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GRADUATE EDUCATION

Innovations in Maternal and Child Health: Pairing Undergraduate and Graduate Maternal and Child Health Students in Summer Practica in State Title V Agencies

Arden Handler[1] · Jaime Klaus[2] · Deneen Long-White[3] · Marcia Roth[4] · Rebecca Greenleaf[4] · Olivia R. Sappenfield[2] · Dorothy Cilenti[4]

Abstract
Objective As part of the National MCH Workforce Development Center, an innovative internship program placed MCH undergraduate and graduate students in summer practica in state Title V agencies. Graduate student mentoring of undergraduates and leadership and professional development training and support are key features of the program. The objective of this paper is to report on the results of the evaluation of the *MCH Paired Practica Program* in its pilot years, 2014–2016. *Methods* Students completed pre and post internship questionnaires which included closed as well as open-ended questions. In addition, the Title V state health agency preceptors completed a questionnaire at the end of each summer. *Results* Over the 3-year pilot project, a total of 17 teams participated. Students were from 6 of the 13 graduate Centers of Excellence in MCH programs in Schools of Public Health and two undergraduate MCH Pipeline Programs. There were 11 participating states. After the practicum experience, there was a significant increase in students' confidence in a number of measures related to working in complex, dynamic environments and in their ability to contribute to improvements in MCH population health. Students reported having more confidence in their ability to function effectively as an informal/formal MCH leader ($p=0.02$), more confidence in their ability to contribute to improvements in MCH population health ($p=0.04$), and being more prepared to enter the workforce after the practicum experience ($p=0.07$), although there was no significant change in students' ($n=22$) interest in seeking a job in a Title V agency or a community based organization with a MCH focus. Nearly 60% of the students did state at the posttest that they would likely seek additional education in MCH. Overall, the Title V preceptors ($n=14$) were very positive about the program although in some instances there was less confidence in the knowledge and skills of the undergraduate students. *Conclusion* The *MCH Paired Practica Program* is a unique effort to go beyond the academic training of undergraduate and graduate MCH students to provide them with direct exposure to the field, as well as leadership, mentorship, and professional development training. While some challenges emerged related to differences in skills between undergraduates and graduate MCH students, participating students demonstrated clear improvements in their leadership skills including increased confidence in their ability to take initiative, provide opinions and feedback, to function informally or formally as leaders, and to contribute to improvements in MCH population health.

Keywords Internship · Practica · Student mentoring · Graduate students · Undergraduate students · Title V agencies

✉ Arden Handler
handler@uic.edu

[1] Community Health Sciences, University of Illinois School of Public Health, 1603 W. Taylor, Chicago, IL 60612, USA

[2] University of Illinois School of Public Health, Chicago, USA

[3] Department of Health and Sport Sciences, Salisbury University, Salisbury, USA

[4] UNC Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, USA

Significance

This paper provides information about an innovative practicum program for MCH graduate and undergraduate students, the *MCH Paired Practica Program*. The *Program* is a promising approach to introducing undergraduate MCH students to students further along in their career decision-making as well as to Title V agency preceptors. Becoming an MCH professional and leader is a life-long but not necessarily a

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linear process; each exposure to the field is an important step along that journey.

Introduction

National Maternal and Child Health (MCH) infrastructure in the US is vested in the 59 state and jurisdictional Title V agencies funded by the Maternal and Child Health Services Block Grant for the "development and coordination of systems of care for the MCH population, which are family-centered, community-based, and culturally appropriate" (DHHS, MCH Block Grant Guidance, Seventh Edition). From the earliest days of the Title V program, established by the Social Security Act in 1935, the parallel emphasis on the education and ongoing development of MCH professionals to face the many challenges related to improving the health of women, children and families, has been paramount (Kavanagh 2015). The MCH training programs funded by the Maternal and Child Health Bureau (MCHB) in support of the MCH Services Block Grant have a dual purpose: (1) to educate the next generation of MCH professionals; and, (2) to address the continuing education needs of the current MCH workforce (Kavanagh 2015). As such, MCHB has multiple training and education investments including the Centers of Excellence in MCH (CoEs-MCH) and Catalyst Programs (the latter, new in 2015) located in Schools of Public Health which provide graduate level training in MCH, and undergraduate MCH pipeline programs which are particularly focused on economically and educationally disadvantaged students including students from under-represented minority groups. In 2013 the Bureau inaugurated the National MCH Workforce Development Center (NMCHWDC) at the University of North Carolina School of Public Health (UNC-SPH) to support state efforts to respond to the changing health care environment as well as the transformation of the MCH Services Block Grant with its increased focus on national and state performance measures (Lu et al. 2015; Kogan et al. 2015).

All MCH training programs in Schools of Public Health and MCH pipeline programs require participation in a field practicum for students to: (1) increase awareness of the needs, experiences, and challenges of MCH public health practice; (2) learn from practice-based preceptors; and, (3) assist in real-world projects. While some MCH students participate in practica experiences with state Title V agencies, to date, there has been only one formal program which specifically places students in summer practica in state (and county/city) Title V/MCH programs, the Graduate Student Epidemiology Program (GSEP) (Hayes 2014; Handler et al. 2015).

To increase the opportunity for MCH students to participate in practica with state Title V agencies, in 2014, as part of the activities of the NMCHWDC, an innovative pilot program was developed to partner MCH public health graduate students with undergraduate MCH students in summer practica with state Title V agencies. Called the *MCH Paired Practica Program* (the *Program*), this effort had multiple objectives: (1) to provide both graduate and undergraduate MCH student pairs with exposure to state Title V agencies; (2) to assist state Title V agencies with the implementation of a variety of projects related to health care and MCH Block Grant transformation; and, (3) to develop the mentorship skills of MCH graduate students while exposing MCH undergraduates to "mentors" close in age and experience. The objective of this paper is to report on the results of an evaluation of the implementation of the *MCH Paired Practica Program* in its pilot years, 2014–2016.

Characteristics of the MCH Paired Practica Program

From 2014 to 2016, the *MCH Paired Practica Program* was administered by the Center of Excellence in MCH (CoE-MCH) at the University of Illinois School of Public Health (UIC-SPH) in partnership with the Howard University MCH Pipeline Program and with support from staff of the NMCHWDC (Note: UIC-SPH was a recipient of a subcontract from UNC-SPH). During the three pilot summers, graduate student participants were recruited from the 13 CoEs-MCH in Schools of Public Health across the nation. During the first 2 years, undergraduates were recruited only from Howard University, and then, during the third year, undergraduates were recruited from both Howard University and the UCLA Pathways for Students into Health Professions program, another MCH Pipeline Program. All students had to apply to the *Program* and received a stipend for participation.

During each of the 3 years, the *Program* recruited state Title V agencies to submit applications for participation as practica sites. Participating states were asked to host a team of interns to work on summer projects (approximately 9 weeks) related to the changing health care environment and/or changes occurring in their state agencies as a result of Title V transformation. Once the state projects were solidified, recruitment materials about the state internship opportunities were sent to graduate students from the 13 CoEs and undergraduate students from Howard University's pipeline program, and in the third pilot year, UCLA's program as well. Student applications were reviewed by the *Program* team from UIC, Howard (and UCLA), and the NMCHWDC. After the interviews, students were matched to state projects, with final approval given by the states.

All students participating in the *Program* received training in leadership, team-building, and mentoring via a series of group (across states) and team (within states) phone conferences from UIC CoE-MCH program faculty and staff, as well as exposure to a variety of resources and learning

modules focused on Title V, the changing health care environment, and methods and approaches for health transformation using a web-based platform. In addition, state Title V preceptors received support from staff and faculty of the UIC CoE-MCH via telephone with respect to managing the interns, relationship & team building, and any challenges that arose during the program.

Methods for Evaluation

To determine the impact of the *MCH Paired Practica Program* on the attitudes and experiences of student and preceptor participants, student participants completed pre and post practica questionnaires which included closed as well as open-ended questions. In addition, the Title V state health agency preceptors completed a questionnaire at the end of each summer. In 2014, the student pre-post questionnaires were not linked so they are excluded from the analyses presented here; in addition, one 2014 project is not listed in Table 1 as the graduate student's undergraduate partner dropped out at the beginning of the internship for personal reasons. However, the other 2014 projects (Table 1) and 2014 preceptor responses are included. Although all fifteen 2015–2016 graduate students completed pretest questionnaires, there were only twelve matched pre and posttest questionnaires for this group. Likewise, although twelve (out of fifteen) 2015–2016 undergraduate students completed pretest questionnaires, there were only ten matched pre and posttest questionnaires for this group. As such, the analysis presented here is based on the responses of twelve 2015–2016 graduate students and ten undergraduate students for whom matching was possible. In addition, 14 out of 17 preceptors (2014: n = 2; 2015: n = 6; 2016: n = 6) completed questionnaires after the practica were completed. Data analysis consists of the generation of simple frequencies and McNemars Chi square tests for paired discrete data. In addition, comments from the students and preceptors were sorted into those that were positive, neutral, and negative and are used to provide context for the quantitative results.

This study was not considered to be human subjects research under federal regulations by the University of North Carolina IRB Office of Human Research Ethics and as such, did not require IRB approval.

Results

As shown in Table 1 over the 3-year pilot project, a total of 17 teams (an additional site in 2014 is excluded from Table 1 as described above) participated in the *Program*. These students were from 6 of the 13 graduate CoEs-MCH in SPH and two undergraduate MCH Pipeline Programs. There were 11 participating states; five states participated in the program more than once either in different or the same years (multiple projects). With respect to student demographics, in 2014 we did not ask students' their race/ethnicity. In 2015 out of the 7 graduate students, 5 were white, 1 was black, and 1 was Hispanic. All undergraduates in 2015 were black. In 2016, there were 8 teams with 4 black and 4 white graduate students, and 1 Native Hawaiian/Pacific Islander and 7 black undergraduates.

Student Experience

The results for the 2015 and 2016 pre and post questionnaires for the students were combined to allow for a comparison of all 2015–2016 pretest responses (n = 22) to all 2015–2016 posttest (n = 22). As shown in Table 2, a series of questions in 2015 and 2016 asked graduate students about their confidence in their ability to serve as a mentor/leader, share their journey with a junior colleague, impart knowledge and skills to a junior colleague, inspire a junior colleague, and connect an individual who is junior to members of their own MCH network. While only one of the pre-post differences was marginally significant, likely due to small numbers (connecting an individual who is junior to others in their MCH network, p = 0.06), graduate students expressed more confidence in their abilities to assist their junior colleagues at the end of their practica experience than prior to their participation in the *Program* and expressed some increased confidence about serving as a team leader. The graduate students reflect this increased confidence in these comments:

> I feel that I gained a sense of confidence that I am in the right field for me. By having a mentee, I am able to disseminate information and knowledge about my field and from that it has secured my choice to pursue MCH. Once you are able to teach to others, it means you have grown enough as a student to become a teacher… (Graduate Student, 2015)
>
> The mentorship portion of the practicum helped me learn management and team building skills. I realized what is important when motivating and managing someone throughout a project. It also helped me fine tune the skills I have picked up in my coursework by teaching them to someone else. (Graduate Student, 2015)

With respect to undergraduate students (Table 3), a similar set of questions was asked regarding their confidence in asking a person more senior to them for assistance in carrying out a task, asking a senior individual for clarification about an idea or activity, seeking connections for exposure to new aspects of the field of public health/MCH, and their overall comfort in engaging with individuals more senior to them in the field of public health/MCH.

Table 1 MCH Paired Practica Projects 2014–2016

State	Agency	Students' Graduate University and Undergraduate University	Final deliverables
MCH Paired Practica 2014			
IA	Iowa Department of Public Health Bureau of Family Health	University of North Carolina at Chapel Hill (UNC) Howard University	Prepared Data Detail Sheets on MCH topics for distribution to stakeholders; conducted and analyzed focus group data for MCH Block Grant needs assessment
MD	Maryland Department of Health and Mental Hygiene, Office of Family Planning and Home Visiting	Tulane University Howard University	Updated an annual MCH data publication; assisted in the creation of a Md. adolescent health data publication, crafted a gender neutral reproductive health plan brochure, and edited reproductive health briefs
MCH Paired Practica 2015			
IA	The Iowa Department of Public Health, Bureau of Family Health	Tulane University Howard University	Collected, analyzed, and prepared data report related to health transformation for 20 out of 24 local Title V MCH agencies based on NMCHWDC assessment tool and focus group data
IL	The Office of Women's Health and Family Services (OWHFS) of the Illinois Department of Public Health (IDPH)	Boston University Howard University	Assisted OWHFS staff to describe Title V priorities from the 2015 Needs Assessment in a health transformation context, and assisted in development of a systems-based approach to moving forward in the changing healthcare environment. Developed fact sheets and action plans for two of ten state priority areas
MI	MI Children with Special Health Care Needs (CSHCS) program	University of Illinois at Chicago Howard University	Conducted phone survey with users of Family Phone Line to determine how the agency can better communicate with their clients, analyzed data and proposed recommendations to CSHCS staff
MN	The Minnesota Department of Health's Children and Youth with Special Health Needs (CYSHCN)	UNC Howard University	Assisted with Title V Needs Assessment focusing on access to adequate health insurance for MCH populations; created fact sheets on each of the six National Core Outcomes for Children and Youth with Special Health Needs; helped conduct five regional systems mapping meetings to assess the current state of care coordination for CYSHN throughout Minnesota
RI	State of Rhode Island Department of Health	Johns Hopkins University Howard University	Developed a model dashboard which included 11 topic areas with more than 40 indicators
MD	Maryland Department of Health and Mental Hygiene	Tulane University Howard University	Helped complete MD's statewide Title V needs assessment; worked with the Health Teens and Young Adults Center resulting in a proposal for a strategic plan
NC	North Carolina Department of Health and Human Services	UNC Howard University	Conducted a literature review that summarized data and studies related to preconception health; generated a report and guide that summarized the key findings from focus groups and key informant interviews
MCH Paired Practica 2016			
AL	Alabama Department of Public Health, Family Health Services/MCH EPI Branch	Emory Howard University	Developed Evidence-based or -informed Strategy Measures (ESMs) for selected National Performance Measures. Developed content for posters for local health departments which described MCH Transformation 3.0
CO	Colorado Department of Public & Environment: Children, Youth & Families Branch	Tulane University Howard University	Developed a Community Engagement Toolkit for use by MCH staff at the CDPEH as well as by their local agency counterparts focused on best practices

Table 1 (continued)

State	Agency	Students' Graduate University and Undergraduate University	Final deliverables
DC	Washington DC Department of Health	UNC Howard University	Provided program planning support to the *Help Me Grow* program manager and team to assist in outreach, development, and promotion of the *Help Me Grow* program
DC	Washington DC Department of Health	UIC Howard University	Developed hospital report cards for the newborn hearing screening program; conducted key informant interviews to ensure implementation of best practices and to identify areas for improvement
IA	The Iowa Department of Public Health, Bureau of Family Health (BFH)	Boston University Howard University	Created County-specific scorecards for Adverse Childhood Experiences (ACE) scores, select health indicators, and select social determinants of health; data to be used for two-generational approach programming
NC	North Carolina Department of Health and Human Services, Women's Health Branch, Division of Public Health	Tulane University Howard University	Helped create a user-friendly guide to North Carolina's Perinatal Health Strategic Plan. Gathered feedback from key stakeholders and community members, generated key themes, and presented the data via webinar and report
NJ	New Jersey Department of Health, Family Health Services	Emory University UCLA	Developed a statewide Zika Prevention Kit (ZPK) and distribution plan for pregnant women in New Jersey
RI	State of Rhode Island Department of Health	UIC UCLA	Conducted/analyzed key informant interviews with health providers to determine potential improvements to the existing delivery system in an effort to reduce disparities in infant mortality

Table 2 MCH Paired Practica Graduate Student Confidence Questions, 2015–2016

	Pre-test (n = 12)	Post-test (n = 12)	McNemar p value
Serving as a team leader			1.00
Very confident	33.3	41.7	
Other	66.7	58.3	
Imparting knowledge and skills an individual who is junior			0.25
Very confident	25.0	50.0	
Other	75.0	50.0	
Inspiring an individual who is junior about MCH			0.63
Very confident	33.3	50.0	
Other	66.7	50.0	
Connecting an individual who is junior to others in MCH network			0.06
Very confident	16.7	58.3	
Other	83.3	41.7	
Sharing journey in public health/MCH with an individual who is junior			0.22
Very confident	58.3	91.7	
Other	41.7	8.3	

Table 3 MCH Paired Practica Undergraduate Student Confidence Questions, 2015–2016

	Pre-test (n = 10)	post-test (n = 10)	McNemar p value
Asking a senior individual for assistance with a task			0.13
Very confident	30.0	70.0	
Other	70.0	30.0	
Asking a senior individual for clarification about an idea or activity			1.00
Very confident	60.0	70.0	
Other	40.0	30.0	
Seeking connections for exposure to new aspects of the field of public health/MCH			1.00
Very confident	60.0	70.0	
Other	40.0	30.0	
Engaging with senior leaders in the field of public health/MCH			0.25
Very confident	30.0	60.0	
Other	70.0	40.0	

The data in Table 3 suggest that over the course of their experience in the *Program*, undergraduates became more confident in asking a senior individual for assistance with a task ($p = 0.13$) and in engaging with senior leaders in the field of public health/MCH ($p = 0.25$), though results were not significant (again, most likely due to the small sample size). There was not substantial change from pre to posttest with respect to undergraduate students' confidence asking a senior individual for clarification about an idea or activity and seeking connections for exposure to new aspects of the field of public health/MCH. However, undergraduate reflections demonstrate their growing confidence working with junior and senior leaders in the MCH field:

> My favorite part of the Paired Practica Program was working and learning from the graduate student. (Undergraduate Student, 2015)

> My favorite part of the Paired Practica Program was being able to meet and work with so many individuals from varying fields. It gave me a better understanding about all the opportunities available in MCH and the field of public health as a whole. (Undergraduate Student, 2016)

Building on the leadership training provided to participants as well as the participants' experience working in teams and with preceptors, both the graduates and

undergraduates were asked about their confidence with respect to seeking out and using resources, learning from others in a team environment, valuing and honoring diverse perspectives, and contributing to improvements in MCH population health (Table 4). The proportion of students who felt very confident in their ability to take initiative to address an issue with a project ($p = 0.02$), to learn from others in a team environment ($p = 0.07$), to provide opinion and feedback when working in a group ($p = 0.09$), to be mindful about how personal attitudes and experiences influence work ($p = 0.07$), and in their ability to apply personal and organizational strategies for dealing with complex environments ($p = 0.04$), all significantly or marginally significantly increased between the pre and posttests. Importantly, students reported significant improvements in their confidence in their abilities to function effectively as an informal or formal MCH leader ($p = 0.02$) and to contribute to improvements in MCH population health ($p = 0.04$). As stated by the students:

> By having the paired team, the agency was able to have two capable individuals work full-time on an emerging issue. This allowed for current staff to continue working in their areas of expertise while my practica partner and I were able to learn and apply varying skills to the tasks at hand... (Graduate Student, 2016)
>
> It was a privilege to work for the state health department this summer. I really felt that we were contributing to projects that had tremendous impact on the population. It gave me an opportunity to see how multiple organizations and divisions work (and have the potential to work) together to design and implement maternal and child health programs and initiatives. I was well received by those at our state agency and our supervisor did a wonderful job of checking in to see that we felt we were having a meaningful experience. (Graduate Student, 2016)

Both graduate and undergraduate students were asked about their future plans with respect to preparation for entering the workforce, the likelihood of seeking a job in a Title V program or community based organization with an MCH focus and their likelihood of seeking additional education in MCH (Table 5). As might be expected given the short length of the program, there was no significant change in students' interest in seeking a job in a Title V agency or a community based organization with a MCH focus, although they felt marginally more prepared to enter the workforce after the practicum experience ($p = 0.07$). Nearly 60% of the students stated at the posttest that they would likely seek additional education in MCH (this question was not asked on the pretest).

Preceptor Experience

The practicum preceptors were asked a series of questions about the *Program* in general as well as their views of the experiences of the graduate and undergraduate students (Table 6); all preceptor questions were only asked once each summer, at the end of the summer experience. Overall, the 2014–2016 Title V preceptors ($n = 14$) were very positive about the program and the skills and experiences of the graduate students as indicated below:

> The graduate student clearly had a wide depth of public health skills and competencies that she drew on throughout her time at ___. The project involved use of qualitative data gathered from various online sources and databases, which the student was able to navigate efficiently while analyzing and assessing what was needed for our collection purposes. She showed great leadership and communication skills in overseeing an undergraduate intern working on the same project, as she helped assign that student's portion of the work and served as a mentor for that student. She is on track to be very successful as a public health professional in the workforce. (Preceptor, 2016)
>
> It was very nice to have a paired graduate and undergraduate student. The grad student was able to provide leadership to the undergrad, and help to facilitate and explain some of the work to her. Lots of work completed in a short amount of time. (Preceptor, 2014)

In a few instances, however, there was less confidence regarding the skills and experience of the undergraduate students. Relative to graduate students, preceptors reported undergraduate students to be less able to set and meet goals and deadlines, to take initiative to address project issues, and to be less familiar with state Title V program processes. As some of this is expected since the pipeline students are younger with less classroom exposure and background knowledge about Title V, it is important to reflect on this dynamic. As one preceptor noted:

> It was a great benefit having the students here but the success of the project did fall to the graduate student. I think more education needs to be provided to the undergraduate student. (Preceptor, 2015)

Preceptors reported that both graduate and undergraduate students were generally able to successfully seek out resources for their project, work well with their undergraduate/graduate counterpart, and work well with others in and external to the agency. According to the Title V preceptors:

> Our Paired Practica generated a great enthusiasm for the project and brought this vitality into our Bureau! They accomplished a major project for our MCH

Table 4 Overall MCH Paired Practica Participant Experience (Graduate and Undergraduate), 2015–2016

	Pre-test (n = 22)	Post-test (n = 22)	McNemar p value
Working in a team on a project			0.69
Very confident	63.6	72.7	
Other	36.4	27.3	
Developing and articulating a shared vision, roles, responsibilities in a group			0.13
Very confident	45.5	68.2	
Other	54.6	31.8	
Setting goals and deadlines and meeting them			0.29
Very confident	54.6	72.7	
Other	45.5	27.3	
Seeking out and using resources			0.11
Very confident	54.6	81.8	
Other	45.5	18.2	
Taking initiative to address an issue with a project			0.02
Very confident	31.8	72.7	
Other	68.2	27.3	
Utilizing strengths when working on a project			0.23
Very confident	50.0	72.7	
Other	50.0	27.3	
Recognizing the strengths of others on a team			0.15
Very confident	36.4	63.6	
Other	63.6	36.4	
Learning from others in a team environment			0.07
Very confident	59.1	90.9	
Other	40.9	9.1	
Providing opinion and feedback when working in a group			0.09
Very confident	40.9	72.7	
Other	59.1	27.3	
Actively listening to others and encouraging contributions from everyone*			0.13
Very confident	59.1	81.0	
Other	40.9	19.1	
Mindfulness about how personal attitudes, beliefs, and experiences influence work			0.07
Very confident	50.0	77.3	
Other	50.0	22.7	
Valuing and honoring diverse perspectives			0.51
Very confident	54.6	68.2	
Other	45.5	31.8	
Functioning effectively as an informal/formal MCH leader			0.02
Very confident	13.6	45.5	
Other	86.4	54.6	
Applying personal and organizational strategies for dealing with complex, dynamic environments			0.04
Very confident	18.2	54.6	
Other	81.8	45.5	
Contributing to improvements in MCH population health			0.04
Very confident	27.3	59.1	
Other	72.7	40.9	

*Missing 1 response from 2016 post-test

Table 5 MCH Paired Practica Program Participant future plans and preparation, 2015–2016

	Pre-test (n = 22)	Post-test (n = 22)	McNemar p value
Prepared to enter workforce			0.07
Extremely/moderately prepared	59.1	90.9	
Somewhat/slightly/not at all prepared	40.9	9.1	
Will seek a job in Title V Program			1.00
Extremely likely/likely	54.6	54.6	
Neutral/unlikely/extremely unlikely	45.5	45.5	
Will seek a job in community-based organization with a MCH focus			0.73
Extremely likely/likely	68.2	77.3	
Neutral/unlikely/extremely unlikely	31.8	22.7	
Will seek additional education in MCH			–
Extremely likely/likely	–	59.1	
Neutral/unlikely/extremely unlikely	–	40.9	

program -- a significant amount of work over just a few weeks. They were definitely an asset to have on-board. This program provides the ability to introduce the MCH program in our state to the undergraduate and graduate. They become great advocates for MCH, and benefit through the mentorship offered by staff in our Bureau. (Preceptor, 2015)

It appeared to be a very good and useful process for the students themselves. They were very aware that they had a meaningful role whereby the department has been planning to take action...I think it was a wonderful aspect to have them working together on a specific project. This allowed for sharing the load, providing discussion among themselves about the project which I believe reduced the amount of time they needed with management to guide them and for the mentoring aspect. It would be important to have a good match between the students (as we did) because I can see how it could have been more difficult if they had not been as able to communicate or collaborate on the work. (Preceptor, 2015)

Discussion

The results reported here suggest that the *MCH Paired Practica Program* was successful in its inaugural 3-year pilot, but that some challenges remain for future implementation of the program. The *Program* builds on the leadership training supported by MCHB which has historically valued incorporating leadership experiences into academic training in order to address persistent public health challenges and disparities

Table 6 Preceptor feedback regarding performance of the *MCH Paired Practica Program* for overall performance, and for undergraduate and graduate interns, 2014–2016

	Overall (n = 14)	2014 (n = 2)	2015 (n = 6)	2016 (n = 6)
Overall responses				
How well the pairing worked				
Very well	78.6	50.0	83.3	83.3
Other	21.4	50.0	16.7	16.7
How successful interns were at completing job				
Very successful	71.4	50.0	83.3	66.7
Other	28.6	50.0	16.7	33.3
How useful was the intern's work to the agency				
Very useful	100.0	100.0	100.0	100.0
Other	0.0	0.0	0.0	0.0
How much interns contributed to projects that were in response to changing healthcare environment				
To a great extent	76.9	50.0	83.3	80.0*
Other	23.1	50.0	16.7	20.0*
How likely agency would be to recommend the program to other local and state health care agencies				
Very likely	100.0	100.0	100.0	100.0
Other	0.0	0.0	0.0	0.0
To what extent was the graduate intern able to mentor the undergraduate intern				
To a great extent	58.3	-	83.3	33.3
Other	41.7	-	16.7	66.7
Preceptors responses about undergraduate students				
Intern set goals and deadlines and met them				
To a great extent	71.4	50.0	66.7	83.3
Other	28.6	50.0	33.3	16.7
Intern successfully sought resources for the project				
To a great extent	85.7	50.0	83.3	100.0
Other	14.3	50.0	16.7	0.0
Intern took initiative to address issues with project				
To a great extent	71.4	50.0	66.7	83.3
Other	28.6	50.0	33.3	16.7
Undergrad intern worked effectively with grad intern to accomplish project goals				
To a great extent	71.4	50.0	66.7	83.3
Other	28.6	50.0	33.3	16.7
Intern worked well with others in and external to the agency				
To a great extent	85.7	50.0	83.3	100.0
Other	14.3	50.0	16.7	0.0
Intern was familiar with state Title V program processes				
To a great extent	38.5	50.0	40.0*	33.3
Other	61.5	50.0	60.0*	67.7
Intern was familiar with the Affordable Care Act				
To a great extent	22.2	0.0	40.0*	0.0*
Other	77.8	100.0	60.0*	100.0*
Preceptors responses about graduate students				
Intern set goals and deadlines and met them				
To a great extent	100.0	100.0	100.0	100.0

Table 6 (continued)

	Overall (n = 14)	2014 (n = 2)	2015 (n = 6)	2016 (n = 6)
Other	0.0	0.0	0.0	0.0
Intern successfully sought resources for their project				
To a great extent	100.0	100.0	100.0	100.0
Other	0.0	0.0	0.0	0.0
Intern took initiative to address issues with project				
To a great extent	100.0	100.0	100.0	100.0
Other	0.0	0.0	0.0	0.0
Grad intern worked effectively with undergrad intern to accomplish project goals				
To a great extent	85.7	50.0	100.0	83.3
Other	14.3	50.0	0.0	16.7
Intern worked well with others in and external to the agency				
To a great extent	85.7	100.0	100.0	66.7
Other	14.3	0.0	0.0	33.3
Intern was familiar with state Title V program processes*				
To a great extent	75.0	50.0	100.0*	66.7
Other	25.0	50.0	0.0*	33.3
Intern was familiar with the Affordable Care Act*				
To a great extent	46.2	0.0	100.0*	16.7
Other	43.8	100.0	0.0*	83.3

*Survey responses were based on fewer responses than overall

(Kavanagh 2015; Belcher et al. 2015). *Program* students demonstrated clear improvements in their leadership skills including increased confidence in their ability to take initiative, provide opinions and feedback, to function informally or formally as an MCH leader, and to contribute to improvements in MCH population health. Beyond leadership training, the *Program* had three major objectives:(1) to provide both graduate and undergraduate MCH student pairs with exposure to state Title V agencies; (2) to assist state Title V agencies with the implementation of a variety of projects related to health care and MCH Block Grant transformation; and, (3) to develop the mentorship skills of MCH graduate students while exposing MCH undergraduates to "mentors" close in age and experience.

With respect to the first objective, the program clearly exposed graduate and undergraduate students to state Title V agencies. While not explicitly stated, the aim of such exposure is to allow students to directly view the inner workings of state Title V agencies with the recognition that these types of experiences might influence their future career choices. Although in this evaluation there did not appear to be a change in students' desire to work in a state Title V agency, over 50% of students stated that they were likely or extremely likely to work in a state Title V agency both before and after their internship experience, suggesting that interest in working in governmental MCH likely drew students to apply to the program initially. Importantly, the qualitative data revealed that the students appreciated their direct exposure to the MCH field and noted that this experience increased their understanding of its broad reach and its various components and partners.

With respect to the second objective, Table 1 shows that students were engaged in a variety of projects that were related to health or Title V transformation. Of note, when the *Program* was inaugurated, there was a significant emphasis on the response of Title V programs to health reform, but over the 3 years there was increasing emphasis on the transformation that was taking place within Title V itself (Lu et al. 2015; Kogan et al. 2015).

A great deal of emphasis in the *Program* was placed on the third objective: to develop the mentorship skills of MCH graduate students while exposing MCH undergraduates to "mentors" close in age and experience. Beyond developing overall leadership skills, this summer internship program is unique in that graduate students mentor students more junior to them, in this case, undergraduate students, with the team members both receiving mentoring from one or more state Title V professionals. The mentorship aspect of the *Program* is in line with the Mentoring Leadership competency (#9) of the MCH Leadership Competencies 3.0 adopted by the MCHB in 2004 (Mouradian and Huebner 2007). This competency is focused on "Developing Others Through Teaching and Mentoring" with mentoring defined as "influencing the career development and career satisfaction of a colleague by acting as an advocate, coach, teacher, guide, role model, benevolent authority, door opener, resource, cheerful critic, and career enthusiast." While a laudable goal, developing this competency in trainees has not been an explicit focus in most MCH training programs, with most mentoring occurring by faculty to students or by agency preceptors to students rather than involving students as mentors to each other.

The mentoring aspect of the program is based on the premise that learning how to become a mentor "positively affects personal and career development, self- confidence and (research) productivity" (Blood et al. 2015). According to Dolan and Johnson (2009), whose discussion of graduate-undergraduate mentoring relationships is within the research context but is still relevant here, there are multiple potential benefits of having graduate students mentor undergraduate students including: enhanced self-disclosure, trust, and easier movement from a complementary relationship to one of mutuality because of smaller differences in age and level of rank. Such relationships may provide unique benefits to the graduate students including: opportunities for interpersonal and socioemotional gains; increased self-awareness; and, learning how to be a better mentor, communicator, and (researcher). Graduate students in the *Program* received explicit training related to their role as mentors and support for understanding their role as a bridge between the state

Title V agency preceptor and the undergraduate mentee. As indicated in the evaluation results reported above, after participation in the *Program*, the graduate students expressed more confidence in their abilities to assist junior colleagues than prior to their participation in the program and also expressed some increased confidence about sharing their journeys with an individual who is junior.

With respect to the benefits of peer mentoring for the undergraduate students, it is recognized that graduate mentors may be better able to empathize with undergraduate mentees, offer more authenticity, and have more immediate personal experiences that they can share with undergraduate mentees (Dolan and Johnson 2009), thus possibly enabling undergraduates to more closely identify with and absorb the skills and knowledge being transferred. Being mentored by a graduate student may also provide undergraduates with a more stress-free environment to grow and network (Tenenbaum et al. 2001). Some of these benefits were also revealed in the *Program* as undergraduates expressed feeling more confident in asking a senior individual for assistance with a task and in engaging with senior leaders in the field of public health/MCH after the program. However, as indicated above, these results were not significant, most likely a function of sample size. Long-term follow-up of the undergraduates has not been built into the evaluation, but may provide additional insights as to the impact of the program. Likewise, with additional resources it might be possible to track a sample of undergraduates in the MCH pipeline programs and compare their career trajectories with those who participated in the *MCH Paired Practica Program*. The latter concept deserves some consideration by the Maternal and Child Health Bureau.

While there are clear benefits of the graduate-undergraduate mentoring relationship, some challenges are also evident. These include both lack of mentoring expertise on the part of the graduate which may be exaggerated with a mentor who is early in their own career development, as well as competition and jealousy which may occur if the undergraduates and graduates believe they are competing for the "time, attention, and interest "of the non-student mentor or preceptor (Dolan and Johnson 2009). Although the data which emerged from the pre and posttests for the evaluation of the *Program* do not suggest that these challenges were predominant, two of the authors of this paper led multiple calls with the students (graduate only, undergraduate only, as well as team calls) in which such feelings were sometimes expressed. In fact, while in the first year the graduates were specifically called mentors, by the second year, the graduates were called team leaders after the undergraduate students expressed some uncomfortable feelings with the term mentor, in particular.

In addition, although for the most part, the *Paired Practica* teams worked well together, the preceptors had less confidence regarding the skills and experience of the undergraduate students; this is not necessarily unexpected as the undergraduates had both fewer years of education and experience. As discussed in several previous articles, many of the undergraduates in MCH pipeline programs enter with "little or no background in public health and limited understanding of their respective professional roles within the realm of public health" (Pizur-Barnekow et al. 2010), or enter undergraduate health professions pipeline programs as pre-medical students (Kuo et al. 2015) with limited knowledge of MCH or other professions, and/or have a "general lack of interest and knowledge about MCH topics and careers" at baseline (Guerrero et al. 2015). As such, MCH pipeline undergraduate students are in great need of concrete and real experiences and exposure to support their interest and involvement in the field of public health and to enable their success along their professional pathway. Participation in the *MCH Paired Practica Program* is one specific approach to accomplish this objective. However, to maximize the experience of undergraduates, *Program* faculty and staff may need to provide additional support to the undergraduate students as well as more education about Title V and its place within the larger MCH community and public health system. It is likely that additional preparation for the graduate students may also be needed in their efforts to support and work with the undergraduates.

Finally, the evaluation conducted here is based on a small number of participants who participated in a small innovative pilot program; importantly, not all student participants or preceptors completed the pre and posttests and we do not know if there are differences between those completing the evaluation forms and those who did not. It is possible that those who did not complete these forms were more dissatisfied with the Program. In addition, the small sample size means that although there was often indication of positive change, in many cases, this change was not statistically significant. Despite these limitations, we believe that the merits of a paired internship program for graduates and undergraduates in MCH is evident.

Conclusion

While academic training is necessary to provide undergraduate and graduate MCH students with knowledge about the MCH field, as well as the skills and abilities necessary to improve the health and well-being of women, children, and families, direct exposure to the field, as well as leadership and professional development are all critical complements to academic training. The *MCH Paired Practica Program* is a unique field experience, because not only does it place students in state Title V agencies, it pairs graduate and undergraduate MCH students, providing them with leadership and mentorship training and support. While not measured by

the evaluation reported on here, the expectation is that the experience of working together within a state Title V agency that includes an explicit mentorship and leadership focus will strengthen the students' desire and interest in ultimately pursuing a career in Maternal and Child Health. Becoming an MCH professional and leader is a life-long but not necessarily a linear process; each exposure to the field is an important step along that journey.

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