross-sectoral communication
Health program evaluation and improvement
Collaboration and partnerships
Behavioral and mental health issues
Infectious and chronic disease prevention and control
Health informatics (data management and visualization)
Environmental (health planning, investigation, and assessment)
Epidemiology and disease surveillance
Public health leadership
Work with at-risk populations
Problem solving and critical thinking
Financial management, budget, grant management
Literature review and reporting
Developing and conducting surveys
Quantitative research methods and statistical analysis
Disaster preparedness and emergency management
Developing and implementing behavior change intervention plans
Communication (using media for health promotion)
Food and water safety concerns
Evidence-based intervention and best practices
Experience with electronic health records
Needs assessment
Qualitative research methods and analysis

Note: List of skills and competencies type categories derived from Kedia, et al., (2023). Expectations of employers in the US for entry-level public health job skills with a bachelor's degree: an analysis of the positions advertised in an online job portal. *Frontiers in public health*, 11, 1218509. <https://doi.org/10.3389/fpubh.2023.1218509>

Table 8B: Skill Codes

Skills	Skill Codes
Case management (referrals and assessments)	S01
Administrative and organizational	S02
Data collection and analysis	S03
Software competency (MS Office and data analysis software)	S04
Documentation and reporting of project activities	S05
Multi-agency/cross-sectoral communication	S06
Collaboration and partnerships	S07
Problem solving and critical thinking	S08
Financial management, budget, grant management	S09
Literature review and reporting	S10
Developing and conducting surveys	S11
Communication (using media for health promotion)	S12
Food and water safety concerns	S13
Experience with electronic health records	S14
Needs assessment	S15
Literature review and reporting	S16
Other	S17
Customer/client/patient-centered services	S18
Bilingual	S19
Communication skills (verbal and written)	S20
Traits that demonstrate success personally and professionally	S21

Table 9B: Competency Codes

Competencies	Codes
Cultural competency (sensitivity to population-specific issues)	C01
Public health communication and campaigns (outreach/intervention)	C02
Public health education and promotion	C03
Project development, implementation, management, and compliance	C04
Health program evaluation and improvement	C05
Public health leadership	C06
Work with at-risk populations	C07
Quantitative research methods and statistical analysis	C08
Disaster preparedness and emergency management	C09
Developing and implementing behavior change intervention plan	C10
Evidence-based intervention and best practices	C11
Qualitative research methods and analysis	C12
Technical writing, grant writing, reports, and manuscripts	C13
Behavioral and mental health issues	C14
Infectious and chronic disease prevention and control	C15
Environmental (health planning, investigation, and assessment)	C16
Health policy development, implementation, and analysis	C17
Environmental (industrial hygiene and occupational safety)	C18
Epidemiology and disease surveillance	C19
Other	C20

Table 10B: Experience Preferences (n=4)

Experience Preferred	n	%
One-to-three years	2	50.00%
One year	1	25.00%
Specialized experience w/ no time specification	1	25.00%
High school diploma	0	0.00%
Four years and above	0	0.00%
Some experience	0	0.00%
Extensive experience	0	0.00%
Higher education in lieu of experience	0	0.00%
Not listed	0	0.00%
Grand Total	4	

Extracted from 49 available job postings.

Table 11B: Education Preferences (n=30)

Education Preferred	n	%
Bachelor's degree	9	18.37%
Specialized training and certification	8	16.33%
Master's degree	6	12.24%
Associate's degree	4	8.16%
Specialized licensure	2	4.08%
Work experience in lieu of higher education	1	2.04%
High school diploma	0	0.00%
Doctorate or PhD	0	0.00%
Grand Total	30	

Extracted from 49 available job postings.

Table 12B: Preferred Job Skills (n=25)

Skills Preferred	n	% out of 25 skills
Software competency (MS Office and data analysis software)	7	28.00%
Bilingual	5	20.00%
Case management skills (referrals and assessments)	4	16.00%
Multi-agency/cross-sectoral communication	2	8.00%
Other	2	8.00%
Collaboration and partnerships	1	4.00%
Problem solving and critical thinking	1	4.00%
Financial management, budget, grant management	1	4.00%
Customer/client/patient-centered services	1	4.00%
Communication skills (verbal and written)	1	4.00%
Administrative and organizational	0	0.00%
Data collection and analysis	0	0.00%
Documentation and reporting of project activities	0	0.00%
Literature review and reporting	0	0.00%
Developing and conducting surveys	0	0.00%
Communication (using media for health promotion)	0	0.00%
Food and water safety concerns	0	0.00%
Experience with electronic health records	0	0.00%
Needs assessment	0	0.00%
Traits that demonstrate success personally and professionally	0	0.00%
Grand Total	25	100%

Extracted from 49 available job postings.

Table 13B: Preferred Job Competencies (n=27)

Competencies Preferred	n	%
Health policy development, implementation, and analysis	6	22.22%
Infectious and chronic disease prevention and control	5	18.52%
Public health communication and campaigns (outreach/intervention)	3	11.11%
Other	3	11.11%
Project development, implementation, management, and compliance	2	7.41%
Public health leadership	2	7.41%
Work with at-risk populations	2	7.41%
Evidence-based intervention and best practices	2	7.41%
Public health education and promotion	1	3.70%
Epidemiology and disease surveillance	1	3.70%
Cultural competency (sensitivity to population-specific issues)	0	0.00%
Health program evaluation and improvement	0	0.00%
Quantitative research methods and statistical analysis	0	0.00%
Disaster preparedness and emergency management	0	0.00%
Developing and implementing behavior change intervention plan	0	0.00%
Qualitative research methods and analysis	0	0.00%
Technical writing, grant writing, reports, and manuscripts	0	0.00%
Behavioral and mental health issues	0	0.00%
Environmental (health planning, investigation, and assessment)	0	0.00%
Environmental (industrial hygiene and occupational safety)	0	0.00%
Grand Total	27	

Program WBL Opportunity Overview

Certificate in Disease Intervention Dual Enrollment High School Pathway Program WBL Opportunity Overview

Objective of DI Pathway Program

Develop and collaboratively implement a structured Public Health and Disease Intervention Work-Based Learning (WBL) program to provide structured WBL experiences that strengthen the disease intervention (DI) workforce pipeline by sensitizing high school students to public health disease-intervention related curriculum and experiences

Students will complete the six outlined Public Health Core Courses below in conjunction with WBL experiences through the University of Memphis School of Public Health (UofM SPH). These courses will cover aspects of DI competencies as follows: 1) Collaboration, 2) Surveillance and data collection, 3) Planning and case analysis, 4) Field services and outreach activities, 5) Interviewing and case management activities, 6) Outbreak response and emergency preparedness.

- PUBH 2181: Population Health and Society
- PUBH 3120: Climate and Environmental Health
- PUBH 3130: Social Determinants & Health Disparities
- PUBH 3150: Health Data Analytics and Informatics
- PUBH 3160: Public Health in Action
- PUBH 3170: Health Crises & Milestones in Global Public Health

The goal of the fieldwork experience is to give students the opportunity to develop, manage, or lead evidence-based public health, disease intervention practices in real-world settings. Students have the chance to strengthen the core competencies they've learned in the classroom by testing them within several organizations that face unique constraints, opportunities, and challenges. Students will develop professionally while helping organizations to advance their own public health agenda in a manner sensitive to population-specific issues while developing key DI workforce skills such as the following:

1. Crisis management
2. Collaboration and teamwork
3. Ethics and sensitivity to population-specific issues
4. Adaptability and flexibility
5. Problem-solving and critical thinking
6. Public speaking and presentation
7. Technical proficiency
8. Project management
9. Legal and regulatory knowledge
10. Emotional resilience
11. Interpersonal skills

The supervised practice experience strives to improve students' professional self-confidence through involvement in developing, planning, organizing, executing, and evaluating public health activities. Fieldwork placements may involve program planning, implementation, or operation, case investigations, in-depth interviewing, data collection, community health education and outreach, health advocacy, or other appropriate DI public health-related work.

During the fieldwork period, students are required to follow the policies, rules, and regulations of the field organization, and to seek and accept the field preceptor's guidance and appraisal of performance throughout the placement. Students should share with the field preceptor any questions and concerns that arise regarding the progress of the fieldwork and secure approval of the field preceptor for plans on how to best use, disseminate, or publish information gleaned from the project.

On average, high school students in the state of Tennessee attend school for 9.5 months equating to 180 calendar school days at 6-6.5 hours per day. This is important to note because many students are involved in extracurricular activities such as sports, clubs and after-school work. The dual enrollment DI pathway program provides extensive curriculum coverage, and the UofM SPH wants to make sure that neither the university nor its workforce partners create interference with students' everyday life. Therefore, it has been outlined that WBL hours **should not exceed** five hours per week unless agreed upon by adult student, assigned preceptor and the UofM SPH, Office Experiential Learning (OEL). If the student is under the age of 18 and would like to complete more than the allotted number of weekly hours, parent(s) or a guardian must provide written permission to the OEL Director and work-based learning organization so the student's file can be updated.

Schedules are to be determined by student and preceptor depending on organizational needs and should be reported to the OEL. Students will capture hours via the electronic portfolio platform Digication and will not be required to gain parental consent for use. **To use Digication in the absence of parental consent, all students enrolled should be over the age of 13. No protected health information (PHI) will be collected, and students will have a single login: email address and password.** Students will use the platform to capture their work hours, accomplishments, WBL reflection logs, project content, and relative preceptor feedback. They will be able to share their student electronic portfolios privately and a UofM SPH administrator will have access to the e-portfolios of all high school students enrolled in the program. Students will retain access to their Digication portfolios even if they choose not to enroll in the University of Memphis, Bachelor of Science Public Health degree. Unlawful use of Digication is prohibited and students must not share content that breaches copyright or contains unsolicited marketing media such as email spam.

See below for a WBL partner breakdown and three-month experiences with these organizations.

<i>WBL Partnering Organizations</i>	<i>Hours Per Week (Minimum)</i>	<i>Three-Month Rotations Total Hours Per Student, 11th through 12th grades</i>
Shelby County Health Department	5 Hours	60
St. Jude Children's Research Hospital	5 Hours	60
SisterReach	5 Hours	60
Planned Parenthood	5 Hours	60
Hope House	5 Hours	60
A Step Ahead	5 Hours	60 = 360 Hours Total

WBL Opportunity Contract

Certificate in Disease Intervention High School Pathway Program WBL Opportunity Contract

This is an agreement entered into by the student and organizational preceptor. The purpose of this contract is to formalize the plan for the practicum experience.

Please provide the following information:

Student Name:	
Student E-mail Address: Organization:	
Organization Address:	
Preceptor Telephone:	
Preceptor E-mail:	
Start Date:	
End Date:	
Schedule: Not to Exceed 5 hours per week (e.g. Friday, 10am-3pm or Monday-Friday 12pm-1pm)	

A. Learning Objectives (What do you expect to learn that you do not already know as student?)

- 1.
- 2.

B. Learning Expectations (What do you as a preceptor expect the student to learn/ accomplish through this work-based learning opportunity?)

- 1.
- 2.

C. Disease Intervention Domains (Please rate how likely you are to apply the domains below for this work-based learning opportunity as a preceptor)

1. Collaboration

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

2. Field Services and Outreach Activities

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

3. Interviewing and Case Management Activities

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

4. Outbreak Response and Emergency Management

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

5. Planning and Case Analysis

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

6. Surveillance and Data Collection

☐ Never ☐ Bi-Monthly ☐ Monthly ☐ Weekly ☐ Daily

D. Competency Skills (From the listed skills below, please circle the skill(s) that this work-based learning opportunity encompasses and how)

Crisis management
Collaboration and teamwork
Ethics and sensitivity to population-specific issues
Adaptability and flexibility
Problem-solving and critical thinking
Public speaking and presentation
Technical proficiency
Project management
Legal and regulatory knowledge
Emotional resilience
Interpersonal skills

- 1.
- 2.
- 3.
- 4.
- 5.

E. What major activities will be assigned?

F. What resources will be made available (if any)?

G. When will meetings be held to discuss the experience?

1. First meeting with Organizational Preceptor:_____
2. 100-hour review meeting:_____

Signatures

*In signing this, the student agrees to adhere to policies, practices, and codes of conduct required by the host organization. Non-adherence may result in termination of the practicum.

	Signature	Date
Student*		
Organizational Preceptor		

List of Secondary Recommendations

Program Models Evaluation Recommendations

The existence of 17 high school health pathway programs highlights the presence of strong post-secondary opportunities for high school students from 9th to 12th grade. However, these programs also reveal a limited public health-related focus—especially regarding disease intervention (DI) frameworks/domains—uneven regional distribution, and high-costs that potentially limit high school student participation. This evaluation underscores the need for expanded health-focused DI content in high school pathway programs. Programs should not only be affordable, but also, more importantly, broadly accessible to students nationwide.

Recommendation: Health-focused institutional departments interested in hosting high school students should conduct a landscape analysis to determine the opportunities for pathway program expansion into under-resourced geographic areas and high school institutions serving underrepresented student populations. They should also update their recruitment and marketing tools to promote national distribution of health education opportunities.

DI Literature Scan Recommendations

The DI literature scan highlighted existing public health literature and attempted to identify existing DI educational pathway programming, high school training, and educational pathways for high school students. The literature scan identified a lack of sufficient published public health literature documenting the existence or effectiveness of DI-focused pathways at the high school level. This highlighted DI workforce challenges that high school pathway programs might help solve. For high school pathway programs to contribute to filling DI workforce gaps—by developing high school opportunities that align with on-the-job tasks, skills, and training—it is critical to consider current DI workforce needs.

Recommendation: To be well prepared for DI jobs, high schoolers entering the workforce need experiential training in addition to formal education. Partnerships with local public health institutions and professionals are essential for implementing mentorship, internship, or service-learning opportunities such as that of the CDC's Undergraduate Public Health Scholars (CUPS) program.

Recommendation: Articles within this scan acknowledge the changing landscape of DI workforce opportunities. Institutions seeking to develop emerging workforce pipelines through high school programs should consider incorporating digital and social media literacy into health-focused educational pathways, enabling students to cultivate innovative approaches to partner notification, health surveillance, and outreach.

Recommendation: The very limited number of articles within the scan that mentioned DI training pathways, specifically in high schools, suggests the need for an expansion of keyword searches across health-focused databases. Terms such as “disease intervention” and “high school programs” should be used more consistently in article titles and abstracts to ensure that information related to health programs is more accessible.

DI Job Portal Scan Recommendations

The DI job scan highlighted crucial skills, competencies, experiences, and qualifications needed from the DI workforce. Through these insights, it appears that high school pathway career programs are in an optimal position to address these needs and prepare a new workforce generation by offering the following: experiential learning, driver's license preparation, dual enrollment, skills development, and competency development.

Recommendation: One of the most frequently required qualifications for the DI workforce is a driver's license. In most states, the legal driving age varies between 16 and 18 years of age, in other words, high school-aged students. Based on the DIS job portal scan findings, 44.90% of employers require a driver's license. To support students in obtaining a driving license, which is often required for WBL opportunities, high school pathway programs should consider offering driver education courses.

Recommendation: Another need that appeared frequently in the DI job portal scan was employers' preference for employees with a bachelor's degree. This suggests that high school pathway programs should provide students with the necessary tools and resources to pursue a Bachelor of Public Health degree. Through dual enrollment, students pursuing a DI high school pathway program can simultaneously work towards their bachelor's degree, which reduces the cost of their education. This will also likely shorten their number college years, leaving them more time to pursue higher DI professional careers and post-secondary education.

Recommendation: DI job scan results showed that employers need well-rounded individuals who have the same levels of skills as education. The skills most frequently sought by employers (more than 32 of 49 job postings in the scan) were verbal and written communication skills. High school pathway programs should therefore offer participants ample opportunities to practice public speaking, collaborative dialogue, report writing, virtual communication, and other general professional communication practices. This kind of training can take place within work-based learning opportunities, professional development workshops, network development, mock interviews, and career services.

Recommendation: Since 48.98% of the 49 job postings analyzed require strong software skills, high school pathway programs should encourage students to diversify their software skills. The scan also found that, while students are generally familiar with their smartphone capabilities, they should also be able use professional tools such as Microsoft Office, Google apps, Canva, databases, and other relevant software.

Recommendation: The DIS scan revealed that employees are expected to be competent in both infectious and chronic disease prevention and evidence-based interventions. Therefore, high school students should be exposed to DIS fundamentals, or more specifically, CDI exam domains through public health clubs, dual enrollment, and WBL opportunities.

Recommendation: Students undertaking dual enrollment high school pathway programs need to be exposed to broad populations throughout the program since sensitivity to population-specific issues was the second most frequently sought competency among employers. High school students may have limited exposure to people outside their immediate surroundings; therefore, pathway programs should help broaden students' awareness by strengthening interpersonal and communication skills and by providing opportunities to engage with individuals with a wide range of backgrounds, capabilities, and experiences. This can be achieved within the city of Memphis by partnering with community-based organizations—including Latino Memphis, Su Casa Family Ministries, World Relief, Asha's Refuge, and Out Memphis—that can provide students with exposure to varied perspectives and learning experiences.

High School Student Support Needs Literature Scan Recommendations

This scan demonstrated that students have needs beyond career development that must be addressed in order to successfully matriculate through high school pathway programs that prepare students to enter the DI workforce and be eligible to sit for the CDI certification. The findings suggests that high school pathway programs can improve students' experience by providing additional support in the following areas: mentorship, career exposure, mental and emotional health, and financial aid and guidance.

Recommendation: The most frequently mentioned student support need for high school students was mentorship. Foundational forms of mentorship throughout their high school tenure can expose students to different careers, answer financial aid questions, and guide them in making life-long decisions. Mentors help ease anxieties during the transition from student to adulthood. While they may not be able to address all student needs in depth, high schools should have mentors on site to provide supplemental support as they build trusted relationships with students. To be effective, the literature scan reveals that mentors should ideally be close in age to their mentees, committed to the program, and able to engage in consistent communication with students.

However, approaches may vary across the country depending on high school pathway program resources and student needs. While local school districts may not always have CTE staff available to provide this support, high school pathway programs should tap into their community connections to identify external resources that can do so.

Recommendation: In addition to mentors, high school pathway programs should find ways of exposing students to different career paths. Early exposure to and increased awareness of diverse career paths can encourage students to explore and pursue professions they might not have otherwise considered. The University of Memphis School of Public Health provides high school students with the opportunity to participate in public health clubs within their own schools. This ensures that students about to enter the workforce, or higher education, receive early exposure to the public health career field. Other institutions should replicate this model to increase awareness of public health careers, especially of the DI career path.

Recommendation: It is also important for high school pathway programs to keep the mental and emotional wellbeing of students at the forefront of their programming. Suicide is the leading cause of death among adolescents ages 10-19 according to the Centers for Disease Control and Prevention (2025). Establishing safe spaces in public health clubs and high school pathway programs allow students to discuss their needs, wants, and hopes for the future with mentors and classmates. High school pathway programs should offer students mentors to help them with the following: reframing negative behavioral problems early on, accessing supportive resources/guidance during changes in emotional and or mental well-being, and learning to exercise their knowledge and voice in healthy ways.

Recommendation: Both high school teachers and CTE staff highlighted transportation as a possible barrier to success for high school students on DI pathway programs. Students who engaged in the listening session also cited transportation as a barrier to program participation. This suggests that high schools should offer transportation assistance through state and government after-school programs, which can include transportation or shared ride services through busing services. Transportation assistance will enable more students to undertake high school pathway programs.

Recommendations for Partnering with High School Staff, DI Workforce and High School Students to Build DI High School Pathway Programs

Recommendation: To build trust, connect, meet clients where they are, and work with a multitude of community members DI professionals need proficiency in communication. Workforce partners (local and state) identified the importance of understanding verbal and non-verbal communication. This skill can

be developed through hands-on-training, exposure to working with different groups and CBOs, and by familiarizing students with cultures other than their own. Since this was deemed the most important DI skill, schools and practicum organizations should implement the necessary skills through curriculum structured frameworks.

Recommendation: Workforce partners identified several vacant existing positions, as well as new positions, that they needed to fill or would like to hire for, which did not overlap. To fill such public health-related workforce gaps, there is an urgent need for DI-focused high school pathway programs. Schools across the US should work to embed such programs in their courses. DI workforce skills could help fill high-priority positions while providing jobs to students right after high school graduation.

Recommendation: Educational institutions could provide mentorship to students by collaborating with CBOs. Creating cultures of mentorship through community partnerships would bolster DI skills and knowledge. This strengthens the case for DI-focused high school pathway programs.

Recommendation: Since most high school pathway programs charge a fee for student participation, programs should highlight the possibility of paid WBL opportunities as means of encouraging students to embark on educational programs.

Recommendation: Few students are aware of DI concepts or DI professional careers. To expand knowledge of DI and promote interest in DI careers, high schools should implement DI pathway programs that educate students on DI concepts. By including DI content in everyday health curriculum, schools can increase student interest in DI as a public-health-related discipline.

Recommendation: To incentivize students to take part in public-health related education during secondary schooling, educational institutions should highlight certification and certificates of completion. These tangible benefits can increase student participation, motivation, and retention. Certifications should also be aligned with a student's career interest. Schools could conduct surveys to assess demand for health-based careers among high school students before implementing high school pathway programs.

Recommendation: Students may not perform at their best without all the components of a support system. And these components need to function together. This calls for a holistic support system consisting of interpersonal support from peers and from high school/CCTE staff and professors. Practicum preceptors, high schools, and parents need to make sure students have multiple modes of support as they complete the DI pathway program. This can be achieved by pairing each student with a peer counselor or a student who has successfully completed the high school pathway program in DI. Helping students tap into support from their social groups could have a secondary benefit, since it would both provide peer support and understanding for the student currently taking DI pathway program and familiarize other students with the program and course curriculum, raising awareness of DI concepts and possible DI careers.

Recommendation: Currently, some schools offer public health high school pathway programs as mechanisms for educational and career advancement and others do not, especially institutions with persistent access gaps. To ensure broader access to DI education and career development, institutions should gain an understanding of how to embed DI into high school pathway programs and into secondary education by conducting high school curriculum alignment assessments.

Recommendations for the Feasibility of Establishing a High School Pathway Program with a WBL Component and Experiential Learning

Recommendation: To support the sustainability of high school pathway WBL programs, learning institutions should establish an OEL and/or have staff dedicated to implementing and maintaining relationships with community stakeholders such as CBOs or FQHCs. Given that faculty and staff are limited in numbers and

already inundated with their own work-related tasks, an OEL with a dedicated team of personnel can reduce their burdens by managing high school pathway WBL programs. Moreover, the OEL and its team can strengthen community partnerships, which could lead to new WBL opportunities.

Recommendation: While the OEL or dedicated staff can help students identify WBL opportunities for their high school pathway DI program, they should also be encouraged to seek their own WBL opportunities. This would enhance the rapport between the students and the WBL sites while giving the students a level of responsibility.

Recommendation: Institutions that lack resources or funding to establish an OEL or hire dedicated staff should create systems and materials students can use to engage with community stakeholders when seeking WBL opportunity. This could include a brochure or Program WBL Opportunity Overview that provides objectives for the DI high school pathway program (see *Appendix H, pages 19-21* for an example of the WBL Program Overview) as well as a WBL Opportunity Contract that covers instructions and guidelines on how to contact CBOs/FQHCs that offer high school student internships (see *Appendix I, pages 22-26* for an example of the WBL Opportunity Contract.)

Recommendation: Requiring students participating in DI high school pathway programs to use Digication would be beneficial to students, WBL preceptors, and advisors. This tool can be used to log work hours, document projects and accomplishments, share WBL reflections, and post feedback. On the administrative side, this student-led tool can be used as a visual portfolio, evaluation tool, and as a supplement to a student's resumé for mentors or employers.

Recommendations for Curriculum Integration and Development

Recommendation: Since curriculum alignment in high school pathway DI programs calls for continuous engagement between students and university faculty and staff, having faculty teach at both undergraduate and dual enrollment level is essential for continuity. Closing the gap between faculty and students produces engagement, comfort, and comprehension that supports success when it comes to enrollment in Bachelor's in Public Health degrees.

Recommendation: Institutions should implement the teaching modalities that work best for student success in core public health courses—whether online, in-person, or both—depending on program offerings.

Recommendation: Schools of public health interested in developing dual enrollment coursework or a DI pathway engagement for high school students should work with their institution's dual enrollment office early on for support in this effort. This office can assist with the promotion of the program to high schools with which the institution may already be engaging.

Recommendation: Seek opportunities to engage with high schools to expose students to public health through visits, public health days, public health clubs, and other innovative opportunities to connect or collaborate. This creates a consistent presence and awareness of public health initiatives and opportunities in the high school setting.