Interdisciplinary MPH Program
Student Handbook
2020-21

UNIVERSITY OF CALIFORNIA BERKELEY

SCHOOL OF PUBLIC HEALTH

EMERGENCY CONTACTS

Emergency response: **Dial 911** from any phone (on or off campus) to report an imminent threat to life or property.
From a cell phone, dial direct for faster emergency response:

- UC Berkeley Police: **(510) 642-3333**
- City of Berkeley Police/Fire: **(510) 981-5911**
- Alameda County Sheriff: **(510) 667-7721**

Emergency information
Campus emergency information line: **(800) 705-9998**
During an emergency, this recorded message will be updated with the latest information.
Campus radio station: **KALX (90.7 FM**)
City of Berkeley emergency broadcast station: **1610 AM**

Non-emergency contact numbers

- UC Berkeley Police: **(510) 642-3333**
- City of Berkeley Police: **(510) 981-5900**

Berkeley School of Public Health
INTERDISCIPLINARY MPH PROGRAM

University of California, Berkeley
School of Public Health
50 University Hall
Berkeley, CA 94720-7360

sph.berkeley.edu

STUDENTS	
Life threatening emergency	Go to the nearest hospital emergency department or call 911 (on-campus or off-campus) if an ambulance is needed. The closest hospital emergency room to campus is Alta Bates Hospital, 2450 Ashby Ave, just east of Telegraph Ave.
Urgent: **Medical Problem**	***When Tang is Open:*** Come directly to Urgent Care at the Tang Center. Urgent Care parking and entrance is located on Durant Avenue between Fulton and Ellsworth Streets. Tang is open ***When Tang is Closed:*** If you have an urgent medical problem that cannot wait until the Tang Center is open: Call the After Hours Assistance Line at (510) 643-7197 for immediate assistance. If you need to speak with a counselor urgently, call the 24/7 counseling line at (855) 817-5667. SHIP members may contact the Aetna 24/7 nurse line at (800) 681-4065. ● Find a local Urgent Care Center with extended hours ● See After Hours Assistance for information on emergency contraception, dental emergency, pharmacy refills, more. ● find a local emergency room (The closest hospital emergency room is to campus is Alta Bates Hospital, 2450 Ashby Ave, just east of Telegraph Ave.) *Please note:* care may be at your own expense; emergency room care typically cost significantly more than urgent care centers.
Urgent: **Mental Health Concerns**	**Although, CPS and Social Services operate on an appointment basis, a student may face an urgent concern or crisis that feels too overwhelming to wait for a scheduled appointment.** ***During Business Hours*** **Counseling and Psychological Services** Come to Counseling and Psychological Services on the 3rd floor of the Tang, for in-person crisis assessment and intervention. Please inform a staff member at the reception desk that you have an urgent concern. Wait-times vary depending on the time of the day, but CPS counselors will see all students in crisis on the same day they come in. You can call CPS at (510) 642-9494. **Social Services** For urgent concerns related to sexual assault, IPV, pregnancy, disordered eating, or alcohol and other drugs contact Social Services at (510) 642-6074 for in-person crisis assessment and intervention. Please inform a staff member at the reception desk that you have an urgent concern. ***When Tang is Closed:*** Call our After Hours Support line at (855) 817-5667. .
Sexual Assault	● In the event that you or someone you know is sexually assaulted, please do the following: ● Get to a safe place first. ● Do not shower or change your clothes. ● Call someone you would like to have with you. ● Call the police if you decide to report the assault and they will accompany you to the hospital for medical care. ● If you are not ready to speak to the police, call the UHS Advice Nurse (510) 643-7197 to determine the best plan for taking care of yourself. (When Tang is closed, call Bay Area Women Against Rape: (510) 845-7273.) ● Contact Social Services at UHS for follow-up counseling or other assistance, (510) 642-6074
Interpersonal Violence (Domestic Violence)	● When Tang is Open: Get immediate medical attention. Come to Urgent Care at Tang. Urgent Care parking and entrance is located on Durant Avenue between Fulton and Ellsworth Streets. ● When Tang is Closed: Get immediate medical attention. Call campus police at (510) 642-3333 or your local police for assistance. For referrals to local resources call the After Hours Assistance line at (510) 643-7197.

Dear Interdisciplinary MPH Class of 2020:

Congratulations again on your acceptance to the Interdisciplinary MPH program at the School of Public Health, UC Berkeley. We are looking forward to a productive year of learning with you!

Starting this July, you will be thriving in an abundant academic environment not only within the School of Public Health, but also the larger UC Berkeley campus. The richness of the UC Berkeley community lies not only in its courses and faculty, but you will find that

some of the most important educational lessons and connections will come from your many talented classmates.

The Interdisciplinary Program core faculty are looking forward to getting to know each of you soon, and we are committed to your success both during the year at UCB and after you graduate. Feel free to reach out to us with any questions to ipmph@berkeley.edu or ahemmerling@berkeley.edu

Best wishes,

Anke Hemmerling, MD, PhD MPH
Director, Interdisciplinary MPH Program, UC Berkeley School of Public Health
UCSF Bixby Center for Global Reproductive Health
Email: ahemmerling@berkeley.edu

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2020-21 BERKELEY ACADEMIC CALENDAR

2020 Fall Semester

Fall Semester Begins	Wednesday, August 19, 2020
Convocation	To Be Determined
Instruction Begins	Wednesday, August 26, 2020
Academic and Administrative Holiday	Monday, September 7, 2020
Academic and Administrative Holiday	Wednesday, November 11, 2020
Non-Instructional Day	Wednesday, November 25, 2020
Academic and Administrative Holiday	Thursday, November 26 & Friday, November 27, 2020
Formal Classes End	Friday, December 4, 2020
Reading/Review/Recitation Week	Monday, December 7–Friday, December 11, 2020
Last Day of Instruction	Friday, December 11, 2020
Final Examinations	Monday, December 14–Friday, December 18, 2020
Fall Semester Ends	Friday, December 18, 2020
Winter Commencement	To Be Determined, commencement.berkeley.edu
Academic and Administrative Holiday	Thursday, December 24 & Friday, December 25, 2020
Academic and Administrative Holiday	Thursday, December 31, 2020 & Friday, January 1, 2021

2021 Spring Semester

Spring Semester Begins	Tuesday, January 12, 2021
Academic and Administrative Holiday	Monday, January 18, 2021
Instruction Begins	Tuesday, January 19, 2021
Academic and Administrative Holiday	Monday, February 15, 2021
Spring Recess	Monday, March 22–Friday, March 26, 2021
Academic and Administrative Holiday	Friday, March 26, 2021
Cal Day	To Be Determined, calday.berkeley.edu
Formal Classes End	Friday, April 30, 2021
Reading/Review/Recitation Week	Monday, May 3–Friday, May 7, 2021
Last Day of Instruction	Friday, May 7, 2021
Final Examinations	Monday, May 10–Friday, May 14, 2021
Spring Semester Ends	Friday, May 14, 2021
Commencement	Saturday, May 15, 2021
Academic and Administrative Holiday	Monday, May 31, 2021

2021 Summer Sessions

First Six-Week Session Begins	Monday, May 24, 2021
Academic and Administrative Holiday	Monday, May 31, 2021
Ten-Week Session Begins	Monday, June 7, 2021
Eight-Week Session Begins	Monday, June 21, 2021
First Six-Week Session Ends	Friday, July 2, 2021
Academic and Administrative Holiday	Monday, July 5, 2021
Second Six-Week Session Begins	Tuesday, July 6, 2021
Three-Week Session Begins	Monday, July 26, 2021
Three-Week Session Ends	Friday, August 13, 2021
Second Six-Week Session Ends	Friday, August 13, 2021
Eight-Week Session Ends	Friday, August 13, 2021
Ten-Week Session Ends	Friday, August 13, 2021

Produced by the Office of the Registrar, September 14, 2016

PROGRAM DESCRIPTION
UC Berkeley School of Public Health
Interdisciplinary MPH Program

OVERVIEW

The Interdisciplinary MPH is an accelerated, 11-month program designed to meet the needs of mature scholars with diverse cultural and professional backgrounds who have specific public health career goals in mind. The program focuses on an interdisciplinary understanding of complex issues and the leadership challenges of successful interventions in public health. Graduates leave as well-rounded public health professionals with a heightened understanding of the importance of a multidisciplinary approach to public health practice.

The class size ranges between 20 and 30. Originally dominated by mid-career physicians, the program now accepts senior medical students, residents, and fellows. In addition, we also actively recruit applicants with a range of professional background who hold a master's degree or the equivalent, and who have significant health care experience or interest in public health. Applicants from the fields of journalism, business, social work, anthropology, economics, law, and others are encouraged if their future career paths include public health activities and/or significant interaction with public health systems.

The Interdisciplinary Program's curricular flexibility allows successful applicants, in consultation with their faculty advisers, to develop an individualized course of study tailored to meet their needs. In addition to the required courses at the School of Public Health, elective courses may be chosen from any of the academic offerings across the Berkeley campus. A mentored MPH project, to be conducted throughout the year, is required for completion of the program.

MISSION

The mission of the 11-month program is to offer our students the opportunity to gain a professional skillset that will allow them to take on the most pressing public health challenges. These skills will be taught in required courses, electives, and small group seminars that run throughout the year. The goal is for students to apply these skills as they develop, implement, and disseminate a final MPH project. The Interdisciplinary Program core faculty are committed to student success during the year and after graduation.

CURRICULUM REQUIREMENTS

The curriculum for the Interdisciplinary MPH Program is an intensive, full-time program. Students in the program are required to complete 42 semester units of course credit between July and May. Students are expected to start their studies by enrolling in the Summer Session prior to the Fall Semester in which they enter the program. After completing one or two summer courses (3-8 units), students take a heavy course load (17-19 units per semester), in order to satisfy the 42-unit requirement. Consequently, students should not plan to work during the semester, and should make every effort to minimize work-related responsibilities while at school.

We advise students to enroll in the six-week Summer Session D courses on Epidemiologic Methods (PH 250A) and /or the Introduction to Biostatistics (PH 142). This will reduce their course load to manageable levels in the Fall and Spring semesters. Students with previous biostatistics or epidemiology experience may take both summer courses provided that they can make a full-time commitment to coursework beginning in early July. Students who have taken rigorous or advanced epidemiology or biostatistics in the past are encouraged to take the exemption exams in epidemiology and biostatistics in late August. Passing out of a course, however, does not decrease the 42-unit requirement for graduation.

Students are required to attend a one-unit Interdisciplinary Summer Seminar during which they will begin to develop ideas for their year-long MPH project. The course number is PH 292. Students should enroll in this course for one unit with the LETTER GRADE grading option.

The Interdisciplinary MPH core requirements consist of six courses totaling 23 units. These include:

<u>BIOSTATISTICS</u>

PH 141, or PH 142, or PH 245, or PH 252 (4-5 units)

There are several ways to satisfy the Biostatistics requirement:

1. Take PH 142 (Intro to Biostatistics) in the Summer (strongly recommended);
2. Take PH 142 (Intro to Biostatistics) in the Fall;
3. Take PH 245 (Intro to Multivariate Statistics) in the Fall;
4. Take PH 252 (Epidemiological Analysis) in the Spring
5. Take and pass the Biostatistics exemption exam during welcome week before the Fall Semester begins. *If passing the exemption exam, a total of 42 units is still required for graduation.*

<u>EPIDEMIOLOGY</u>

PH 250A (3 units) or PH 250B (4 units)

There are several ways to satisfy the Epidemiology requirement:

1. Take PH 250A (Epidemiological Methods I) in the Summer (strongly recommended) or Fall;
2. Take PH 250B (Epidemiological Methods II) in the Fall.
3. Take and pass the epidemiology exemption exam during welcome week before the Fall Semester begins. *If passing the exemption exam, a total of 42 units is still required for graduation.*

BREADTH COURSES

PH 200J —Health Policy and Management (2 units): offered in Fall Semester
PH 200K—Environmental Health Sciences (2 units): offered in Spring Semester
PH 200L—Health and Social Behavior (2 units): offered in the Fall Semester

Starting in 2018, a limited number of slots are available to fulfill part of the Breadth Course requirements as an online course. Talk to your faculty advisor if this may be a suitable option for you.

INTERDISCIPLINARY PROGRAM SEMINAR SERIES

PH 292 (1) – Summer Interdisciplinary Seminar (1 unit)

PH 292 (12) – Fall, 4 units, and PH 292 (7)—Spring, 4 units: a full-year course designed to enhance knowledge and practice skills and to provide guidance and mentorship in the development and implementation of a culminating MPH Project.

The one-year Interdisciplinary MPH Program requires completion of a research project (this is an MPH Project, *not* a thesis). Projects may take a variety of forms including community-based projects, research studies, needs assessments, program evaluations, analyses of secondary data, or policy analyses. Projects are presented at the end of the Spring Semester in written and oral formats and fulfill the School of Public Health Comprehensive Exam requirement.

The oral presentation and written paper for the MPH project satisfy the Public Health Practice and Comprehensive Examination requirements for the degree. A four-unit class is the equivalent of 180 hours or work per semester (45 hours per unit) – about 10-15 hours of work a week dedicated to your MPH research project.

We also recommend that you take PH 291, the Preparation for Public Health Practice Workshop Series, a one-unit course offered by the Center for Public Health Practice with a S/U grading option only. The remaining 19-20 units are available for electives that may be used to customize a curriculum that fits your career-building needs**.** Up to four units from previously completed graduate coursework may also be applied towards the 42 units, subject to 'rules for transfer units' and approval from Graduate Division. Curricular requirements are summarized below.

SCHOOL OF PUBLIC HEALTH SPECIALTY AREAS

While taking electives towards the MPH, students may also simultaneously complete a Specialty Area, or minor, in a particular area. Specialty Areas draw faculty and students across many areas of study. They require that students complete nine units of specific courses and electives. The School offers the following specialty areas of study:

- Aging
- Global Health
- Maternal and Child Health
- Multicultural Health
- Public Health Nutrition

Please refer to the School of Public Health website for more information about the Specialty Areas: http://sph.berkeley.edu/graduate-degrees/specialty-areas

Interdisciplinary MPH Program
CURRICULUM
2020-21

The curriculum for the Interdisciplinary MPH program is an intensive, full-time program. The 42-unit program requires completion of at least 17 units of coursework in each of the Fall and Spring Semesters. In order to meet the 42-unit requirement, students are also expected to enroll in the summer session prior to the Fall Semester in which they enter the program. Up to four units from previously completed graduate coursework may also be applied towards the 42 units, subject to 'rules for transfer units' and approval from Graduate Division. Curricular requirements are summarized below. The one-year program also requires completion of a **community-based research project (this is an MPH Project, *not* a thesis).** Projects may take a variety of forms including research studies, needs assessments, program evaluations, analyses of secondary data, or policy analyses. Projects are presented at the end of the Spring Semester in written and oral formats and fulfill the School of Public Health Comprehensive Exam requirement.

Bolded type denotes courses that are required by the School of Public Health and the Interdisciplinary MPH Program**.**

Recommended 1-year Interdisciplinary Course Selection (ALL MUST BE TAKEN FOR A LETTER GRADE EXCEPT WHERE NOTED):

SUMMER SEMESTER

PH 250A	**Epidemiological Methods I**	**3 units**
PH 142	**Introduction to Biostatistics**	**4 units**
PH 292	**Summer Interdisciplinary Seminar**	**1 unit**

FALL SEMESTER

PH 142	**Intro to Probability & Statistics in Biology & PH** *(if summer PH142 not taken)*	**4 units**
PH 200J	**Health Policy and Management Breadth Course (half semester)**	**2 units**
PH 292	**Interdisciplinary Seminar**	**4 units**
PH 250A ***or***	**Epidemiologic Methods I**	**3 units**
PH 250B	**Epidemiologic Methods II**	**4 units**
(Note: PH 250A and/or 250B not needed if PH 250A was taken in summer)		
PH 200L	**Health and Social Behavior Breadth Course**	**2 units**
Electives (to be chosen by student)***		5-8 units

SPRING SEMESTER

PH 292	**Interdisciplinary Seminar**	**4 units**
PH 200K	**Environmental Health Sciences Breadth Course (half semester)**	**2 units**
Electives (to be chosen by student)*** (For examples, see below)		13-14 units

*** *Electives are chosen in collaboration with Faculty Advisor, customized to provide the skills for each student's desired career path. Students must have approval of their faculty advisor for elective courses taken outside the School of Public Health.*

TOTAL NUMBER OF UNITS REQUIRED FOR THE 11-MONTH MPH PROGRAM: 42 units

EXAMPLES OF SCHOOL OF PUBLIC HEALTH ELECTIVES:

(see http://catalog.berkeley.edu for complete selection)

Note: there are no restrictions on where you take your electives as long as they are on the Berkeley campus. You can take electives in other UC Berkeley schools and departments such as Business, Public Policy, Demography and Anthropology, or any other department subject, to approval from that department and from the student's faculty advisor. A limited number of electives for upper division undergraduate students may also be taken.

Fall Electives

PH 201E	Public Health Interventions: Theory, Practice and Research (3 units)
PH 204A	Mass Communication and Public Health (3 units)
PH 204D	Community Organization and Community Building for Health (3 or 4 units)
PH 204E	Multicultural Competence in Public Health (3 units)
PH 206A	Nutrition Status, Physical Activity, and Chronic Conditions (3 units)
PH 206C	Nutritional Epidemiology (3 units)
PH 210B	Adolescent Health (3 units)
PH 210C	Needs Assessment in Maternal and Child Health (3 units)
PH 212A	International Maternal and Child Health (2 units)
PH 213A	Family Planning, Population Change, and Health (3 units)
PH 216A	Biological Embedding of Social Factors (3 units)
PH 217A	Aging and Public Health (3 units)
PH 220F	Healthy Workforce and Public Policy (2 units)
PH 223A	Introduction to the Healthcare System (3 units)
PH 224A	Health Organizations and Management (3 units)
PH 226A	Health Economics (3 units)
PH 226D	Global Health Economics (3 units)
PH 235	Impact Evaluation for Health Professionals (3 units)
PH 245	Introduction to Multivariate Statistics (3 units)
PH 252C	Intervention Trial Design (3 units)
PH 252D	Introduction to Causal Inference (3 units)
PH 253C	Overview of AIDS Epidemic (3 units)
PH 255C	Mental Health and Psychopathology (3 units)
PH 257	Outbreak Investigation (1, 3 units)
PH 260A	Principles of Infectious Disease (3 units)
PH 263	Public Health Immunology (3 units)
PH 264	Current Issues in Infectious Disease (2 units)
PH 270B	Toxicology (4 units)
PH 282	Topics in the History of Medicine and Public Health (3 units)
PH 285A	Public Health Injury Prevention and Control (3 units)
PH 285A	Public Health Injury and Control (2 units)
PH 290 (2)	Health Issues Seminar: Social Justice and Worker Health (1-4 units)
PH 290 (4)	Health Issues Seminar: Health Communications in the Digital Era (1-4 units)
PH 290 (5)	Health Issues Seminar: Behavior Change in Adolescence (1-4 units)
PH 290 (6)	Health Issues Seminar: Healthcare Quality (1-4 units)
PH 290 (7)	Health Issues Seminar: Implementing Health Reform (1-4 units)
PH 291A	Preparation for Public Health Practice
PUB POL 260	Public Leadership and Management (3 units –*Note: special enrollment procedures*)

Spring Electives

PH 144	Introduction to SAS Programming (2 units)

PH 200A	Current Issues in Public Health Ethics – Research and Practice (3 units
PH 202E	Ethnic and Cultural Diversity in Health Status and Behavior (3 units)
PH 205	Planning, Development and Evaluation (3 units)
PH 212E	Private Sector Health Care in Developing Countries (2 units)
PH 212D	Global Health Core Course, Part 2 (2 units)
PH 217D	Biological and Public Health Aspects of Alzheimer's Disease (3 units)
PH 218B	Evaluation of Health and Social Programs (4 units)
PH 219A	Advanced Methods: Qualitative Research (3 units)
PH 219C	Community Based Participatory Research in Health (3, 4 units)
PH 219E	Introduction to Qualitative Methods in Public Health Research (2 units)
PH 223C	Strategic Management and Organization of Health Services (2-3 units)
PH 223F	Effective PH Negotiations (2 units)
PH 224A	Healthcare Organizations and Management (3 units)
PH 223	Legal Basis for Healthcare Delivery (3 units)
PH 230	Advanced Health Politics (3 units)
PH 253B	Epidemiology and Control of Infectious Diseases (3 units)
PH C234	Green Chemistry: An Interdisciplinary Approach to Sustainability (3 units)
PH 253C	Ethical Challenges in Public Health Interventions (2 units)
PH 253D	Behavior and Policy Science in HIV Prevention and Treatment (3 units)
PH 255	Social Epidemiology (3 units)
PH 257A	Disaster Epidemiology (2 units)
PH 270B	Toxicology (3 units)
PH 207C	Practical Toxicology (3 units)
PH 271C	Drinking Water and Health (3 units)
PH 271E	Science and Policy for Environment and Health (3 units)
PH 271G	Health Implications of Climate Change (3 units)
PH 272A	Geographical Information Science for Public Health and Environment (3 units)
PH 281	Public Health and Spirituality (2 units)
PH 271D	Global Burden of Disease and Comparative Risk Assessment (3 units)
PH 282	Topics in the History of Medicine and Public Health (2 or 3 units)
PH 290(2)	Health Issues Seminar: Designing Innovative Public Health Solutions (3 units)
PH 290(8)	Public Health Journalism (3 units)
PH 290(9)	Seminar: HIV Biology to Policy
PH 285	Public Health Injury and Control (2 units)
PH 291A	Preparation for Public Health Practice
MBA 209F	Fundamentals of Business for Non-Business Majors (3 units)
PUB POL 280	Wealth and Poverty *(3 units. Note: special enrollment procedures)*

FOUNDATIONAL 22 COMPETENCIES FOR MPH STUDENTS (CEPH CRITERIA)

The MPH curriculum emphasizes active, student-directed learning, problem solving, and the acquisition of skills essential to the practice of public health. It follows the MPH Foundational Competencies laid out by the Council on Education for Public Health (CEPH). Among those, all MPH students identify 5 competencies to achieve (at least 3 from CEPH foundational list, the remainder can also be from the concentration-specific list) during their course of studies. We encourage students to carefully review the competencies and consult with their faculty advisor to choose elective courses best suited to their needs.

EVIDENCE-BASED APPROACHES TO PUBLIC HEALTH
1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice
PUBLIC HEALTH & HEALTH CARE SYSTEMS
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels
PLANNING & MANAGEMENT TO PROMOTE HEALTH
7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs
POLICY IN PUBLIC HEALTH
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity
LEADERSHIP

16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
17. Apply negotiation and mediation skills to address organizational or community challenges
COMMUNICATION
18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content
INTERPROFESSIONAL PRACTICE
21. Perform effectively on interprofessional teams
SYSTEMS THINKING
22. Apply systems thinking tools to a public health issue

Additional Program-Specific Competencies for the INTERDISCIPLINARY PROGRAM

23. Successfully navigate the application process for IRB Human Subjects approval and/or waiver for the MPH research project
24. Demonstrate skills needed for effective scientific presentations during the comprehensive exam
25. Demonstrate skills needed for authoring a comprehensive scientific publication (MPH research report)
26. Apply the skills for effective community engagement and community-based participatory research
27. Describe principles of design thinking approaches to public health

INTERDISCIPLINARY PROGRAM CORE FACULTY

Anke Hemmerling, MD, PhD, MPH is the director of the UCB SPH Interdisciplinary Program. She is an alumna of the class of 2004 and served as core faculty for the program since 2012.

Anke received her medical training at the Humboldt University in Berlin (Germany), and her public health education at the University of California, Berkeley (UCB). During her clinical training, she repeatedly worked in health projects and hospitals in Latin America. Her PhD research evaluated medication abortion in Germany. She was a postgraduate Global Health Research Fellow for the UCB SPH Bixby Program, and a Director of Special Health Projects for Venture Strategies for Health and Development, conducting research related to safe motherhood and safe delivery in developing countries.

In 2007, she joined the Bixby Center for Global Reproductive Health at the University of California, San Francisco (UCSF). There she has been focusing on the prevention of HIV and other genital infections in women and conducted a number of phase 1 and 2 clinical trials. Currently, she is the protocol co-Chair of the NIH-sponsored multi-site phase 2B study for the prevention of bacterial vaginosis and preparing a phase 1 clinical trial testing a biologic drug for HIV prevention in women. At UCSF, she is mentoring and teaching students in the Infectious Disease Research and Training Program (IDRTP) and the UCSF Global Health Master's Program.

In addition, she leads the Education Committee at the UCGHI Center of Expertise in Women's Health, Gender and Empowerment. She also serves as a senior technical adviser for the Coalition Advancing Multipurpose Innovations (CAMI), on the steering committee of the Coalition Advancing Multipurpose Innovations for Reproductive Health (IMPT), and on the Microbicide Advisory Board of the Population Council.

Email: ahemmerling@berkeley.edu

Karen Sokal-Gutierrez MD, MPH is a Clinical Professor at the UCB School of Public Health, and the UCB-UCSF Joint Medical Program where she teaches medical students, public health graduate students and undergraduates. She is a physician trained in pediatrics, preventive medicine, and public health/maternal-child health. Her work focuses on improving early childhood health and reducing health disparities. She has served as a physician in community health clinics, public health program administrator, consultant to childcare and preschool programs, and writer for a parenting website. She has worked in global health for 40 years, including for the past 15 years directing a family of studies on children's nutrition and oral health in El Salvador, Ecuador, Vietnam, Nepal, and India. She received her BS degree from Yale University, MD from UCSF, and MPH from UCB; and is a Fellow of the American Academy of Pediatrics. For the academic year 2017-18, she was also a Fellow at the New England Journal of Medicine. Email: ksokalg@berkeley.edu

INTERDISCIPLINARY PROGRAM STAFF

Judy Smithson is the Program Manager for the Interdisciplinary Division. Judy has over 14 years of experience serving as an Academic Advising Administrator at elite public and private universities. She has a Master of Education from the University of Southern California in Postsecondary in Administration and Student Affairs, with a Certificate in Management of College Student Services. Judy has also held various leadership roles on-campus from being Co-Chair of the Graduate Staff Roundtable to currently serving as Co-Chair for Cal Women's Network Association. Her passion is social justice and this year Cal Women's Network has teamed up with Food Insecurity & Housing Initiative to bring awareness and resources to staff about this growing crisis on our college campuses impacting our students. Email: ipmph@berkeley.edu

STUDENT REPRESENTATION

Class Ombudsman -- elected by nomination and vote of the class. The role of the ombudsman is to be a resource for students in the Interdisciplinary Program who have concerns that they may not want to voice directly to the program faculty. Concerns can be about the program itself, other courses in the school, or aspects of the learning environment that need to be addressed. The Ombudsman can elect to communicate concerns with any of the program faculty or staff. The program leadership will have regular check-in sessions with the Ombudsman to make sure that student needs and concerns are heard. The Ombudsman will also have a key role in the recruitment and admissions process for the Class of 2020-21.

Class Social Director -- elected or appointed by the class to suggest, initiate, and/or organize after-hours social events for the group such as happy hours, hikes, BBQs, etc. The program has a small budget for class social events, and requests can be made directly to the program leadership.

GRADING CRITERIA FOR INTERDISCIPLINARY MPH SEMINAR

SUMMER 2020

Students will receive a credit of one unit (LETTER GRADE) for attendance of the seminar and delivery of the assignment by **TBA** (outline of ideas for MPH project). More than one unexcused absence will result in a failing grade.

FALL 2020

10 %:	**Attendance and full participation in seminar and advisor meetings**
20 %:	**Draft Project Plan**
30 %:	**Final Project Plan, incl. completed IRB process**
40 %:	**Literature Review**

Assignment grading will be based on quality of content, adherence to outlined expectations, and timeliness of submission. **Deadline extensions will not be granted without prior approval from faculty.**

SPRING 2021

10 %:	**Attendance and full participation in seminar and advisor meetings**
40 %:	**Project presentation**
50 %:	**Final Project Report**

Assignment grading will be based on quality of content, adherence to outlined expectations, and timeliness of submission. **Deadline extensions will not be granted without prior approval from faculty.**

SUMMER 2020 SEMINAR SCHEDULE

Interdisciplinary MPH Seminar
Public Health 292 (1) – Enrollment #14865
Letter Grade or S/U grading option
Fridays, 2-4 pm (TBA)

July 6	**DOUBLE SESSION 2-6 PM** *Welcome Session including dinner: Interdisciplinary Program Overview, Expectations, and Advising Structure* Anke Hemmerling, Karen Sokal-Gutierrez, Judy Smithson
July 13	**MPH Project Overview (Requirements & Discussion of Project Ideas)** Anke Hemmerling
July 20	**Personalities in leadership and teamwork** Grace Turkis
July 27	**Alumni Panel** Participants TBA
August 3	**Project Workshop** Anke Hemmerling
[August 10	cancelled to make up for double session on July 6]

Students will receive a credit of one unit (LETTER GRADE) for attendance of the seminar and delivery of the assignment by **TBA** --outline of ideas for MPH project.
More than one unexcused absence will result in a failing grade.

FALL SEMINAR SCHEDULE
Example Only

Course description

This seminar is designed to enhance the knowledge and practice skills of students enrolled in the Interdisciplinary MPH Program and to provide guidance and mentorship in the development and implementation of a culminating MPH Project. Weekly meetings throughout the academic year will challenge students to integrate their learning and experiences across the MPH curriculum, and to synthesize their knowledge and skills via a project that addresses a specific public health challenge.

Instructors: Anke Hemmerling, Karen Sokal-Gutierrez

August __ **Community Engagement**
August __ **Mixed Methods Research in Public Health**
September __ **Community Participatory Research**
September __ **How to conduct a Policy Review**
September __ **IRB Workshop**
October __ **Survey Design in Public Health**
October __ **Ethics in Public Health Research**
October __ **Project Workshop 2**
October___ **Designing Innovative Public Health Solutions**
November __ **Cost Effectiveness Analysis in Public Health**
November __ **Project Workshop 2**
November __ **THANKSGIVING HOLIDAY – NO CLASS**
November __ **Community Engagement**
December __ **Project Workshop 3**

Readings and assignments
Course readings and assignment guidelines will posted on B-Courses

Important deadlines

September __ **Meeting with your program advisor once in September**
October __ **Completion certificate for CITI training**
October __ **Draft Project Plan,** including detailed plan for IRB submission and identified project mentor/ mentor within community organization
October__ **Completed IRB submission**
November__ **Meeting with your program advisor once in November**
November __ **Final Project Plans and Community Partner Agreement**
December_ **Literature review of your project**

SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF CALIFORNIA, BERKELEY
Interdisciplinary MPH Seminar – PH 292 (7)
SPRING SEMINAR SCHEDULE
Example Only

Course description

This seminar is designed to enhance the knowledge and practice skills of students enrolled in the Interdisciplinary MPH Program and to provide guidance and mentorship in the development and implementation of a culminating MPH Project. Weekly meetings throughout the academic year will challenge students to integrate their learning and experiences across the MPH curriculum, and to synthesize their knowledge and skills via a project that addresses a specific public health challenge.

Instructors: Anke Hemmerling, Karen Sokal-Gutierrez

January __ **Project Briefs and Introduction to Spring Semester**
January __ **Camera Training**
February __ **Leadership Skills**
February __ **The Art of Decision Making**
February __ **Project Workshop 2 – Dissemination & Sustainability**
February __ **How to write a good scientific article and get it published**
March __ **Grantseeking and Foundations**
March __ **Media Advocacy Training**
March __ **Student presentations 1**
March __ **SPRING BREAK – NO CLASS THIS WEEK**
March __ **Student presentations 2**
March __ **Student presentations 3**
April __ **Student presentations 4**
April __ **Student presentations 5**
May __ **Student presentations 6**, also Wrap -Up and Course Evaluations

Readings and assignments
Course readings and assignment guidelines will be posted on B-Courses

Important deadlines
February __ Schedule a meeting with your program advisor at least once in February
February __ Completed Advancement Candidacy Forms due
March – May __ Student presentations in class
April or May Interdisciplinary Annual Alumni and Student Picnic
May __ Final Project Report due
May __ **COMMENCEMENT CEREMONY - Greek Theater, UC Campus**

Interdisciplinary MPH Program
PROJECT PRESENTATION AND FINAL REPORT GUIDELINES

The Interdisciplinary Program Project spans eleven months and fulfills the School of Public Health's Master-level requirement for a practicum or field experience. The culminating assignments – an oral presentation to peers and colleagues, and a final project report worthy of publication – serve as the oral and written components of the comprehensive examination required for graduation. Please review the following guidelines carefully to ensure that you meet all requirements.

ORAL PRESENTATION GUIDELINES

Your **oral presentation** serves as the oral component of your comprehensive examination required for graduation. The presentation should describe what your project is designed to deliver and the outcomes you anticipate or hypothesize. Make sure to present your data, even if you have not completed the analysis. ***If your data gathering and analysis is not complete at the time of your oral presentation date, don't worry.*** *You may call it a "work in progress."*

The oral presentation is not supposed to be a presentation of the written paper; rather, it is a demonstration that affirms your understanding of PH investigative processes, the appropriate use of statistical tools, and your ability to present. Presentations should include the following elements:

- Project selection
- Project rationale and public health significance
- Overall project goal(s)
- Project objectives and how they address the stated goal(s)
- Study design and how/why you arrived at it
- Statistical analysis process
- Results – real or hypothesized, depending on the progress at a time of presentation
- Project impact: What is the relevance of this work in the bigger picture? Has it, or will it actually affect the lives of the people whose needs you sought to address?
- Plans for project sustainability and dissemination
- Project limitations and changes you would make if you had the opportunity to start over

PRESENTATION TIPS

We strongly encourage attention to the following tips on how to make your presentation the best that if can be.

- Approach the presentation as if telling a story.
- A slide on the public health significance of your project is **required.**
- Be focused. This is to be a 15-minute presentation with 10 minutes for questions (total: 25 minutes maximum). Practice in advance, time yourself, avoid redundancy, and cut out unnecessary material.
- Prepare answers for expected questions. In previous years students have found it helpful to provide a handout.
- Use visuals (AKA slides) – but use them effectively. Count on one slide per minute. Be sure to include a slide with all contributors and their affiliations. Put no more than 7-9 lines of text on a single slide as more than that is unreadable. Use graphs liberally.

PRESENTATION LOGISTICS

Oral project presentations are scheduled during class time between mid-March and late April. Your audience will be asked to fill in an evaluation form at the end of your presentation. The format is similar to the evaluations of guest lecturers you have been doing throughout the semester. We will tabulate and summarize the evaluation results and send them to the presenting student only (not to the whole class).

We will provide a projector for presentations unless alternate arrangements are made. We suggest that you coordinate with the other student presenting on the same day so that you can use a single laptop for both presentations. This will help save set-up time and avoid technical glitches.

FINAL REPORT GUIDELINES

The written final report fulfills the written comprehensive examination requirement for the MPH degree. This is an opportunity to demonstrate that you can apply knowledge and principles learned from your coursework in addressing a current public health challenge.

Your project report should be in publishable condition with respect to spelling, grammar, and organization.

- Please use the following format:
  - *Title*
  - *Abstract*
  - *Introduction* (background/ situational analysis) - should include your literature review, a statement as to why the problem addressed in your project is significant for public health, and a statement about how the objectives for the project address that problem
  - *Methods* - should describe how you approached the problem, any community partners you worked with, and any barriers to completing the work
  - *Results* - should describe your findings and their reliability (your statistical analysis)
  - *Discussion* - should go into detail about challenges and limitations, the importance of your findings, and lessons learned
  - *Recommendations* - based on your work, what further actions would you recommend to address this problem? How might your findings be implemented on a larger scale?
- Length and format: If you are considering a publication of your MPH project, feel free to write your report as a manuscript for your chosen specific peer-review journal, in length and formatting requirements. Often limited to around 3000 words, depending on the journal, this requires very concise writing, often much harder to achieve than a longer report.
  You can also choose to write a MPH report that is not intended to be submitted for publication in a peer-reviewed journal. In this case, aim for a main body of text with 20-30 pages, double spaced, PLUS tables, graphs, references, and appendices.
- Check out "Instructions for Authors" in the *American Journal of Public Health* for information on formatting references, tables, and graph headings (see http://www.ajph.org/misc/ifora.shtml).
- For citations and references, please consistently use a style most useful for you, for example AMA style (see http://www.ajph.org/misc/ama_references.shtml)

FAQS ANSWERED FOR INCOMING INTERDISCIPLINARY MPH STUDENTS ACADEMIC YEAR 2020-21

1. **Is there a minimum grade required for required courses and a required overall GPA?**
   Yes-- students must attain a B- or better in the breadth course requirements (Epidemiology PH 250A; Biostatistics PH 142; Health Policy & Management 200J; Environmental Health PH 200K; and Health and Social Behavior PH 200L). Students who attain less than a B- will be required to retake the course. To receive the MPH degree, the student must also meet the Good Academic Standing Rule with an overall 3.0 GPA and a B average.

2. **Can I work during the 11-month program?**

The full course load required is 42 semester units for the year, which is approximately 5-6 classes per semester - a very high course load compared to students in the 2-year MPH program who have to complete 48 units over 2 years. While some of our clinical fellows can fit in a few monthly shifts on selected days, like weekends or over holiday periods, we do not recommend any kind of regular part-time job or full-time job.

3. **Summer session: How do I decide which summer course(s) to take?**
   Students are required to take the Summer Interdisciplinary MPH Seminar PH 292 (1), course control number 50770. In addition, we also recommend taking Biostatistics PH 142 and Epidemiology PH 250A. The 2020 summer session runs from July 6 to August 14. As this is a heavy a course load for beginners on these topics, we recommend that you do not work during the Summer Session. If you're not able to take all three courses, please check in with the Interdisciplinary Program faculty to make alternate plans.

4. **Do the summer session courses satisfy the MPH requirements for Biostatistics and Epidemiology?**
   - Yes, PH 142 satisfies the Biostatistics requirement.
   - Yes, PH 250A satisfies the Epidemiology requirement

5. **Can I take the Biostatistics and Epidemiology exemption exams to satisfy the requirements?**
   You can satisfy the Biostatistics and Epidemiology requirements by passing the exemption exams, which will be offered just before the Fall semester. You will receive notice of these exams in advance. Please email Judy Smithson at ipmph@berkeley.edu if you have questions. Please note that if you satisfy the Biostatistics and Epidemiology requirements by passing the exemption exams, you will NOT receive unit credit for them and will still need to complete 42 units of course work in order to graduate.

6. **Can you recommend any online resources for biostatistics preparation or a refresher?**
   Yes, please see the free courses that are available at http://oli.cmu.edu/

7. **Is health insurance for Summer Sessions available?**
   Please see Insurance Helpline for information on health insurance options.
8. **When do the Fall and Spring semesters begin and end?**
   - Please refer to UC Berkeley Registrar's Office website for more details.
   - Fall 2020 orientation activities ("Welcome Days") are planned for late August 2020. More information about these activities and other important information will be coming to you soon via email from the School of Public Health Student Services office.

9. **How can I satisfy the 42 units for the Interdisciplinary Program in just eleven months?**
   The two-year MPH programs require that you complete 48 units in two years, whereas the 11-month MPH programs require 42 units in 11 months. The Interdisciplinary program is rigorous but doable, provided you are not working or have other time-intensive obligations. We will provide a list of possible curriculum scenarios at the beginning of the Summer Session.

10. **What is the minimum number of units that I may to take each semester?**

The minimum allowable number of units per semester is **12.** However, as an Interdisciplinary student, you will need to take many more units each semester.

11. **Can I transfer of units from previous graduate coursework not counted towards another degree?**
    You may be able to transfer up to four units of graduate level coursework towards your MPH degree. According to UC Berkeley's Graduate Division Policy: "A master's student may transfer up to four semester units or six quarter units of course work completed as a graduate student at another institution. The units must be equivalent to courses in the student's graduate program at Berkeley, and the student must have received at least a B in the course(s) and have a grade point average of at least 3.3." The courses to be transferred must be approved by the School of Public Health Curriculum Review Committee to insure that they meet the requirements for transfer. Students must submit a syllabus for each course. Eligible units might be stand-alone courses or courses taken that exceeded the requirements (extra units) for a previous degree. Detailed procedures for transferring units will be announced at the start of the Fall semester.

12. **Do I take PH297, the field practicum requirement that is listed on some UC Berkeley School of Public Health MPH curriculum materials?**

    No-- this course is for two-year MPH students only. As an 11-month student, you satisfy your practicum requirement as part of the Fall 2020 and Spring 2021 Interdisciplinary MPH Seminars --PH 292(12) and PH 292(7) in the Spring.

13. **The Interdisciplinary Seminars—PH 292 in Fall and PH 292 -- in the Spring are variable unit courses. How many units should I enroll in for each of these courses?**
    4 units for each course, taken for a letter grade. This is the equivalent to 180 hours of work per semester.

14. **Can I take undergraduate courses and can they count towards my 42 units? How many undergraduate units can I take?**
    Yes, you may take undergraduate courses and they will count towards the MPH, but they must be upper division courses numbered 100 or above. You may take a maximum of 12 units in 100-level courses.

15. **How many elective units can I take outside the UCB School of Public Health?**
    There is no limit on the number of elective units that may be taken outside SPH across other UCB departments.

16. **Can I complete one of the public health specialty areas along with the interdisciplinary MPH?**
    Yes. You may use elective units in the Interdisciplinary curriculum to complete specialty area requirements such as for the Global Health Specialty Area.

17. **May I take courses Pass/Fail or Satisfactory/Unsatisfactory?**
    All required courses must be taken for a letter grade. You may take electives as S/U, but no more than a third of your total units taken can be taken S/U (excluding independent study courses numbered 299).

18. **What are the guidelines for taking independent study (299) units?**

- The maximum number of PH 299 course units you may take towards the degree is ten.
- PH 299's can be taken either S/U or for a letter grade. The choice depends on what you arrange with the instructor.
- Although no more than one third of total units can be taken S/U, this one third does NOT include PH 299 units.

19. **As a UCB student, do I get access to STATA for data analysis?**
    You have free access to STATA on the computers in the Epi/Biostat computer lab. You can also buy your own copy of STATA at a discount. Please see: http://www.stata.com/order/new/edu/gradplans/campus-gradplan/

20. **As a UCSF resident, can I receive the two-thirds tuition and fee reduction available to UC staff?**
    Unfortunately you cannot. To receive this discount, you may take no more than nine units of coursework per semester. The Interdisciplinary Program requires that you take more than nine units per semester.

21. **When will I be presented with a financial aid package for this program? Are there financial support options that I should consider looking into?**
    While the School of Public Health has a variety of merit and need-based scholarships/fellowships, there is no guarantee that a newly admitted graduate will be a recipient of an award. As of right now, SPH scholarship/funding award letters have been sent out, but that does not necessarily mean all opportunities have been exhausted!
    In addition to fellowships/scholarships offered through SPH, it is common for students to look into external scholarships and/or federal loans. With regards to financial aid packages, which consist of loan allocations, as well as any grants one may be eligible for, UC Berkeley's Financial Aid & Scholarships Office will notify newly admitted graduates of these opportunities around late April/early May, but only if the Statement of Intent to Register is submitted. In the meantime, I would highly encourage you to look at the different ways to fund your education.

    Another thing to note is that there will be more opportunities, such as GSI/GSR-ships and other internal scholarships, which you can apply for through our SPH jobsite. Enclosed please find a "Tips for Finding GSI_GSR".

    Also, as a member of the Association for Schools and Programs of Public Health (ASPPH), our graduate students have access to funding resources such as "Tips and Tricks to Obtaining Scholarships" and external sources that are based on specific qualifying criteria (e.g., race, gender, state of residency, etc.):
    Tips and Tricks to Obtaining Scholarships (http://www.aspph.org/study/financing-your-degree/)
    How to Finance Your Public Health Degree (https://www.youtube.com/watch?v=eMRiom7Elmg webinar hosted by ASPPH).

22. **Can I teach and facilitate a De-Cal course to undergraduates and receive unit credit for it?**
    Yes. You can receive unit credit via undergraduate independent study 199 units. For information please see http://www.decal.org/

23. **If I need to book a room to use for a student meeting, project interview, etc., how can I do so?**
    You may ask Judy Smithson – email her at ipmph@berkeley.edu, and please give her at least several days' notice to find the room.

24. **Are students required to wear traditional regalia to the Commencement ceremony?**
    Yes. The program has several gowns available that students can borrow.

Standards of Ethical Conduct

Adopted by The Regents of the University of California, May, 2005
The University's *Statement of Ethical Values and Standards of Ethical Conduct* commits everyone in the UC community to the highest ethical standards in furtherance of the University's mission of teaching, research, and public service. It identifies the University's core ethical values as integrity, excellence, accountability, and respect.

In summary, we are committed to the following:

1. **Fair Dealing**. We will always conduct ourselves ethically, honestly, and with integrity.
2. **Individual Responsibility and Accountability**. We will accept responsibility appropriate to our positions and delegated authorities.
3. **Respect for Others**. We will treat everyone we contact with respect and dignity.
4. **Compliance with Applicable Laws and Regulations**. We will learn and abide by federal, state, and local laws that affect our campus roles.
5. **Compliance with Applicable University Policies, Procedures and Other Forms of Guidance**. We will learn and abide by University and campus policies and procedures that affect our campus roles.
6. **Conflicts of Interest or Commitment**. We will avoid both actual conflicts of interest and the appearance of such conflicts, and devote our primary professional allegiance to the University and its mission of teaching, research, and public service.
7. **Ethical Conduct of Research**. We will conduct our research with integrity and intellectual honesty, and show the greatest care for human or animal subjects.
8. **Records: Confidentiality/Privacy and Access**. We will follow applicable laws and University policies when accessing, using, protecting, or disclosing records.
9. **Internal Controls**. We will ensure that internal controls are established, properly documented, and maintained for activities within our jurisdictions.
10. **Use of University Resources**. We will ensure that campus resources are used only on behalf of the University.
11. **Financial Reporting**. We will ensure that accounting and financial records are accurate, clear, and complete.

Reporting Violations and Protection from Retaliation. We will report all known or suspected improper governmental activities under the provisions of the University's Whistleblower policy, recognizing that everyone is protected from retaliation for making such reports under the Whistleblower Retaliation Policy.

SOME EXTRA RESOURCES FOR INTERDISCIPLINARY STUDENTS

MINI GRANTS FOR STUDENT PROJECTS FROM THE SCHOOL OF PUBLIC HEALTH CENTER FOR HEALTH LEADERSHIP

The Center for Health Leadership Association's mission is to enhance professional skills and provide leadership opportunities for students of public health through active participation and relationship building. One way the Center for Health Leadership Association (CHLA) does this is through the Leaders In Service Grants. The Leaders In Service Grants is a unique way to provide funding for student initiated community service activities.

The Center for Health Leadership Association is offering up to $1,000 to support YOUR project. The goal of the CHLA is to energize and reward exceptional students from the School of Public Health who want to make a difference in the community.

Grants are meant to be an opportunity to enhance and develop leadership skills. The formal grant request and reporting process not only helps students conduct their own service project, but it also provides them with the opportunity to participate in a real-life grant application process.

Please see: **http://chl.berkeley.edu/programs/chl-association/committees/mini-grants-sb**

DLAB – STATISTICS HELP

IF there are specific questions or topic area that students think are aligned with one of our consultants, they can schedule appointments at http://dlab.berkeley.edu/consulting. They are also welcome to direct general questions to the consultant list - we we may or may not be able to answer.

You can also contact the Statistics Department's consulting service (http://statistics.berkeley.edu/consulting), the DataLab in Doe Library (http://www.lib.berkeley.edu/wikis/datalab/), or the Geospatial Innovation Facility (http://gif.berkeley.edu/)/

HOW TO ENROLL IN COURSES IN OTHER UCB SCHOOLS AND DEPARTMENTS

Please visit the websites of other schools and departments for information about how to take courses in those departments. Enrollment in courses in many departments and schools is restricted to students in those schools.

Boalt School of Law, the Goldman School of Public Policy, and the Haas School of Business have specific procedures allowing students from outside those schools to enroll in courses. Those procedures follow below and on the next several pages.

BOALT SCHOOL OF LAW
Note: Classes in the Law School start 2 weeks early.

- You cannot just enroll via CalCentral - you need to use a separate procedure to apply to enroll in a law school course.
- Complete this form.
- If you have any other questions, please call Boalt Law School Student Services - 510 643-2744.

GOLDMAN SCHOOL OF PUBLIC POLICY

- Elective courses are open to all students and you can get onto the waitlist by enrolling via CalCentral. Core courses are restricted and not open to students outside Goldman unless allowed by the professor teaching the course.
- Look in http://catalog.berkeley.edu for electives open to all. Also, the UCB online schedule http://schedule.berkeley.edu will tell you if the course is restricted.
- Students are advised to talk with the instructor on the first day of class to request to be added to course.

HAAS BUSINESS SCHOOL
Enrollment Process For Non-Haas Students Wishing To Take MBA Electives

For one course you can register following the normal process for your other classes via CalCentral:

MBA209F – Fundamentals of Business: An Introduction to Business for Graduate Students
Tuesdays 6:10 – 9PM, 3 units

Fundamentals of Business is a course specifically designed for graduate students in schools other than Haas (and will serve as an elective course for their degree programs). The purpose of the course is to introduce non-business students to the vocabulary of business and to understand how business people analyze problems and determine strategy. It's not quite a "survey" course. Rather, we cover a selection of topics in some depth as is appropriate for graduate students.

Many UC Berkeley graduate students will go on to work in business and even those who continue their research careers will spend much of their professional lives interacting with business people.

The course is taught in 3 five-week modules:

1. Marketing and Strategy
2. Accounting and Finance
3. Organizational Behavior and Management

The class meets once a week, from 6:10 to 9:00 p.m. on Tuesday evenings in Fall 2020 at the Haas School; the first class meeting is Tuesday, August 26 and the last class is on Tuesday, December 11. There is no final exam; the course is examined by three take-home exams. Each module also has a required short term paper.

Unlike most other MBA courses, students should enroll in MBA 209F directly, via CalCentral using the class number. Contact FTMBA Academics Team for the course control number (ftacademics@haas.berkeley.edu.ink@berkeley.edu).

For all other courses at Haas Business School:

If you are a graduate student in another UC Berkeley department you may take elective courses in the Full-time MBA Program, provided:

- You are registered for the current semester, which means that you must be enrolled in at least one course and have paid your fees.
- There is space in the class at the end of the second week of the semester.
- You meet the prerequisites, if any, for the class.
- You submit your request(s) by the applicable deadline.
- Your home department or school does not offer an equivalent course.

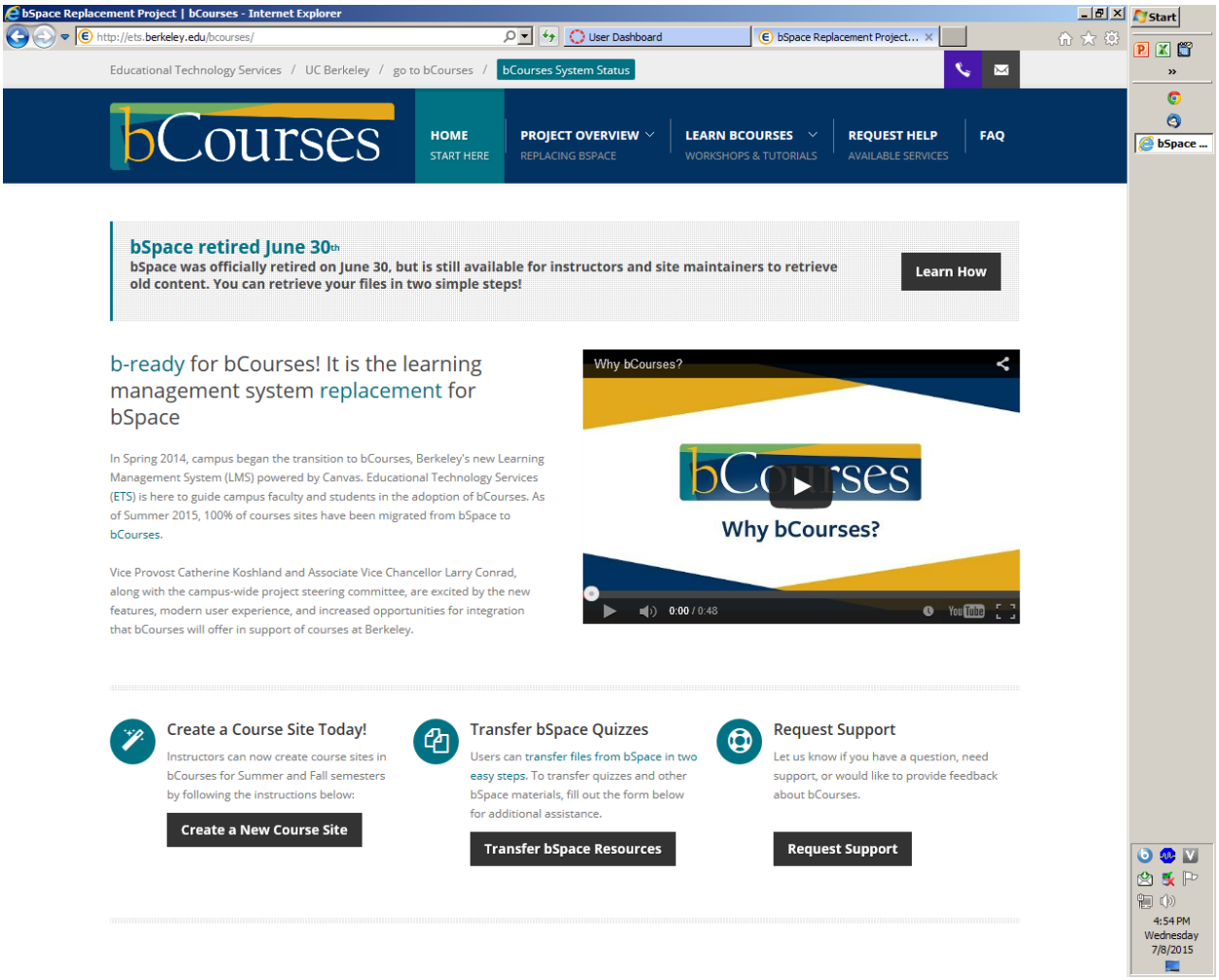
The MBA Program does not use CalCentral to manage its course enrollments, with the exception of MBA209F – Fundamentals of Business. For all other MBA courses, we will add requested courses to your schedule if we are able to accommodate you. To request all other Haas MBA classes, you will instead use our Online Registrar system, which will open on July 5:

- Go to http://mbarequest.haas.berkeley.edu and log in to submit your request.
  - Requests are not treated as first-come, first-served, so you just need to submit by the deadline
  - The deadline to submit requests for Fall 2020 courses is 12 noon on Friday, September 4.
  - You may request up to 3 MBA courses, order them according to your preference, and indicate the maximum number of courses you wish to be enrolled in.
  - Once you enter your requests, you can edit them up until the end of the request period.

For a list of courses and instructions on how to enroll, please contact FTMBA Academics Team (ftacademics@haas.berkeley.edu.ink@berkeley.edu).

bCOURSES

bCOURSES at http://ets.berkeley.edu/bcourses/ is the course management system for all UC Berkeley courses, where course syllabi, readings, assignments and grades are posted. Each course has its own bCOURSES site. Please go to bcourses.berkeley.edu and click through the information and demonstration.



RECOMMENDED ELECTIVE COURSES

The following electives received a rating of 1 or 2 (out of 5 on a Likert Scale with 1=great and 5=would not take again) from Interdisciplinary students who took the course. Here are students' comments.

Electives Recommended by Class of 2020

FALL

PBHLTH 206: PH Nutrition Core Course General overview of various public health issues. Very light readings every week. Just a final paper and presentation. Excellent guest speakers. Very interesting topics.

PBHLTH 210: Foundations of Maternal and Child Health Policy, Practice and Science Great overview of MCH, US policy, skill building. Well thought out assignments, readings, topics. Can be used for capstone project development.

PBHLTH 212A: International Maternal and Child Health Leisurely paced class. Best for students who want to learn international concerns with regards to maternal adolescent and child health.

PBHLTH 213A: Family Planning, Population Change, and Health For those interested in global health or reproductive studies. Small, interactive class with a professor who is an expert, knows everything and everyone!

PBHLTH 216A: Biological Embedding of Social Factors Best for students who are looking for the interface between social science and biomedicine, for students who need a lighter course to balance their course load. Teacher is a lovely human who gives time for in class discussion and does not shy away from talking through difficult topics (e.g., white supremacy, colonialism). Course attracts an interesting mix of students from SPH programs and programs from other schools.

PBHLTH 220D: Health Policy Advocacy Learn policy history, how law and public health work together. Experienced professors.

PBHLTH 224E: Health Care Quality Quality improvement work with an actual real-life application project. Good professor who will teach great theories and skills for future quality improvement projects as a doctor.

PBHLTH 257: Outbreak Investigation Very light workload. Art Reingold is an expert in the field and challenges you to think critically.

PBHLTH 266C: Hospital Associated Infections Learn the tasks of an infection preventionist. You'll learn form others, and John Swartzberg has great experience to share.

PBHLTH 290: Health Issues Seminar - Critical Theory and Social Science Methods Learn critical theory analysis. Heavy workload, but readings are full of important historical and critical theories. You will also interact with laws students who have cool perspectives, it's great to talk to them.

PUBPOL 271: The Political Economy of Inequality Best for students who want to learn politics. The discussion is super useful and you see students from other disciplines.

SOCWEL 210C: Aging Processes Learn about aging and social factors that influence it. Professor Scharlach is amazing, and there is great space for open discussion.

UGBA 152: Negotiation and Conflict Resolution Best for students who want to learn how to approach potentially contentious discussion of dividing limited resources in a way that leads both parties on good terms. You will practice negotiations of fictional and semi-fictional scenarios every week. Good for people comfortable with participation, must prep before class.

MBA 209F: Fundamentals of Business Good for anyone who wants to learn how to better understand how organizations do accounting as well as how to market. Excellent lectures, and

although it is 3 hours, it is definitely worth it. It's a good investment of your time and all the content is high yield/applicable.

PBHLTH 226A: Health Economics A Light workload. Better understanding of how health compensation works. Learn about different payment methods, gain idea of how to improve costs.

PBHLTH 269E: Current Topics in Environmental Medicine Minimal workload. Different expert speakers every week, wonderful course directors. Great for OEM and environmental medicine.

SPRING

EWMBA/MBA296.11 Unlocking Digital Health Innovation You get to partner with a real-life client (this year was Eko Health) and do a business proposal for something related to digital health. You work in an interdisciplinary team which is really great to learn other's perspectives and collaborate.

PBHLTH 201E Public Health Interventions: Theory, Practice, and Research Encouraging, energetic faculty. Small class size. Active small group work in every class. Opportunity to interact with students from a wide range of programs. A relatively light workload.

PBHLTH 210B Adolescent Health Mid-level of reading per week. Deliverables for semester include presenting one current events article during the semester, and then one major semester-long project. This project is scaffolded very well, and students submit small pieces of this and receive helpful feedback from the instructor throughout the semester. The instructor creates a very open and collaborative classroom environment.

PBHLTH 212A International Maternal & Child Health Light workload. Best for students who want to learn about the global perspective of Maternal, Child, Adolescent Issues & Solutions. Engaging discussion.

PBHLTH 219C Community-Based Participatory Research Readings are assigned each week and are the basis of discussion. In general, the workload is pretty appropriate for a 3 unit course. Best for those who have a strong interest in or a background in participatory research. The professor really bases much of the class discussion around what is of interest to students.

PBHLTH 219E Introduction to Qualitative Methods in Public Health Research Moderate but evenly distributed workload. Best for students who want to learn qualitative methods—very comprehensive and detailed.

PBHLTH 255A Social Epidemiology An introduction to social epidemiology. You don't have to know much about epidemiology beyond the breadth course. The focus of this course is on learning and applying theories of social epi, NOT in learning and applying methods. Really interesting topics presented each week. Highly engaged class discussion. Highly recommend this course for anyone interested in exploring social determinants of health!

PBHLTH 258 Cancer Epidemiology Mixed workload. Great faculty.

PBHLTH 269C Occupational Biomechanics Best for anyone who wants to learn more about MSK disorders at work or even less thought-of things such as chair choice, lighting, desk height etc. Wide range of topic choices and interesting lectures.

PBHLTH 288C Preventative Medicine Seminar Great for physicians especially medical students, IMGs like myself and occupational medicine people.

Electives Recommended by Class of 2019

FALL

PH 290 – Structural Competency Interesting content not offered elsewhere in public health, diverse reading articles. Understand how macro structure impact individual situations. Would highly recommend for medical providers and those interested in social settings.

PH 210 Foundations of Maternal and Child Health The Professor is amazing and really made the class exciting and engaging. The workload was very manageable. A few reading each week. Class was leisurely paced and informative.

PH 213A Family Planning, Population Change and Health Any student interested in family planning should take this. If interested in an MCH/FP topic for your capstone project, you can work on that for this class.

PH207A Public Health Aspects of Maternal and Child Nutrition Readings are heavy but worthwhile. Great learning experience with great mentors. Instructor is very energetic.

PH 204A Mass Communications in Public Health Lori is wonderful, loved this class. Relatively heavy workload.

PH206C Nutrition Epidemiology Leisurely paces, speeds up around last few weeks. Got to work with real NHANES data. Applied basic nutrition science, Epi, STATA and research methodology. Professor Madsen is amazing.

PH206 Critical Issues in Public Health Nutrition Leisurely paces, busier around time of student presentation. Critical issues in public health nutrition in US and globally.

PH250B Epidemiologic Methods Jack Colford is an amazing asset to research design and understand epidemiology. Good for those willing to take a deep dive in epidemiology methods.

MBA 292 B Nonprofit Boards Real life expertise from non-profit executives on execution, planning and governance.

INFO 290 Research Design and Data Analysis See data, research and decision making from an information systems perspective. Great Professor Nick Merrill.

SPRING

PH 269C - Occupational Biomechanics (Ergonomics) To learn about ergonomic assessment of jobs learn to use tools to assess risk of MSK diseases. Site visit/job analysis with a partner. Often

have foreign researchers, who have a different perspective which can expand your own. The final was really hard and was surrounded by a number of other projects from my other courses.

PH 288CD Preventive Medicine Seminar -Broad topics that are relevant for physicians that don't get covered in other SPH classes. Duration around 4 hours (2 papers and 1 short assignment). Two great instructors who want you to succeed as physicians.

PH 298 (UCSF M180) Occupational Toxicology 8 (half semester condensed course) 2 papers/1 presentation. To improve knowledge about workplace toxins/heavy metals. A large number of visiting lectures who may have been one of the first people to submit a case report/series on a particular compound. Fantastic course.

PH 270C Practical Toxicology Get into toxicology or present a poster with assistance. Develop a poster as a group and present it at the NorCal Society of Toxicology meeting as the main portion of your grade. Half the time there is free food. The poster took a long time, but it was worth it.

PH 200F Environmental Health Online I liked the topic/lectures and the variety of assignments. Doing a group project with people in a number of different countries/time zones that have different availability than you. Way too much work for a 2-unit course. Take the in person class unless you have a light spring semester

PH 142W Intro to Biostats (Online) Great lectures. Well thought out. Much better teaching on use of R than Fall in person class. Problem sets were not all R and multiple examples were in the reader. Study at their own pace and don't mind doing Zoom/skype office hours. Second half of course had lectures and problem sets not being posted until over halfway through the week. Too late in the program for biostats to be useful in Capstone.

UGBA 192T Edible Education 101 About the food system and how to take action and improve our food system. Great, well known guest lecturers like Alice Waters. Class challenges you to apply what you learn and take action in your daily life.

PH 290 Public Health in Practice: Communicable Diseases Get a sense of what the California department of health does and wants to work for the public health department or is interested in real life application of outbreaks. Many great speakers who all work for the California department of health (the class is held in Richmond at the California department of health). Great way to hear how people who work for the CDPH got to where they are and also connect with them if interested. Also got to stay up to date on the latest outbreaks, like measles, and how the CDPH handles outbreak cases.

PH 281 Public Health and Spirituality How spirituality relates to the public health field. This class is ultimately based on how well group discussions go since there is no lecture and everything is group discussions. Light – 1 final paper, 1 weekly 1 page reflection.

PH 260F Infectious Disease Research in Developing Countries Weekly guest speakers who spoke about their research in developing countries, able to connect with researchers whose work you find interesting.

MBA 252 Negotiations and Conflict Resolution Very engaging/fascinating/fun. One of the best classes I took at Berkeley. To gain exposure to this extremely important skill.

Electives Recommended by Class of 2018

FALL

PH 203A – Theories of Health and Social Behavior A lot of reading but the readings were helpful and enjoyable, Seth Holmes is an incredible professor and the readings really changed how I think about medicine and public health.

PH 250B - Epidemiology II Instructor is very clear and organized and the content and pace are good. Grades are heavily determined by three exams which doesn't account for the investment in homework and readings.

PH 210B - Adolescent Health Students can do a real project. Multi-disciplinary view of the target population. Great presenters.

PH 216A - Biological Embedding of Social Factors Great discussions on the science behind social determinants of health. Very light workload and flexible deadlines.

PH 211 - Health and Human Rights Taught by the Human Rights Center on campus. Great expertise and brought in amazing guest speakers. Explored how to move health and law together in really interesting ways.

PH C233 - Healthy Cities Get to collaborate with students in city planning and do a community project.

PH 291A - Preparation for Public Health Practice Exposure to careers in public health, meet local public health professionals, and network.

MBA 209F - Fundamentals of Business Different approach to thinking compared to public health, broad exposure to management, leadership, and finance.

PH 224E - Health Care Quality This goes over the hard science of social determinants of health. The professor is hilarious and extremely knowledgeable, and we had good discussions. You gain on-the-job experience and practice. Great for health professionals.

PH 218B - Evaluation of Health and Social Programs Reading is a little heavy but the instructor does a very thorough job of how to conduct good program evaluations with real community partners. Expect a big workload with your evaluation plan for a community partner.

PH 269E - Current Topics in Environmental Medicine There's a student presentation at the end.

PH 257 - Outbreak Investigation Some of the readings are old but Professor Reingold is smart and entertaining. Light work load.

PH 220D - Health Policy Advocacy Professors really challenged you to think on your feet and think more critically. On the spot discussion of advocacy skills and current events. It can be intimidating at times but was a great experience overall. The projects at the end is long and time consuming.

PH 226A - Health Economics Decent amount of overlap with HPM breadths but definitely added information. In-depth health insurance discussion.

PH 129 - The Aging Human Brain Light reading and interesting material.

SPRING

PH 200A - Current Issues in Public Health Ethics: Research and Practice This is a very challenging but stimulating course and so critical for anyone in public health. Highly recommend the professor Jodi Halpern and the class size of about 18 students.

PH 201E - Public Health Interventions: Theory, Practice, and Research This was a great course, almost like a think tank, which included lots of discussion and student driven presentations. Definitely would recommend for any public health student, though especially for those in the Interdisciplinary program like clinicians or those who work in medical settings and want to learn more about creative approaches to the hardest public health problems.

PH W209 - Comparative Health Systems This is a must take online class for people interested in global health and health policy. It's hard to balance the course load if it's offered on the second half of a regular semester.

PH 255A - Social Epidemiology This course covers equity issues through a social determinants of health lens.

PH W226C - Economics of Population Health This is an online course and covers the policy side of social equity issues.

PubPol 103 - Wealth and Poverty One becomes a better person out of taking Robert Reich's class. It is very difficult to get into this course though.

PH 271C - Drinking Water and Health This course is excellent for those who are interested in water-related projects and how they impact public health. Heavy on reading and expectations but Prof. Smith makes it fun with her innovative jigs - Jeopardy, Movie, interesting case studies (Flint Michigan, Salinas Valley and more), visit to Orinda water treatment plant, stakeholder discussion forum, term paper, and quizzes - all rolled into one.

Electives Recommended by Class of 2017

FALL

PH 203A – Theories of Health and Social Behavior. Best for students who want to learn how to apply health theory to interventions and think about the social determinants of health. Learn

how to bring a social justice perspective to public health work. A lot of readings per week but totally worth it. Seth Holmes is a great facilitator and wonderful resource. Definitely take this course if you can!

PH 204A – Mass Communications in Public Health. Learn really practical and applicable skills in using media to advance policy and in analyzing how media frames topics. Best for students who want to learn how to make upstream public health changes, how to start a social movement, and how to advocate for policy change. Lots of work, but would still highly recommend. The professor is amazing – she will try to scare you away from the class but just come back the week after and you will get in. She is knowledgeable, dynamic, engaging, and tough but fair.

PH 220D – Health Policy Advocacy. Best for students who want to learn really practical and applicable skills in policy and advocacy. Harry Snyder and Tony Iton are amazing! They shift the discussion according to the needs of the students. Great mentorship from professors. Engage in conversation rather than lecture. They expect you to know the readings very well. Work load goes up and down but is manageable. The policy plan is a lot of work but definitely worth it.

PH 223F – Effective Public Health Negotiations. Manageable workload but lots of outside prep. Learn practical negotiation skills in healthcare settings. Almost all practice scenarios. Learn how to better your own negotiation style. Best for students who want to learn self-confidence and power of persuasion. I now feel much more confident about asking for what I want and negotiating (including negotiating salaries!)

PH C253 – Foundations of Public Health. Light work load. Best for students who want to learn about the global burden of infectious and non-communicable diseases around the world. Work load is not too bad. Wonderful lectures. Great course overall.

PH 290(9) – Structural Competency. Gain knowledge in how different structures affect health and health care. Seth Holmes Is inspiring! Lots of amazing discussions. Very laid back and flexible course. Sometimes readings are very heavy on theory.

Soc Wel 255 - Community Organizing. Reasonable work load. Best for students who want to learn community engagement and organizing. Great students and speakers.

PP 260 – Public Leadership and Management. Weekly assignments, and tough for people that struggle with introspection. Best for students who are interested in the psychology of leadership and want to devote time to personal development. Dan Mulhern is incredibly invested in his students. The course gives you the structure and accountability to work on yourself and your vision/leadership goals with as much help from Dan as you need. You have to be personally interested in self-development and have the personality to learn from different perspectives. Some students struggled with this.

MBA 292N – Social Impact Metrics. Good practical skills for working with non-profits. Practice consulting. Case studies are very relevant and practical. Engaging professors and guest lecturers. Awesome experience working as consultant. Heavy for a 2-unit course.

SPRING

PH 201E – Public Health Interventions: Theory, Practice, and Research. Best for students who want to learn design thinking for public health interventions, intervention oriented thinking, and network. Awesome professor, chill work load, but learned a lot. Your classmates really make the class- everyone has "learner" mindset. Leisurely class - workload is just a group presentation.

PH 204G - Research Advances in Health Disparities: Multidisciplinary Perspectives. Best for students who want to gain a broad understanding of health disparities. Fantastic discussion and guest lectures.

PH 214 - Eat. Think. Design. Tough class. Best for students who want to learn design thinking and work on multidisciplinary projects. Fun community but course is not very structured.

PH 241 – Statistical Analysis of Categorical Data. Lots of work- weekly homework forces you to stay on top of the work. Lectures are recorded which is very helpful. Best for students who want stat skills and how to use STATA. You get the stat skills you need for your MPH project.

PH 281 – Public Health and Spirituality. Light workload and short weekly readings. Best for students who want to learn about how religion and spirituality intersect with public health. Wonderful professor, great climate of the course, and great discussion.

PH 290 – Impact Evaluation. Moderate to heavy work load and weekly homework. Best for students who want to learn impact evaluation, causal inference, STATA, and research methodology. Learn practical skills. Dr. Gertler is fantastic and very accessible. Everything about the course was amazing. Consider taking it S/U.

Devp 237 – Leadership, Conflict Resolution, and Community Development. A lot of readings. Super cool guest lectures.

Electives Recommended by Class of 2016

PH 253G - Sexual Health Promotion and Sexually Transmitted Diseases. Great, highly recommend. Great guest speakers talking about transgender health, trauma-informed care, HPV, HIV, prevention, etc. Great overview of sexual health issues with a social justice perspective. Really low workload, just weekly readings, a final presentation and an annotated bibliography. No Paper! Taught by the head of the STD control branch at CDPH, who is awesome.

Social Welfare 274 - Immigrants and Refugees in the U.S. Good if you want broad overview of the policies and social welfare issues affecting immigrants and refugees in the US. Good readings, covers wide range of issues including children, domestic violence, health care, etc. Enthusiastic, supportive professor. The 2nd half of the class is all student presentation which got kind of repetitive.

PH 205 – Program Planning, Development and Evaluation. Good overview of how to plan a program in public health. Enthusiastic, supportive professor. Get to work on a real-world project with a community organization.

PH281 – Health and Spirituality. A lot of reading, but can skim it. Weekly write-ups, but very easy. How religion and health interacts as shown in current literature. Doug Oman is great and very accommodating. The class is only 8 weeks, which gives time for MPH project.

CY PLAN 230 – US Housing, planning and policy. There was about 4 hours of reading per week, but not necessary. People who want to learn about housing, housing policy, housing advocacy, housing discrimination, etc. Carole Galante is the instructor; she is amazing and she invites amazing people both in HUD and other local and national housing organizations.

PH 266B – Zoonotic Diseases. About emerging infectious diseases, one health approach. Dr. Dailey's enthusiasm, amazing guest speakers, 'flipped' classroom – more interactive and engaging.

PH 291C – Participatory Research. Lots of reading and two papers. Moderate workload. CBPR qualitative research is awesome. Readings were good. Too much small group work.

PH 219E- Intro to Qualitative Methods. Paper builds throughout semester. Lots of reading. Really practical if you want to do Qualitative research.

PH 201E Public Health Interventions. Light and fun. Design thinking. Linda and Len rock! Fun, laid back, inspiring, opportunity to get creative. Professor extremely willing to meet outside class to discuss project and other life questions, which was helpful and inspiring.

PH200A – Current Issues in Public Health Ethics. Hard reading in the beginning, but lighter load later to focus on final paper. Small class with lots of open discussion.
PH243C - Information Systems in Public Health. Easy optional reading. Overview of current info tech systems in healthcare. Easy course load stimulating guest speakers at cutting edge of informational technology.

PH216A – The Biological Embedding of Social Factor. Best for students who want to learn about the biological underpinnings of ow discrimination/poverty etc. affects health. Very light work load. Inspiring professor.

SW 210C - Aging Processes. Optional reading. In-class discussion most important. Professor was a very kind, enthusiastic, knowledgeable, and overall excellent professor. Variety of topics related to aging. Kind of slow paced class sessions, but gave me room to think.

Electives Recommended by Class of 2015

PH 181- Population and Poverty. Not a big workload. Good overview of all the issues facing our world today! Amazing, world-renowned and passionate professor (Dr. Potts).

PH 203C – Theories of Health and Social Behavior. How to think about health, policy, funding, the body and PH methodology more critically. Excellent professor (Seth Holmes, MD, PhD) with amazing class discussions. You get introduced to a whole new way of thinking so that we don't keep repeating the same mistakes or making vast assumptions. Lots of reading –60 pages per week.

PH 204 – Mass Communication and Public Health. Significant workload – 405 hours per week of reading, large semester-long project, and other assignments. Helps us understand how to use media to advance PH. Learning a real skill set – practical and you actually practice skills you're learning. More work than my other classes – probably should be 4 units rather than 3. I learned more in this class than any other class. I heard from alumni and this was very valuable and useful. Lori Dorfman is an amazing instructor who inspires her students to take action. Writing an op-ed and letter to the editor as an assignment was a highlight. The group project was tough but it still wouldn't deter me from the experience. Time intensive but learned the most SKILLS so far! Good guest lecturers. Lots of reading and assignments.

PH 206 Core Nutrition Topics. Good background for any student. Barbara Laraia is super nice and laid back. Topics are interesting, self-directed topics are great. Paper and presentation.

206C - Nutrition Epidemiology. Epi study design, critical thinking, STATA. Kris Madsen is an amazing teacher. Nutrition students are nice!

PH 213 Family Planning. Great class with good discussion of global issues but very high workload.

PH 220D – Health Policy Advocacy. Manageable short readings each week and one final paper -- ~2 hours/week. How to take a PH issue and come up with an advocacy plan to address it. Great guest speakers and group discussion with manageable workload. If you don't like group discussion and speaking up in class, this course probably isn't for you unless you're trying to develop these skills. A great class for thinking about leadership and how to be a force for positive change in your community. Pretty leisurely. Learn about policy advocacy, coalition building, capacity building. Discussions were thoughtful, guest lectures were incredible, and students brought snacks! Not a lot of direction about final project until the end.

PH 224 – Healthcare Management. Take any class with Professor Hector Rodriguez!

PH 226D Global Health Economics. Great speakers. Learn how healthcare systems work.

PH 224D – Health Organizations and Management. Course is largely reading based with couple of short papers and a group presentation. Learn about organizational management and how it applies to health care. Instructor is very friendly and enthusiastic and engages the class very well. Is heavily theory based but with concrete examples.

PH 235 – Impact Evaluation. Weekly STATA assignments and major course project. Learn methods for evaluating impact of program or intervention. Instructors do great job of explaining material with real examples. This was the first year with STATA, which was not so good. But will likely improve. A fair amount of reading and almost weekly problem sets (3-4 hours each) and major final paper. Overall, an above-average workload. Best features: thinking through all the logistical challenges of designing an impact evaluation was really useful,. Also, some speakers talked about the future of impact evaluation, which was interesting. It's a lot of time if you're designing a hypothetical evaluation. You learn to write a grant, design randomized control trials and do an impact evaluation. Taught by Paul Gertler and Jack Colford-- two big shots. Homework is intense. Impact evaluation is a specific program evaluation tool – it's excellent. Learn about impact evaluation – different methods and designing a study. Good class textbook and project. STATA homework not so great. Great knowledge based on real world examples and study design. A lot of STATA -- some took

MANY hours. Pretty time intensive. Great lectures about components of impact evaluation, pretty theoretical. STATA homework took more time than the 1 unit that is allotted.

PH 240 – Community Needs Assessment in Maternal and Child Health. Heavy workload. You will be paired with a community group or member and actually do a CNA or related project. If you don't have an MPH project, you could use this class to partner with an organization and work ono your year-long project. The teacher was a bit distracted and not well prepared with good class activities. Grading criteria very unclear.

PH245 – Multivariate Statistics. Four homework assignments plus a final project--- overall, a light work load. Best for students who want more advanced stats knowledge and computing skills. Class is very useful and practical—you can apply skills to your project. First time this professor taught the course and it was a bit more confusing than it could have been. Great for learning different multivariate tools. Few mandatory homework assignments (4 total) plus one final project. Does not go too into depth. New lecturer-- feels like he's still working on his teaching style, but is open to feedback. Could use more real world examples.

PH 250B –Epidemiological Methods II. Tough, quick-paced, weekly optional homework, many readings. You get more in-depth coverage of study design and general epi. Great lecturer, well organized, you learn a lot. It may be too in-depth for students not that interested in epi.

PH 253 – Global Public Health Core Course. Readings interesting but did not have to do them. Good workload – 2 policy papers and a group project. Built around several issues in Global Health. I enjoyed all the different perspectives and presenters and group discussions. It took a while to get our first assignment back and comments came just before the next assignment, but it was still OK. Lots of good speakers and info.

PH 256 –City Planning and Healthy Cities. A lot of reading – ~100 pages per week and required online responses. Also, big paper at end. Good for students interested in social justice. The readings were really interesting, diverse and important. The students are a smart bunch. But the professor isn't good at stimulating a lively debate.

PH 260A – Introduction to Infectious Diseases. Medium load and required intermediate knowledge of virology and immunology. Best for students who need comprehensive knowledge of infectious diseases. Very organized and comprehensive about infection – it includes etiology, epidemiology, clinical features, treatment, and prevention of almost all infectious diseases. Not so great for MDs – would probably be repeated in medical school.

PH 290(4) – Health Communication in the Digital Era. Leisurely pace; weekly blog posts for the class website. Learn how to effectively use social media, start a blog, use multimedia in the public health sphere. I learned a lot and experimented with Twitter, making videos , and class blog posts. The pace was slow and it could have been a little deeper. Teachers for the course listen to feedback and made changes based on class concerns. You get to be creative! Great teachers (Diego and Lisa). Some projects, e.g., video production, take a lot of time.

PH 290(6) – Healthcare Quality. Workload is 5-8 hours per week, depending on internship commitment. Taught by COO of SF General – gives solid intro to how to improve healthcare processes and deepens policy background greatly. You do internship at SF General or other organization to practice real work skills. Internship is time consuming. Really special class for clinicians or those interested in process improvement, future COOs, people who want to work

at SF General. A lot of reading, two papers, class group project. Learn how to do a QI project using LEAN. You learn a great skill set for doing QI. Group project takes a lot time. Based on a group project that requires 2-3 hours per week. Best for students interested in quality improvement, chronic care, lean management. Instructor is great and passionate about the subject matter. Project can be hit or miss but I think everybody in the class got something out of it.

PH 298 (40) – Advocacy in Action. Hands-on advocacy work with an organization. Getting to work with a community partner and learning about their work. I also liked learning from classmates about their placements. This semester the class was small, more organized in the future. If it isn't, you just need to manage your own work. Unlike many other classes, you can put your work for this class on your resume since it's like an internship or consulting project.

Social Work 250M – Death and Dying. Great course for anyone working in a medical setting and people working with older adults, long term planning and end-of-life care, or intensive care units. Really wonderful instructor, great discussion about end of life and personal experiences.

Social Work 265M – Motivational Interviewing. A new technique for motivating and working with patients to make change. Interactive, great instructor who has taught the course many times. You get a lot of practice with MI!

Electives Recommended by Class of 2016

PH 253G Sexual Health Promotion and Sexually Transmitted Diseases. Great, highly recommend. Great guest speakers talking about transgender health, trauma-informed care, HPV, HIV, prevention, etc. Great overview of sexual health issues with a social justice perspective. Really low workload, just weekly readings, a final presentation and an annotated bibliography. No Paper! Taught by the head of the STD control branch at CDPH, who is awesome.

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Electives Recommended by Class of 2014

FALL

PH 201C - Needs Assessment in Maternal and Child Health : Best for students who want to learn about program planning. Not much weekly course work but there is a semester-long project. Small seminar group, community involvement. You have to do a project – time consuming but rewarding. Course could use a little more structured discussion.

PH 204A - Mass Communication in Public Health. A heavy workload – weekly assignments and readings, and a very large final project. It totally changed my thinking towards public health—very useful course, teaches framing issues around environmental policy changes. Don't let the teacher scare you out of the class! She likes a smaller class size.

PH 206 - Nutrition Core Course. Overview of critical issues in PH nutrition. A couple of hours of leisure reading per week. Great topics, lecturers, passionate student who teach other. Professor Laraia is laid back. Interesting topics, interactive, wonderful teacher. Great class without too much work!

PH 290 (4) – Health Communications in the Digital Era. Global health mobile and web technology. Caricia Catalani is a great professor! But unfortunately class schedule interfered with seminar so had to leave early. Had to write up 5 blogs based on readings and present on one mHealth technology, and propose a new mHealth technology and present to the class in a powerpoint format. Totally doable. Professor was amazing and has great experience in the field. I learned a lot about new mHealth applications, wrote my first blogs, and created an mHealth innovation that ties into my public health interests. It was a very creative and hands on class—refreshing.

PH 290(6) – Healthcare Quality. My favorite class because the professor (Iman Nazeeri-Simmons) is very engaging and topics very useful, especially for those interested in healthcare administration. Tons of work – semester-long project with a hospital/clinic is very useful but very time intensive. Class is so popular – don't let professor scare you away. She is amazing! She tries to weed out class to get smaller seminar. Two hours of reading per week; semester-long project; two other short papers and final paper. Very informative and dynamic professor, well run and organized. Seminar with 20-30 students. It's the first time she taught the course. Group project with community partner had logistical challenges but professor was made aware and will make changes for next year. Course is very competitive to get in to – must go the first day to get admitted.

PH 290(8) – Family, Housing and Health. Light work load, no midterm or final. This course was taught in the problem-based learning pedagogy, and was my first class ever taught this way. It was a small multidisciplinary group (MDs, social workers, PH students, an architect) which enriched the discussions. There were three professors overseeing this course and it was awesome being able to hear from all of them. Class discussions were facilitated and run by students and we went over five different case studies over the semester. Excellent class for social workers or those who will need to know more about policies, resources and interventions related to housing and health, and how to go about finding them.

Business (Haas) 256 – Global Leadership. Professor is awesome, class is engaging. Hard to get in to.

SPRING

PH 200D - Global Nutrition and Food Policy. Instructor is awesome!

PH 201E – Public Health Interventions – Very supportive and knowledgeable faculty. Safe, creative space to grow as a public health practitioner.

PH 205 – Program Planning, Development and Evaluation. Grant writing skills and logic model. You walk away being able to plan a program! A lot of work – should be 4 credits.

PH 212C – Immigration and Health: A U.S.-Mexico Binational Perspective. Covers important topics in Latino migration and health. Overview of many issues affecting immigrants. Great professors, students from a variety of backgrounds.

PH 216A – Biological Embedding of Social Factors. Course is about epigenetics, social determinants of health, racism etc. Open forum to discuss cutting edge topics. Sometimes gets into nitty-gritty of science but course meant for non-science background people.

PH 219E - Qualitative Methods Light to moderate work load. Very good professor, interesting and interactive assignments although readings were often too theoretical.

PH 281 - Public Health and Spirituality. Great readings, laid back professor and class discussions. Class is half a semester only (first half).

PH 243C – Information Systems in Public Health. Learned about health-related technology. Very interesting topic, light workload. Survey course – so not super detailed.

PH 257 - Outbreak Investigation. Professor Reingold is incredible.

PH C271G – Health Implications of Climate Change. Global health, air quality, city planning. Some climate modelling readings were very complex.

PH 290(2) – Designing Innovative Public Health Solutions: **Eat. Think. Design.** Lots of work by the assignments are really fun. Design, prototyping, ethnographical interviewing. Fantastic course and great instructors, interdisciplinary group of students. Creative design thinking. Collaborative learning projects. Fun and useful! Group project working with a community organization. Lots of work but worth it.

PH 290(8) - Public Health Journalism. How to write articles, blogs, etc. Useful skills! Impacted course, but instructor will do small group independent study if you can get a few people together.

PH 291 - Preparation for Public Health Practice. Mini skills sessions. Useful for communications skills – amazing! Especially speech skills session. Team building, how to give good powerpoint presentations, program management and evaluation.

Public Policy 103 – Wealth and Poverty. Robert Reich instructor – incredible class. Take it – you will learn a lot! Overview of wealth disparities in the U.S. Sign up early – class fills up fast. A moderate amount of reading.

Public Policy 290(2) – Negotiations Seminar. Basic negotiation theory based on Harvard's negotiation program. Excellent instructor (Amy Slater).

Electives Recommended by Class of 2013

FALL

PH 245 - Multivariate Statistics. Good class. Lectures are recorded which is super helpful. Maureen is a good teacher and easily accessible for questions.

PH 250B – Epidemiology. Good class. LOTS of reading and outside work. Fast pace.

PH 204A - Mass Communication and Public Health. This class should be required, and the first half of it was really fun... the group projects were hard, but I think everyone learned a great deal, and it was the most down to earth public health class I took.

PH 290 (1) - Impact Evaluation: Great class if you want to learn evaluation. Lots of work, but you will learn a lot. The instructors are awesome! Small class with lots of time for questions. Super interesting material, final project was time intense but a very good learning tool, readings and lectures were great, but readings were long and could be quite dense, probably my most high yield course during the semester.

285A - Injury Prevent and Control. Super interesting material, small discussion oriented class, few easy/low key assignments, final presentation, mid/low time requirement outside of class... depending on if you read the readings or if you skim them... found it very useful as a medical student interested in primary care...

SPRING

PH 200A – Public Health Ethics.. My favorite class this semester. We think about the "why" behind what we do in public health - has spilled over and started informing how I approach my own discipline (landscape architecture) and how to teach my own theory class in the College of Environmental Design.

PH 217C – Aging and Public Health. Interesting seminar covering a very diverse set of topics relating to the elderly. Great for anyone who may have to work with the elderly in the future found it useful as a future MD; there were also a lot of Social Welfare students in the class. Weekly readings to prep for class discussion. Final paper at end of class/semester.

PH 219E - Qualitative Methods. Excellent class. Karuna is a great lecturer with a lot of qualitative & mixed methods research experience. Good balance of lecture & in-class activities. Assignments useful and fun to do.

271G - Climate Change and Health. interesting class, some overlap with 200C2 (Environmental Health Breadth course). Weekly readings and discussion. Poster presentation is final assignment. Covered lots environmental health topics that I was previously unfamiliar with. Some topics were pretty dense, especially since I basically didn't know anything about environmental health.

PH/EH 272A - Geographic Information Science for Public and Environmental Health. Very time-consuming, but I am learning a valuable new skill to use in public health. Clearer lectures than those taught elsewhere on campus. Class size is good and Alberto and Diane (the GSIs) are very supportive, patient and awesome.

PH 281 - Public Health and Spirituality. Really interesting readings, only 1/2 the semester, 2 units, short weekly assignments, option of a take home final or short final paper.

PH 290 - mHealth Experiential Learning: Excellent class and instructors!

PH 290 (2) - Designing Innovative Public Health Solutions. Excellent class! Applies methods from design, business, and engineering to creating solutions for PH problems. Excellent instructors and a fun class. Very challenging, always surprising, this class helps me re-learn how to approach projects and collaborate in a playful way. Very time-intensive, but I am also learning so much about pushing past my comfort zone.

PH 290 (11) - US Food and Drug Administration, Drug Development, Science and Health Policy. Interesting topics, readings and lectures can be quite dense/technical, readings can be quite long. Relevant for people interested in medicine, pharm, infectious disease, law, drug development, & drug regulation. Focus is on HIV/AIDS and Hepatitis C.

291A - Preparation for Public Health Practice. One-unit workshop, covers topics that would be useful for any future professional, not just people going into Public Health. You are only required to attend 11 of the 2 hour sessions. Lots of really dynamic speakers, usually involves class participation in some sort of group or partnered activity. Very little prep required.

UNIVERSITY OF CALIFORNIA BERKELEY SCHOOL OF PUBLIC HEALTH
INTERDISCIPLINARY MPH PROGRAM
PROJECT PARTNERSHIP AGREEMENT 2020-21

This work plan should be developed collaboratively by the community partner and student(s). All items must be agreed upon by both parties. ***Due TBA – please post to bCourses and email to your project advisor***

Project Title

Brief Project Description

Project Objectives (each objective must be SMART: Specific, Measurable, Attainable, Relevant and Time-bound)

Expected Project Deliverables/Products

Sustainability Plans

Dissemination Plans

Communication between Student and Community Partner

Frequency of Progress Updates (check one)	□ Bi-weekly	□ Once per month
	□ Once per quarter	□ Other (specify _____)
Frequency of In-Person Meetings	□ Bi-weekly	□ Once per month
	□ Once per quarter	□ Other (specify _____)

Community Partner Liaison

Name _____ Title _____

Phone _____ Email_____

Signatures

The undersigned agree that the project plan outlined above meets a self-defined need of the Community Partner and engages the student in meaningful, specific efforts to meet that need. Both parties will retain a copy of this agreement, commit to regular communication and problem solving as needed, and will contact UCB Program Faculty promptly should any concerns arise.

Community Partner Liaison_____

Student(s)_____

UCB Interdisciplinary MPH Program Faculty

- Anke Hemmerling
- Karen Sokal-Gutierrez

Literature Review Guidelines for MPH Project
(due TBA)

Purpose:

The literature review will inform you of the body of research relating to the topic of your project. The best literature reviews are those that contextualize the project and its importance to public health, and discuss the shortcomings and successes of existing research to address similar questions/needs. For your reference, you can browse through several sample MPH project reports of recent years in your handbook.

Length and format:

Approximately 8-10 pages, double-spaced

Outline:

Literature reviews should use the following outline:

I. Title

II. Abstract

III. Introduction
Describe the importance of the topic, both broadly and with respect to the specific population(s) served by your project, in a style appropriate for academic settings.

IV. Main themes in the literature
This must reflect synthesis across sources as opposed to straightforward linear summaries
of identified relevant articles.

V. Conclusions/lessons from the literature
i. Summarize the lessons from the literature
ii. Identify what is still lacking in the literature

VI. Reflection on application of literature to, and implications for, planned project

VII. Bibliography
Be sure to include proper referencing of all cited sources. (e.g. AMA style http://medlib.bu.edu/facts/faq2.cfm/content/citationsama.cfm; AJPH; or other styles from peer reviewed journals in the field)

CPHS (IRB) – Ethical Review of your Project

Plan ahead - Many researchers are on set schedules for their research and theses. Plan in advance to allow enough time for the review cycle which can take some time depending on the circumstances. Review cycles, depending on the quality and completeness of the submission, can take up to 8 weeks or longer.

Seek feedback from colleagues - Student researchers should work with their faculty advisors closely for mentoring, drafting, and other assistance with the research protocol. Obtain a copy of an approved protocol from a colleague to see commonly used language.

Complete/comprehensive informed consent process - Researchers should ensure that the consent documents are clear and concise and should be in a language that is understandable to the subject. See the Informed Consent Guidelines, Consent Builder, and templates on our website (http://cphs.berkeley.edu/content/informedconsent.html).

Clearly describe study procedures - Remember that the reviewer needs to be able to put him/herself in the shoes of the subject and they can't do that if there is not enough detail. The protocol should include how long each procedure will take, frequency, and estimated total time commitment for the subject to participate in the study.

Confidentiality - *Privacy* refers to the individuals' right to control access to themselves. On the other hand, *confidentiality* refers to how private information provided by individuals will be protected by the researcher from release. Describing how the confidentiality of research information will be maintained is an important element of the protocol & consent process.

Anonymous data collection - *Anonymous* data collection means that no identifiable information (e.g., name, address, student ID number, email, phone number, etc.) is connected to the data either directly or through a coding system, *at any point in the study*. Therefore, even if the identifiers are separated from the data immediately after collection, the study would not be considered anonymous. In addition to videotapes and photographs, audio recordings are considered to be identifiable; therefore any data collection that involves audio recordings, video recordings, or photographs of subjects would not be considered anonymous. It is also possible that multiple pieces of information, none of which are identifiable on their own, may uniquely identify a person when brought together; in this case, the data would be identifiable and would not be considered anonymous.

Risks/discomforts from study participation- Remember to include both the possible risks *and* discomforts from participation in the study. With all studies that involve the collection of private identifiable information, there is a chance that confidentiality could be compromised. However, researchers should also keep in mind that some procedures, including surveys and lab experiments with deception might cause some type of discomfort (whether physical or emotional). When making a risk assessment, the Committee takes into account both probability and magnitude of harm, so researchers should address both of these factors in the protocol.

Guidance on specific topics - There are guidance documents on specific topics that may be germane to your research - what requires CPHS/OPHS review, deception in research, subject recruitment, data security, international research, etc. (http://cphs.berkeley.edu/guideline.html)

eProtocol Quick Guides:
http://cphs.berkeley.edu/eprotocol guides.html
How to create a protocol:
http://cphs.berkeley.edu/eprotocolguide/investigator/create.pdf
How to check for completeness: http://cphs.berkeley.edu/eprotocolguide/investigator/check.pdf
How to submit a protocol: http://cphs.berkeley.edu/eprotocolguide/investigator/submit.pdf
How to respond to comments: http://cphs.berkeley.edu/eprotocolguide/investigator/comments.pdf

Questions?
Call our office: 510-642-7461. We answer phones during business hours: 8 am - 5 pm, M-F. Drop-in at 2150 Shattuck Ave., Suite 300.

Website: http:/(cphs.berkeley.edu/ (use the search box) Email: ophs@berkeley.edu
**If you have submitted an application, contact your assigned panel manager.*

Commonly Requested Revisions:

- Include maximum total sample size. If unsure, over-estimate.
- Include recruitment details specific to the proposed study.
- Include copies of all data collection materials.
- Include interview questions. At minimum, include topics to be explored during the interview.
- If obtaining consent online, choose the "Unsigned Consent" type. Be sure to complete all text boxes.
- Include a PDF copy of the Student Investigator's CITI completion report. Complete Group 1(bio-medical) or Group 2 (social-behavioral) for Research Investigators and Key Personnel.
- Provide thorough but concise answers. Only include information relevant to the question.
- When responding to comments, be sure make the applicable revisions to the protocol information. Be sure to click on the "submit to IRB" button to submit your responses and revisions.
- Include anticipated benefit to subject and society in the protocol and the consent form. If no benefit to subject, state so.
- Make sure information is consistent between study procedures and the consent form.
- Template Text for Adverse Events and Reporting Section in section 13F (biomedical)/11C (social behavioral) of eProtocol: "An initial report will be made to the OPHS Director within no more than one week (7 calendar days) of the Principal Investigator learning of the incident. The report can be made by fax, mail/delivery, phone, or email. The initial report will be followed by a formal written report, submitted via eProtocol, within no more than two weeks (14 calendar days) of the Principal Investigator learning of the incident."

Some Current Positions Held By Interdisciplinary Alumni

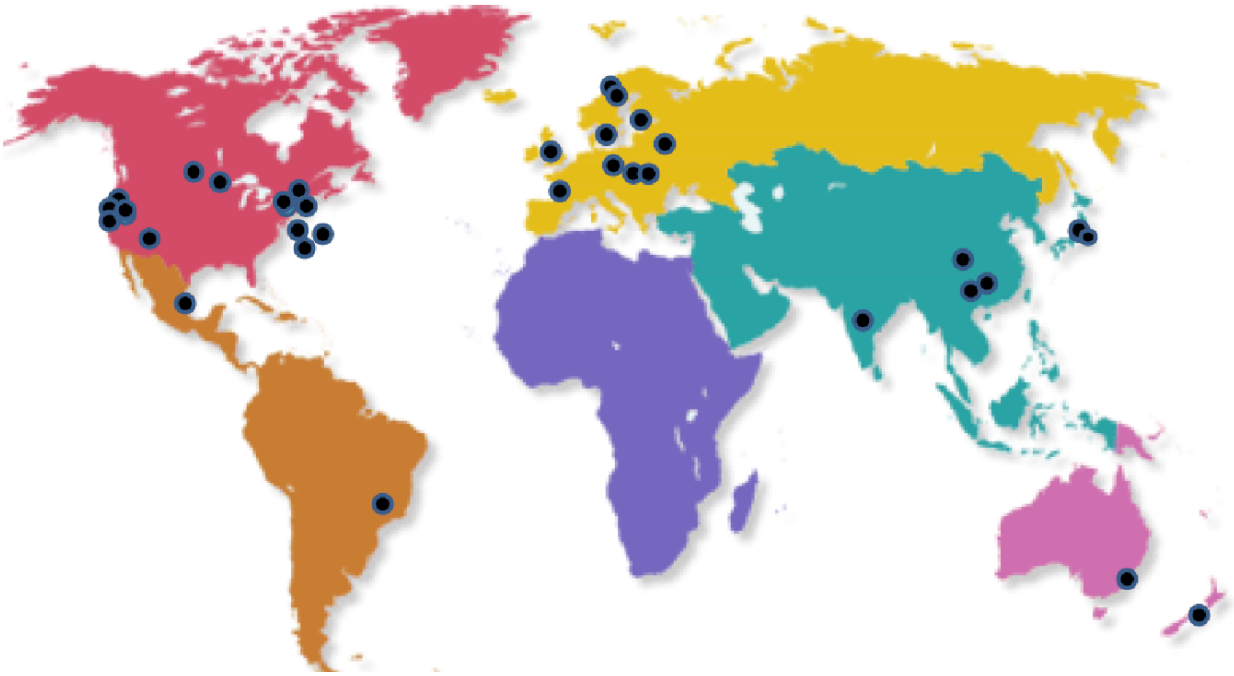
(Source: 2012 Survey of Interdisciplinary Alumni)

- Academic Coordinator, USCF and Lecturer, UC Berkeley
- Assistant Clinical Professor, UC Irvine, Division of Obstetric Oncology
- Assistant Professor of Pediatrics. Seattle Children's Hospital, University of Washington School of Medicine
- Assistant Professor, UCSF -- Hospitalist Physician
- Assistant Professor, Stanford University; Advisor - Ethics Subcommittee of Advisory Board to the Centers for Disease Control and Prevention; Alta Bates Summit Medical Center - Palliative Care Chaplain; and St. Mary's College - Project Advisor
- Assistant Team Leader, Pathways to Housing DC, Assertive Community Treatment
- Associate Professor, Kumamoto University, Japan
- Associate Professor, University of Toronto, Factor-Inwentash Chair in Child Welfare
- Behavioral Psychologist, Golden Gate Regional Center Clinical Psychologist, Department of Social Services/Social Security Administration
- Executive Advisor for Strategic Partnerships, CamFed USA Foundation
- Cardiac Anesthesia Fellow, Stanford University
- Clinical Assistant Professor, Stanford University
- County Governor of South-Trondelag (Fylkesmannen i Sør-Trøndelag, Norway) - Chief County Medical Officer
- Director, Associates in Hospital Medicine / Methodist Division, Thomas Jefferson University Hospitals
- Director, CA Emergency Medical Services Authority / State appointed position
- Director, TEACH Program and Associate Clinical Professor, UCSF
- Fellow in Preventive Medicine and Public Health, University of Rochester Medical Center
- Fellow, Jiangsu Province Population and Development Research Center
- General Pediatrician, Kaiser Permanente
- Internist, Permanente Medical Group
- Laboratory Advisor, University Research Co., LLC,
- Managing Director, Absolute Return for Kids US
- Medical Director, Housing and Urban Health, San Francisco Dept. of Public Health/ Special Advisor to the Executive Director, US Interagency Council on Homelessness
- Medical Social Worker. Pathways Home Health and Hospice
- Nurse Practitioner, Stanford Hospital and Clinics
- Orthopaedic Trauma Fellow, Wellspan Orthopaedic Surgery
- Physician (Nunavut) Professor (University of Calgary) Partner (Habitat Health Impact Consulting)
- Pediatric Medical Director, San Mateo Medical Center; Keller Center for Family Violence Intervention

- Policy Analyst, Instructor and Researcher, University of California School of Public Health Center for Infectious Diseases Emergency Readiness
- Project Director, Global Access to Technology for Development (GATD) /
- Professor (University of Calgary) / Partner (Habitat Health Impact Consulting)
- Professor at PSIA-Sciences Po Paris and College de France, Chair: Knowledge Against Poverty
- Program Director, Division of Cancer Control and Population Sciences, National Cancer Institute, NIH
- Program Director, Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health
- Psychiatrist (solo practice)
- Public Health Medical Officer, California Department of Public Health
- Public Health Physician, State of North Rhine-Westphalia, Health Department, Germany
- Self-employed / Graphic Facilitator & Group Process Consultant
- Resident, Department of Radiology, Stanford University Medical Center
- Self-employed in house calls and geriatric consultation practice; self-employed as geriatric consultant to www.caring.com. Also now blogging to raise awareness of needs of geriatric health providers at www.geritech.org.
  Senior Medical Officer, Danish Health and Medicines Authority
- Student at UC Davis School of Veterinary Medicine
- United States Air Force Commander, 374th Medical Group United States Forces Japan/ Surgeon General, 5th Air Force/Surgeon General (responsible for 11,000 people)

2012 Alumni Survey Results
N=61 – 22% response rate

Some Geographic Locations of Alumni



School of Public Health

Center for Public Health Practice
CAREER SERVICES

Jobs & Internships
Search for full-time or part-time jobs, fellowships, GSI/GSR, project & volunteer opportunities and internships utilizing the SPH jobsite:
sphjobsite.berkeley.edu/students/

Career Counseling
Make an appointment to discuss career decision-making and job search strategies, have your resume and cover letter critiqued, conduct a mock interview or learn about career resources available to SPH students. Career counseling is also available to discuss applying to medical school, negotiating salaries and job offers.

Send a list of your available times to haffke@berkeley.edu. Include your full name, program, expected graduate date, and reason for the appointment.

Career Assessment
Find out about the options available for you to evaluate your personality, interests, skills and values as they relate to your career choices. Make a career counseling appointment for more information.

Workshops and Programs
Topics include career planning, interview preparation, resume writing and job search strategies. Workshops are listed on the SPH jobsite calendar and in Career Services emails sent out on the student listserv.

Special Events
Interact with employers and public health professionals at a variety of special events hosted by CPHP, including Career Café, 291 Professional Development series, annual Career Fair, employer information sessions, guest lectures and conferences.

Ruthann M. Haffke, Career Services Manager
haffke@berkeley.edu
510-642-0431

Have a suggestion for SPH career services? Submit your ideas to haffke@berkeley.edu

INTERDISCIPLINARY MPH PROJECTS – DETAILS

2009-2020

Disclaimer: This fairly complete selection of MPH projects of recent years aims to provide additional details about methodological approaches that can help incoming students to quickly gain an understanding of projects conducted in the past. The provided remarks do not aim to be comprehensive summaries. If a particular report is of interest to you, request the full report in the SPH library, we can send anonymized pdf documents.

Year 2019

Title	Methodology
Bundled Payment in Health Care: The Way of the Future for Quality Improvement in Surgical Patients	• Descriptive analysis of the patient population included in the bundled payment program. Inclusion criteria was patient's eligibility for Medicare as their primary insurer and be enrolled in Medicare Part A & B. • Analyzed datasets from a variety of sources (CMS, electronic medical record of UCSF patients, and the National Surgical Quality Improvement Program (NSQUIP) to investigate if a close correlation between readmission and higher care episode costs exist.
Assessment of the oral health needs of children in Berkeley	• A mixed-method secondary data analysis. • Quantitative Data was collected from the pre-existing programs in the City of Berkeley which include: - Head Start, Berkeley Unified School District- School Dental Sealant Program and Denti-Cal Utilization. • R was used to conduct Chi Square analysis to assess the association of the School Dental Sealant Internal Program with the history of Dental caries • Qualitative data was collected through focus group discussion comprising of seven African-American mothers who were pregnant or had children, and residents of Berkeley.
Bad to the Bone: Pediatric Osteomyelitis in the Northern California Region	• Retrospective descriptive study of children ages 6 months to 17 years hospitalized with osteomyelitis from 2008-2017 in Northern California Kaiser Permanente. Descriptive, bivariate, calculation of incidence rates, trend tests were used.
Beats Rhymes and Primary Care	• Employed a community based participatory research (focus group discussion) to investigate barriers and solutions most relevant to the adolescent community in the Oakland Area from ten participants between the age of 18-21 years who perform in Beats Rhymes and Life.

Black Women and Abortion: An exploration of Attitudes and Experiences	• A cross-sectional qualitative study. In-depth semi-structured interviews were conducted with a team who have experience providing care to Black women of reproductive-age (18-45). • Sixteen participants from several communities around the San Francisco Bay metropolitan area were selected to participate in the interviews. Used Dedoose software to analyze themes.
Childhood Malnutrition: A look at Foundation for Mother & Child Health in India data	• The nutritional status of 391 females and 402 males pre and post intervention were evaluated. The three forms of malnutrition assessed included stunting, wasting, and underweight.] • A de-identified, non-coded data set from Foundation for Mother and Child Health India was obtained from patient charts via FMCH's electronic medical records (Salesforce).
Contraception Prescribing Practices after Senate Bill 999: A Qualitative Case-Series Analyzing Reproductive Health Policy Implementation	• Investigator contacted five institutions with recruitment information for the study, which had previous IRB approval by UC Berkeley's Committee for Protection of Human Subjects. Recruitment occurred via Respondent-Driven Sampling (RDS) – a contact person within each institution was provided with a description of the study and a request for volunteer participants. • All interviews were conducted by a single researcher and took a semi-structured format. Data transcription, coding, and analysis was completed using the qualitative data analysis tool Dedoose.
Trends in Family Planning and the Role of Community Health Workers in Rwanda	• Used Rwanda Demographic and Health (RDHS) surveys from 1992, 2000, 2005, 2007, 2008, 2010, 2014-15 to analyze trends in family planning. • Used STATcompiler to compare trends over time for family planning indicators, source, and reasons for discontinuation.
Knowledge and Perceptions of Practicing Radiology Resident Physicians within the United States Regarding the B Reader Program	• An electronic survey was designed on the basis of information from a focus group of a public health training cohort at the University of California at Berkeley. The electronic survey was distributed via email and results were collected using the Qualtrics Software (Qualtrics, Provo, UT) between and April 18, 2019 and May 9, 2019. • The survey included a 2-minute introductory video on the basic requirements of a B Reader and 12 multiple-choice questions that pertained to the national B reader program
Physician Management of Elevated Lead Levels Among Workers in California	• Mixed method approach. Incorporated both quantitative and qualitative questions into the survey to obtain a complete understanding of the current barriers to care for workers with elevated lead levels as well as how to best remedy those issues through legislation and physician education. • Contacted 321 physicians and after up to three follow-up contacts via mail, researchers received a total of 101 completed questionnaires that were eligible for inclusion in the study.
Maternal acculturation and child obesity in Asian Americans	• Analyzed public-use data from the 2013-2016 California Health Interview Survey to assess whether there is an association between maternal acculturation and obesity in Asian American children, and whether obesogenic behaviors mediate this relationship. • Used logistic regression to determine the odds of obesity and obesogenic behaviors associated with maternal nativity and time in the US.

Non-High Density Lipoprotein Cholesterol Association with Metabolic Syndrome within Obese Adolescent Youth and Young Adults: Evaluation Using NHANES 2003-2014 Year-Cycles.	• Secondary analysis was performed on obese individuals from 12 to 23 years-old from the National Health and Nutrition Examination Surveys 2003-2014 year cycles whom had fasting laboratory data for assessing all components of the International Diabetes Foundations (IDF) definition of MetS and non-HDL-C. • Odds ratios (OR) were constructed using a quasibinomial logic regression for non-HDL-C cutoffs with outcome of metabolic syndrome. ROC and AUC were calculated for MetS criteria components and non-HDL-C cutoffs with outcome of MetS.
Oral Health Needs Assessment of Pregnant Women/Mothers in Berkeley	• Mixed methods. Descriptive analysis of anonymous and deidentified, uncoded data (N=57) collected by City of Berkeley Public Health Department through prenatal surveys was performed using Statistical Package for Social Sciences (SPSS 22.0). • Logistic regression model was used to examine the predictors associated with dental visits among pregnant women/mothers in Berkeley. One African American focus group transcript was analyzed to identify themes and patterns of utilization of dental services among that population.
Investigation of potential factors in healthcare workers and evaluation behaviors after blood-borne pathogen exposure events	• A case-control analytical study designed to compare follow up behaviors with characteristics of the employees initiating contact regarding an injury that may result in transmission of a bloodborne pathogen. • The database used to track all contact made to the UCSF Needle Stick Hotline was reviewed and coded into six primary variables: job type, trainee status, campus to which the employee belongs, exposure type, exposure likelihood and follow-up behavior.
Predictors of High Multisystem Urgent and Emergency Care Utilization for High Risk San Francisco Population	• Used the Coordinated Case Management System (CCMS), San Francisco County's integrated data system, to perform a retrospective cohort analysis of the top 5% population (n=2140) during the 2017-18 fiscal year. • Chi-squared analysis was used to determine group distinction and logistic regression with adjustment by gender and race/ethnicity was used to determine predictors of increased utilization.
Identification of Sexual Minority Youth in Pediatric Primary Care Setting by EHR in a Large Integrated Health Care System	• Electronic health record (EHR) data was analyzed for adolescents ages 12.5-18 years, with known birth-assigned sex, who were seen for a Well Check at one of the 52 outpatient pediatric or family medicine Kaiser Permanente Northern California facilities from January 1- December 31, 2016.
Socioeconomic Predictors of Stage at time of Diagnosis of Hepatocellular Carcinoma (HCC) in California	• A complete case analysis that sought to evaluate the odds of being diagnosed at later stages (as opposed to the Local stage) of HCC given various socioeconomic qualities. The final study population incorporated in this analysis was derived from the California Cancer Registry (CCR). • Conducted statistical analysis using using chi-square and multinomial logistic regression.

Urban Hospital Closures and Healthcare Access: A Case Study of Richmond, CA	• A case study. This was a part of an evaluation of the City of Richmond's Health in All Policies (HiAP) initiative, which strives to integrate considerations of health equity in all city government activities and policies. • Analyzed current healthcare services provided by key providers in Richmond such as Kaiser Richmond, Lifelong Medical Center, Community Clinics, Planned Parenthood, Native American Health Center, Community clinic consortium and school-based health clinics.
Use and Usability of Patient Facing Digital Health Interventions Based on Sociodemographic Factors and a Proposal for Reaching Underserved Populations through a Novel Approach to Generate Patient Profiles	• Systematic review of literature primarily sourced from PubMed was used to identify papers that focused on use, usability, or barriers to use of health information technology. • Key informant interviews collected through semi-structured in-depth interviews using stakeholder-specific interview guides conducted with five experts over video conference from each of five stakeholder groups. • The stakeholder groups include healthcare venture capitalists, developers/vendors, payers/employers, providers and patients.
The Use of Technology to Prevent Public Health Disasters Before, During and After Hajj	• Mixed method study. Qualitative and quantitative data were used to generate information on the topic and secondary sources such as archival research and government websites were used as the main source of data collection. • Secondary sources provided data collected from surveys, observations, and case studies that focused on crowd management technologies and disease interventions such as infectious disease surveillance systems used in Hajj. • Primary qualitative data was gathered from one interview with a physician who recently worked during Hajj season.
Vaping and Social Media	• Used mixed method study uses cross-sectional data collected by tracking vaping hashtags on two social media platforms: Instagram and Twitter. • Collected social media posts from two time periods: before September 2018 when the FDA launched its anti-vaping campaign and about six months after the campaign started.

Year 2018

Title	Methodology
Needs Assessment For Girls Health Champions	• Girls Health Champions (GHC) is training adolescent girls in Mumbai as peer health educators and health leaders in 10 local schools. • 4-part curriculum to focus on nutrition, anemia, reproductive health, menstruation and mental health. • qualitative needs assessment using focus groups to understand what health information girls already understand and what are the challenges faced

Using Google Trends for Public Health Research & Surveillance: Review & Critique of a Novel Method	● Internet search queries offer a tremendous amount of data about uncensored human interests, curiosities, foibles, intended behaviors, true needs and serve as proxy measures for on sensitive and personal health-related topics, and can be compared or correlated with traditionally generated research data. ● evaluating the promise of Internet search big data analysis to study social and health behaviors typically dogged by problems of participant recruitment, selection and information biases, or stigmatization. ● This paper provides a survey of the Google-based public health landscape and assessment of the state-of-the-art reflected in publication trends as well as a critique of the normative challenges and ethics issues raised by Google Trends use for surveillance and research.
Improving Door-to-Antibiotic Time in Pediatric Oncology Patients with a Fever and Central Line	● quality improvement of door-to-antibiotic time in pediatric oncology patients with a fever and central line who present to the Kaisers emergency room. ● A standardized protocol was implemented and evaluated, comparing baseline and post-implementation results (13-21 months later).
Promoting Effective Implementation of Social Determinants of Health Interventions in Clinical Settings: A Program Evaluation of the Roles Outside of Traditional Systems	● program evaluation of the Roles Outside of Traditional Systems (ROOTS) program in seven clinics, each clinic has decided which social determinants of health (SDOH) and specific interventions it would focus on ● collect information around which resources clinics need as they implement their projects as well as assess providers' perceptions on their perceived clinic capacity to address patients' SDOH. ● assess what technical assistance challenges clinics face and gather feedback from the various webinars and in-person sessions for the ROOTS program.
Exploring pediatric resilience factors and their application in the Family Information and Navigation Desk (FIND) Platform	● qualitative assessment exploring protective resilience factors within children's wider social environments and within their families in a standardized way in order to be integrated into their "Action Plan" profile page in the FIND Platform and consistently be accessible to all health providers they come in contact with (pediatricians, social workers, psychologists)
Coccidioidomycosis - Case studies in inmate firefighters	● identifying an ideal medical monitoring system to reduce incidence of coccidioidomycosis in inmate firefighters through strategic prevention and to provide recommendations for earlier suspicion/ detection of the disease. ● reviewing the medical records of 6 inmate firefighters from the 2017 Derrick fire who contracted coccidiodomycosis and make a collective case report to better describe the nature of the problem.
Adherence Challenges In Diabetes Management In School Settings	● community assessment of routine diabetic management of school-aged children and adolescents in school settings in Brentwood Unified District ● observations over six months with the help of the district nurse in order to establish a diabetic management routine and identify the management challenges that increase or decrease adherence ● formulate recommendations based on the nurse's perspective

Health Literacy Systems in the Safety Net: The Contextual Health Assessment of Social Stability (CHAOSS) Measure	• mixed methods study using the CHAOSS 18-item multiple choice questionnaire survey on health literacy and cognitive interviews • assessing patients' perceptions of their health, medical care, social situation and support system.
Using a modified YPAR Curriculum to create a survey through a structured and informed process for an Oakland after-school program assessing student perceptions of issues concerning queer youth in high school	• modified process of Youth-led Participatory Action Research (YPAR) curriculum to create a survey that assess issues surrounding queer youth in high school in a local Oakland community organization which focuses on Violence Prevention • The organization's after-school violence prevention program works with high school youth in building their capacity to address violence in their community. The ultimate goal of the project is to prevent violence towards queer and trans youth in Oakland High Schools by enhancing the organization's needs assessment tool using YPAR.
Adolescent Childbearing & Migration: Youth and Provider Perspectives	• focus groups and interviews in several communities in Fresno County, California, and Guanajuato, Mexico in young pregnant and/ or post-partum women and health providers
Preventing Edible Cannabis Exposures in Young Children: Applying the Human Factors Analysis Classification System to California Poison Control System Data	• analyze CPCS data retrospectively, develop training for personnel • within CPCS to improve the documentation quality of the circumstances surrounding each unintentional edible cannabis exposure in children • assessing human factors (errors, preconditions, supervisory, and organizational) leading to unintentional pediatric exposure to cannabis. • Developing interventions may work at the legislative, regulatory, public health, industry, and educational level to reduce the frequency and severity of these pediatric exposures
Insulin Use in Older Adults with Type 2 Diabetes: Changes to Treatment Over Time.	• cross-sectional analysis of members of a large integrated healthcare delivery system in Northern California age 75 and older with type 2 diabetes. • After gathering cross-sectional data on insulin use, we performed a retrospective longitudinal cohort of patients who turned 75 years old between 2009-2013 with type 2 diabetes in order to study outcomes associated with changes in insulin use among different patient groups.
Alcohol Use as a Moderator of the Relationship Between Perceived Neighborhood Disorder and Psychological Distress	• survey of 1037 adults age 18 to 50 who presented to Highland Hospital Emergency Department in Oakland • In-person interviews and surveys about health and health behaviors using computer assisted personal interview (CAPI) techniques with tablets running the Qualtrics platform.
Head injuries and head and spine surgeries increase risk of Streptococcus pneumoniae meningitis in adults	• case-control study within the Kaiser Permanente Northern California patient population to evaluate the association of prior head injury (HI) or head or spine surgery (H/SS) with pneumococcal meningitis, between 2008 – 2017. A blinded chart review identified prior HI and H/SS and pneumococcal vaccination history.

Understanding The State Of Oral Health In Rural And Sub-Urban Nepal	• Survey to assess levels of understanding of causes of oral health problems among adults in rural and sub-urban villages in Nepal, as well as current oral health norms and practices, availability of resources, and tangible interventions/ solutions applicable to the oral health problems
Sugar Sweetened Beverage Consumption in San Francisco Unified School District and the Potential of Taxing	• Nutrition surveys at middle and high schools within SFUSD assessing beverage consumption and weekly and daily consumption patterns.
Chronic disease and cancer screening in an underserved community: Improving population health programming through medical assistant (MA) education and empowerment.	• intervention aimed to increase MAs knowledge and self-efficacy regarding screening through education and empowerment, with a goal of improving chronic disease and cancer screening rates. • monthly education sessions to give MAs concrete tools on giving feedback, teaching, and patient education. Topics included vaccines, colorectal cancer, cervical cancer, breast cancer, hepatitis C, diabetes, and hypertension screening. • MA knowledge was assessed through pre-, post-, and final surveys, and clinic order rates were tracked over time using a population health database management system. • A post-intervention focus group was held to assess MAs' perception of the program.
Youth Civic Action Across the United States: Projects, Priorities, and Approaches	• Survey assessing action civics projects using classroom-level de-identified data from Generation Citizen records in January 2018 provided by involved democracy coaches and/or classroom teachers. • Data included classes from spring 2012 through fall 2017 (S12-F17) semesters in schools located in six metropolitan regions of the USA
Pediatric Paralysis: Host Risk Factors and Incidence of Acute Flaccid Myelitis in a Fixed Population	• evaluation of incidence data and epidemiological analysis of potential risk factors and outcomes on a retrospective cohort study at Kaiser Permanente Northern California (KPNC). • Incidence, demographics, pre-existing conditions, clinical features, lab/MRI results, treatment, outcomes and proposed polio risk factors were assessed. • This study provides more accurate incidence data than previous reports given the closed-population based design. Findings support previous reports of male predominance and prior medical history of asthma. Asian overrepresentation, September to December seasonality, and optimistic outcomes were unique to this study.

Transitions: The Impact of Declining Opioid Prescribing and Increasing Stewardship Efforts	• study of 600 patients who have received OPRs in San Francisco • Data collected combined that from a detailed computer-assisted interview (CAPI), which provided a historical reconstruction of illicit substance use and overdose, with electronic chart extraction that detailed prescription of OPRs and other controlled substances, adherence to care, exposure to opioid stewardship measures, and opioid-related emergency department utilization from 2012 through 2017. • A nested cohort approach to evaluate associations between reduced or discontinued OPR dosage and the initiation of heroin or other illicit opioid use and overdose, patient interviews and chart extraction

Year 2017

Title	Methodology
Assessing California's Progress: The Prescription Opioid Overdose Epidemic	• Policy review evaluating California's progress in addressing the opioid epidemic • mixed methods approach, using strategic management practices of environmental scanning, elements of design thinking, and traditional concepts of policy analysis • reviews how optimizing the Controlled-substances Utilization Review and Evaluation System (CURES), California's prescription drug monitoring program (PDMP), as a preventive tool is the most important first step to counter the progressing opioid epidemic.
The Resurgence Of Polio In Nigeria: What Went Wrong? A Policy Analysis	• Policy review, analyzing past and current immunization policies regarding policy process in Nigeria, including recommendations for policy change and implementation to ensure that the country will reclaim and maintain a polio-free status
Exploring The Mental Health Of Latinx Medical Students: A Qualitative Study	• Qualitative study, including focus groups and key informant • Interviews conducted at the Latino Medical Student Association (LMSA) West Regional Conference,
Factors Associated with Adherence to Hydroxychloroquine in SLE Patients	• Quantitative study, retrospective cohort study using Kaiser Permanente Northern California (KPNC) data. • Medication adherence per medication possession ratio (MPR), patient demographics, socioeconomic status, comorbidities per Charlson Comorbidity Index, serum creatinine, eGFR, number of hospitalizations and outpatient rheumatology visits, and number of SLE-related prescriptions. Standard descriptive statistics and multivariable logistic regression were used for data analysis.

A Special Supplemental Nutrition Program for Women, Infants, and Children Participation Trends for a Sample of Alameda County Cities: Berkeley, Fremont, Hayward, and Oakland	• Mixed methods approach • secondary data analysis of WIC data for Alameda County through various sources, including the CDPH WIC Program Data Analysis, Research and Evaluation (DARE) Section. • Good report on the challenges faced when contacting state officials and stakeholders in pursuit of (in theory) publically available data
Photovoice: Latino Migrant Stories	• Qualitative study suing Photovoice methodology • in collaboration with the San Francisco Day Laborer Program (DLP) and the Women's Collective (WC) • looking at the intersection of immigration, occupation and health
An Analysis of U.S. Federal Policies and Administrative Actions on the Adoption and Implementation of Patient Reported Outcome Measurement: Jan. 2009 to 2017	• policy analysis seeking to analyze recent policies' effects on the healthcare IT ecosystem and their role in improving value, either through introducing cost-savings or through enhanced measuring and thus improving outcomes. • This analysis approached the problem of confusing and complex health IT policy over the past decade by blending formal policy analysis paradigms with interviews with key IT stakeholders
Addressing Racial Health Disparities Through Medical Education	• Qualitative pilot study seeking to understand how issues of race and racism can be meaningfully integrated into a medical school curriculum in order to train physicians equipped to address racial health disparities. • Interviews with medical students using focus groups, semi-structured interviews with key informants who do racial consciousness trainings professionally, and participant-observation during classes. • data was collected, transcribed, coded to identify prominent themes and significant deviations. Themes were analyzed and synthesized.
Where is the Naloxone? Assessing Optimal Spatial Distribution of Pharmacy Dispensed Nonprescription Naloxone	• analysis using overdose death data from CDC database and census data from American Community Survey (ACS) and National Center for Health Statistics (NCHS) to define boundaries of California counties and to determine demographic characteristics per county. • using Quantum GIS (QGIS), Matlab for spatial data analysis of pharmacy locations.
An Analysis of Colon Cancer Screening Rates at MayView Community Health Center	• quantitative study exploring whether demographic characteristics could predict likelihood of completing recommended colon cancer screenings. • 874 patients at MayView Community Health Center • Univariate and multivariate logistic regressions

Lessons From The Island: Shared leadership for health in a community experiencing homelessness	• Qualitative study using oral history interviewing and observations from daily life • seventeen interviews conducted along riverbanks, at park benches, inside tents, at cafes, and even while walking or bicycling along river trails, using recording device • questions about experiences in traditional healthcare settings as well as health challenges while homeless • audio recordings of nine interviews were transcribed and analyzed
Impact Evaluation of an Intervention on Data Quality Collection and Effectiveness of the Medical Supervision Program	• quantitative data analysis of before/after training data collection
An Analysis of Vaccination Policy in California	• policy analysis to evaluate the impact of AB 2109 and SB 277 on childhood immunization and exemption rates in California. • secondary analysis of data from CA Department of Public Health (CDPH) kindergarten immunization annual reports. • County-level census data from the 2011-2015 American Community Survey 5-Year Estimates, and from the 2010 United States Census Bureau. • key informant interviews with people instrumental to the development, implementation, or enforcement of these policies about participant's role
The Effect of Border Proximity on the Relationship between Acculturation and Mental Health Outcomes in Mexican-Origin Populations	• quantitative study nested in the U.S. Mexico Study of Alcohol and Related Conditions (UMSARC) (Borges et al., 2015; Cherpitel et al., 2015), of populations living along the border addressing alcohol use, using simultaneous data collection on both sides of the border.

Year 2016

Title	Methodology
“It’s Not Just Traditional Care, It’s Loving Care”: A study of best practices used in organizing a cultural, traditional, healing clinic	• mixed methods, drawing on elements of community-based participatory research, community assets-oriented assessment, and exploratory data analysis through inductive methods • “ground-up” methodology, using stories embedded in collected data to uncover themes and theories
Understanding and improving communication between community clinical providers and the Berkeley Public Health Division: A quality improvement project with the Berkeley Public Health Division	• Mixed methods • Quantitative: survey on a Qualtrics platform distributed to clinical providers • Qualitative: semi-structured interviews with staff members at the BPHD
Trachoma Elimination Strategies in Rural Ethiopia	• devise an improved means of grading trachomatous scarring, based on the original WHO trachoma grading schema • Ranking Conjunctival Scarring: Assessing internal and external validity, using photos of patients in Ethiopia
The Effect Of Breast Density Notification	• Data analysis with Northern California data from Kaiser Division of Research (DOR) and the Breast Cancer Tracking System (BCTS) • retrospective cohort study with quantitative analysis of a four-year period to calculate changes in screening practices (two-year period before legislation from April 2011 to March 2013 was compared to the two-year period post-legislation from April 2013 to March 2015)
Dissecting and Streamlining the Medical Record Acquisition Process in Death Investigation Systems	• needs assessment survey with the primary goal of investigating the medical record acquisition procedures at MDI systems around the nation, particularly surrounding the impact EMR has had on medical record acquisition. • examine whether and how current death investigators see their work fitting into the larger sphere of public health and safety. • mixed methods approach
Psychosocial Determinants and Effects of Flavored Smokeless Tobacco Use Among Rural Adolescent Males	• semi-structured, in-depth interviews exploring of rural adolescent male perceptions regarding flavored smokeless tobacco, with 55 participants from high schools in California.

Use Of Hemoglobin A1c To Predict Risk For Type 2 Diabetes Among Children And Adolescents	• retrospective cohort study of Kaiser Permanente Northern California (KPNC) pediatric members (n=3,675 children) • including inpatient and outpatient ICD-9 diagnosis codes, labs, pharmacies, and anthropometric measurements.
High Deductible Insurance Under the Affordable Care Act and Patient Engagement in Type 2 Diabetes	• retrospective cohort study using claims and medical chart information from Kaiser Permanente Northern California (KPNC). • Selected patients compared before and after enrollment into individual KPNC plans for the year of 2014 under the Bronze, Silver Plus and Silver plan types.
Oral Health Indicators and Associated Factors Among Older Homeless Adults: Results from the HOPE HOME Study	• longitudinal study of life course events, geriatric conditions, and their associations with health-related outcomes among older homeless adults. • From July 2013 to June 2014, we enrolled a population-based sample 83 of 350 homeless adults aged 50 years and older from all overnight homeless shelters in Oakland
Economic feasibility of a clinic and hospital based intervention to improve pain self-efficacy in traumatic lower-limb amputees	• mixed-methods study including analysis of economic as well as operational utility via both quantitative and qualitative methods. • Survey and key-informant interviews
Low-Income Minority Population Access to Mental Health Services: Barriers and Gaps	• Policy review
Identifying The Risk And Protective Factors Of Emotional Wellbeing Of Minority Students During The College Transition	• Mixed methods analysis providing recommendations for Youth Creating Change (YCC), a non-profit organization dedicated to helping disadvantaged youth develop life skills and achieve critical milestones on their way to independence and adulthood through Saturday workshops. • Semi-structured interviews with Community College SF students and key informants.
Emergency Preparedness in the Kidney Transplant Community: A qualitative assessment of patients and providers and preparation of a survey instrument to study emergency preparedness	• Qualitative analysis, key informant interviews • Bay Area patients of the transplant nephrology clinic at UCSF Medical Center and the General Nephrology clinic at the San Francisco General Hospital

Superutilizers in the Safety Net: Achieving Success In Complex Care Management	• Health Literacy Systems in the Safety Net (HEALSS) study based at the UCSF Department of Anthropology, History and Social Medicine, • using an ethnographic and interview-based approach to analyze the functionality and challenges of Complex Care Management (CCM) programs at San Francisco General Hospital and Highland Hospital, with a specific focus on characteristics in the safety net that promote or inhibit patient engagement. • 31 participants were surveyed at SFGH and 29 at Highland Hospital using convenience sampling, either when patients were in clinic for an appointment or through referral from CCM clinic providers and staff.
The WHO Guidelines for the Management of Latent Tuberculosis Infection and National Policies of Middle and High Income Countries.	• Policy review and comparison of existing national policies
Prognosis Communication with Disabled Elders	• develop a model for communicating prognostic information • qualitative analysis of interviews with participants recruited through UCSF Housecalls, On Lok Lifeways, and Institute on Aging in San Francisco, CA as well as the Over 60 Clinic in Berkeley, CA.

Year 2015

Title	Methodology

Impact of variations on EMS policies and procedures in Out-of-hospital cardiac arrest outcomes (2015)	• mixed methods research
	  ○ Quantitative Analysis of Kaisers dataset
	  ○ Interviews with key stakeholders
	  ○ Using GPS data

Informing a Resident Physician Nutrition Counseling Smartphone Application-Based Education Module: A Qualitative Analysis of Expert Nutritionist Opinion (2015)	• Qualitative analysis with nutritionists • Development and testing of online application
Assessment of the factors that contribute to the skewed distribution of doctor's specialties and geography in Japan and globally (2015)	• Policy review
Health Services Use among Medicaid Managed Care Enrollees Pre and Post ACA Implementation (2015)	• Extensive quantitative analysis of Kaisers dataset
Medical Error Reporting and Developing a Culture of Patient Safety : How Lean Management Could Improve Error-Reporting Systems (2015)	• Policy review • Interviews with key informants
The Role of Socioeconomic Origin on Student Service Patterns (2015)	• Nationwide quantitative online survey of medical students
Community Health Needs Assessment of a Tri-county Urban Health Organization in the San Francisco Bay Area (2015)	• Mixed methods study • Questionnaire at Native American Health Centers in the Bay Area
Factors Associated with Hepatitis B Knowledge Among Vietnamese Americans (2015)	• Quantitative analysis of a large dataset of surveys from several thousand participants in Bay Area and DC.
Needs Assessment of the California Juvenile Justice System: Perspectives From Key Informant Interviews (2015)	• Interviews with key informants
Meeting Patient Needs in an Integrated Care Model: A Study of High-Utilizers of Primary Care Services at Community Health Center Ole, Napa (2015)	• Analysis of EHR data for clinic

Evaluation of the East Oakland Innovators: Resident-Led Design Thinking Project in the Best Babies Zone (2015)	• Mixed methods approach
	  ○ Analyzed survey data
	  ○ Interviews with key informants

Assessment of Economic Status in Trauma Registries: A New Algorithm for Generating Population-Specific Clustering-Based Models of Economic Status for Low-Resource Settings (2015)	• Quantitative analysis of a trauma dataset and developing models

Utilizing Health Information Technology for Quality Improvement at the Alta Bates Summit Diabetes Center (2015)	• Key informant interviews • Process mapping of EHR

Year 2014

Title	Methodology
Needs Assessment: Food security and food distribution planning in Cambodian and Karen refugees (2014)	• in collaboration with Asian Health Services in Oakland • mixed methods survey among Karen and Cambodian populations in Oakland • Descriptive statistics
The convening authority: Using the multiple streams model to explore the opening of policy windows to effect change in military sexual assault (2014)	• Policy review
The Impact Of Permanent Supportive Housing On Homeless Adults With Diabetes: Healthcare Utilization, Health Literacy And Diabetes Management (2014)	• mixed methods survey in collaboration with the San Francisco Department of Public Health and its Direct Access to Housing (DAH) Program • Descriptive statistics, Chi-Square • The provision of DAH housing resulted in fewer ED visits and hospital days among formerly homeless adults with diabetes. Using patterns of healthcare utilization before and after housing, this study shows that individuals with diabetes benefit from housing, which represents cost savings for hospitals and insurers.
Understanding the Association Between Working Equine Health and Human Health in Rural Nicaragua (2014)	• cross-sectional quantitative survey of convenience-sampled animal owners at mobile clinic, collecting demographics, standard of living markers, access to health services, perceptions of working equine value and human personal health-related quality of life measures, anthropometric growth data on children, grading scale for measuring working equine. • Results: socioeconomic status, wealth index and education as measures are insufficient measures to predict working equine health.
A Qualitative Study of Barriers Preventing Pregnant Women From Obtaining Care at Health Care Facilities in Kembata Timbaro Zone, Timbaro District, Ethiopia (2014)	• Qualitative Study • In collaboration with WEEMA • Study assesses the barriers that exist for pregnant women seeking care in rural Ethiopia, and reveal intervention points that must be explored and considered for implementation.
Needs Assessment for Novel Eye Care Intervention: The Ravenswood Family Health Center (2014)	• Mixed methods study in collaboration with East Palo Alto Community Health Center • needs assessment survey collecting baseline knowledge and barriers to seeking eye care for diabetic adults, in order to plan the new eye clinic

Nutrition Education And Dietary Counseling Practices In Internal Medicine Residency Training. (2014)	• quantitative, nation-wide online cross-sectional survey, completed by Internal Medicine program directors (n=40) and residents (n=133). • Multimodal nutrition education in IM residency and better resident dietary habits are associated with higher frequency of dietary counseling for patients. Barriers such as such as lack of expertise and lack of personnel, faculty and interest in patient counseling need to be addressed.
Transitioning the San Francisco Health Care Security Ordinance Under the Affordable Care Act (2014)	• Policy analysis • examines how San Francisco will adjust its Health Care Security Ordinance, a policy designed to provide health care access to the city's uninsured and undocumented residents, in light of the national transition to the Affordable Care Act. The city aimed to maintain affordable coverage and close to universal health care access for all San Franciscans. A focus on the context, process, actors, and content that make up the policy triangle model provides a way to analyze the complexities of perspectives, debates, and legislation in the policy process.
Concussion Knowledge Survey for Athletic Coaches and Instructors: A Pilot Study (2014)	• pilot survey to determine concussion knowledge before and after an educational module. • target population: athletic coaches and physical education instructors, attending the ACT taught by CaCC • sample size completing all three surveys, pre-test, post-test, and follow up surveys, was smaller than anticipated. (n=10), descriptive statistics
Intervening at the Intersection: A Program Evaluation of Bay Area Girls Rock Camp (2014)	• assisting BAGRC in Oakland with program evaluation and quality improvement • mixed methods program evaluation comprised of survey administration and focus groups from Girls Rock Afterschool Program (GRASP) and the Girls Rock Summer Camp, using Rosenberg self-esteem scale (RSES) and Brief sense of community scale (BSCS), n=25
Assessing hospital re-admission for traumatic injuries after intervention by the SF Trauma Recovery center (2014)	• quantitative data analysis of existing data set at Trauma Recovery Center (TRC) at San Francisco General • This study compares younger (under 30) and older (over 30) patients regarding race, gender, initial injury mechanism, and need for hospital admission, as well as incidence of reinjury and all-cause mortality over 1-, 5- and 10-year periods. Intervention group (TRC versus usual care) was also evaluated as a predictor of reinjury and mortality.

Disparities in utilization of surgical treatment for medically refractory epilepsy among African Americans, Asian/Pacific Islanders and persons with limited English proficiency: A first-hand account from those affected. (2014)	• In collaboration with Bay Area clinics, in-person and phone interviews • phone interview instrument consisting of both close- and open-ended questions asking patients about demographics, personal epilepsy history, health insurance status, general health, and quality of care.(n=18) • descriptive statistics
A Data Quality Assessment of Primary Care Records in Haiti's Multi-Site Electronic Medical Record System (2014)	• assessing baseline data quality for primary care records in iSanté across the system and across sites, with focus on TB indicators. • Overall, data quality appeared to be strong for accuracy but moderate to low for completeness. Reasons for underreporting, however, are likely complex, reflecting the reality of health care delivery in low-resource settings.
Building Community and Empowerment Among San Francisco Seniors: Connection for Health Aging Workshops (2014)	• Qualitative program evaluation using semi-structured interviews. • Conclusion: Community Living Campaign is a well-respected organization with a strong mission to create grassroots community change. Thematic analysis shows that the CHA workshops are successfully helping increase awareness of critical issues affecting seniors, encourages participants to feel more empowered to make health care decisions, promotes opportunities for social connection, and is a foundation for creating stronger communities.
Developing a Geriatric Nutrition Curriculum for Public health Students: a qualitative approach (2014)	• Multi-prong qualitative study • key informant interviews with experts in Geriatrics, Nutrition, and Public Health about geriatric nutrition. • Community focus group at North Berkeley Senior Center • Experiential observations of users of public nutrition programs (San Carlos Mobile Produce Market, Millbrae Senior Brown Bag distribution sites)
Evaluation of the "Design Sprint" – a Design Thinking Pilot in the Castlemont Best Babies Zone in Oakland (2014)	• human-centered design (HCD) or "design thinking" as a promising approach to develop programs that would begin to address social determinants of health. • 12-week design sprint including the design thinking phases of Understand and Ideate

Year 2013

Title	Methodology
Barriers to Mental Healthcare Utilization in Latino Immigrant Day Laborers (2013)	• in collaboration with the Multicultural Institute in Berkeley, a non-profit organization which links Day Laborers with employers • quantitative survey with 50 participants • Descriptive statistics and Chi Square
A Comparative Analysis and Critical Assessment of the Global Burden of Prostate Cancer in the Era of Prostate Cancer Screening (2013)	• a comparative analysis of the global burden of prostate cancer from 1990 to 2010 in terms of deaths and disability using the 2010 Global Burden of Disease Dataset, and to infer the role of increasing life expectancy and prostate cancer screening on observed prostate cancer trends and its policy implications. • Data from the Institute of Health Metrics and Evaluation Global Burden of Disease Project, 2010. • Data was extracted and analyzed using the program R. Population estimates, population weights, and age-adjusted rates for prostate cancer death, DALYs, YLLs and YLDs, and life expectancy were determined for each region, age group and year
Flammability Standards without Flame Retardants. A Policy Analysis (2013)	• examines the original California flammability standard, known as Technical Bulletin 117 (TB 117) and the problems with this standard from a health and fire safety prospective. • reviews the arguments in favor of the standard and flame retardants in general, along with potential biases and questionable practices on the part of flame retardant manufacturers. • explores different alternative standards.
Impact Evaluation: Rwanda Health Enterprise Architecture (RHEA) eHealth Implementation (2013)	• designing an impact evaluation to evaluate the impact of technology on maternal and child health in Rwanda. • target audience for the impact evaluation is the Rwandan MOH
Prescription Drug Overdose in Black & White: paradoxes of public health and the news (2013)	• media analysis to evaluate whether the public gets an accurate representation of the problem of fatal prescription drug overdose by reading the news. Includes analysis of how news stories inform the public with useful facts, and examines variables in news stories that influence the public health message delivered

Aging and Discrimination: The Mental, Social, and Physical Health of Bay Area South Asian Elderly Immigrants. (2013)	• multi-method study to explore whether South Asian .5-generation immigrants experience discrimination post-September 11th, 2001 and how they perceive this affects their health. • In collaboration with two East Bay Sikh Temples, a South Asian Community Center in Silicon Valley • Qualitative interviews of community organizers and immigrants • proposes public health interventions, and lists future direction for research.
Addressing complementary and alternative medicine use and medication adherence among Street Level Health Project allopathic clinic patients: A survey-based needs assessment. (2013)	• mixed method study in collaboration with “Street Level Health Project [(SLHP)] using their designed questionnaire • needs assessment survey, • data analysis of survey results, recommendations and identifying potential interventions based on the survey results, survey design guidelines for future survey
Resident Physician Knowledge of Health Reform and Career Impact (2013)	• online survey for medical residents, using the Qualtrics survey software, for 18 residency programs in the greater San Francisco Area and Sacramento. • collecting demographic information, knowledge assessment questions, inquiry about intended practice, comfort with health reform, prior health policy education, and preferred educational method of health care policy and reform. • IRB exempt status, survey completely anonymous with no identifying data collection. • Primarily descriptive statistics
Disparities in the Use of Surgery Among Minority Patients with Temporal Lobe Epilepsy (2013)	• Retrospective Chart Review, single unmatched retrospective cohort study • examine whether race/ethnicity and limited English proficiency (LEP) are associated with the following health disparities: 1) underutilization of anterior temporal lobectomy (ATL) as a treatment for medically refractory epilepsy in the setting of MTS (Logistic regression and generalized linear models); 2) longer delays from the time of diagnostic work-up to the date of ATL (Survival models). • Multivariate Logistic Regression and Generalized Linear Models
Do homes make children sick? The case of acute respiratory illness in Myanmar.	• quantitative analysis of existing data set from Population Services International (PSI) • questions: incidence of ARI for children under age 5, statistically significant difference in incidence rates between north and south townships?

Year 2012

Title	Methodology
The Role of Wildlife in Human Nutrition in Central Africa (2012)	• Cross-sectional household survey in Cameroon, cluster sampling by village (20 villages with 527 household interviews), use of survey instrument student had piloted in 2006 • Surveys conducted by 8 Cameroonian grad students in 2007 • Descriptive statistics

A Further Comparison of Medi-Cal and Healthy Families: The Role of Insurance Type in California's Pediatric Oral Health Disparities (2012)	• Sacramento Employment Training Agency Head Start data from 2010-2011, assessing unmet need by insurance type (n=1399)
	  ○ Comparing children with no insurance, Medical/ healthy Families/ or private insurance
	  ○ Multivariate analysis adjusting for demographics

Volunteering By Older Americans: Findings from the Healthy Aging Network Walking Study (2012)	• Data from Healthy aging network (HAN) walking study (PI: UCB Professor Satriano) • Interviews with 884 participants • Most important variables assessed influence by volunteer work: walking, caregiving, depression, education, gender&race, social ties

Understanding the Interface Between Surgery and Global Public Health: A Case Study of Inguinal Hernia in Ghana (2012)	• Extensive literature review on current dialogues in Global Surgery, definitions, priorities
	• Targeting a Priority 1 condition: Inguinal hernia in Ghana
	  ○ Scope of problem, modeling extent and surgical capacity in Ghana using US NHANES data, resulting in projected backlog of 2.2 million surgeries over 10 years
	  ○ Developing innovative solutions for low tech surgery (mosquito net mesh – Indian example; COSECSA from South Africa example; Humanitarian Hernia Surgery like British 'Operation Hernia')
	• Very little data is presented on capacity of Ghana health system

Fast Food at UCSF (2012)	• Landscape analysis on eating options at UCSF Parnassus Medical Campus, mixed methods
	  ○ Cross sectional study with convenience sample, 26 questions administered on ipad
	  ○ 6 Semi-structured interviews with key informants
	  ○ Ongoing data collections since 03/2012

Health Outcomes Related to Tobacco Use in Patients with Tuberculosis in Santa Clara County (2012)	• Collaboration with Santa Clara County PHD • Chart review of suspected TB patients in 2009 and 2010, identification of patients with confirmed TB (n=250) • Retrospective population based cross-sectional study, outcome variables: demographics, length and extent of tobacco use, other exposures (foreign travel), homeless ness, alcohol and other risk factors • Univariate and multivariate logistic regression
Easy as 1, 2, 3: Population Specific Strategies to Lower the Barriers to Valley Care Enrollment in the Santa Clara Valley Health and Hospital System (2012)	• Data collected from Valley Care database, analyzing financial assets of applicants to determine eligibility • Tool: Design thinking Framework (Empathize, define, ideate, prototype, test) • During 15 visits of 4 hours each by student, office procedures were observed; later semi-structured interviews (n~50) with enrollees and counselors and potential enrollees • Development of materials for enrollee intake (nice folder for potential enrollees to assemble necessary documentation; also a pocket guide), streamlining process, budget calculations for implementation

Quality Matters: The implementation and evaluation of a disease registry in a free homeless clinic. (2012)	• Creating Diabetes patient registry for free clinic for homeless in Santa Clara County, serving over 600 patients
	  ○ Chart review
	  ○ Identifying primary health providers for diabetic patients
	  ○ Preparing diabetic patient list (n=47 patients) for the primary health providers to facilitate tracking patients after missed apt etc.
	  ○ Evaluating the disease registry process, including interviews with providers and strategies for financial sustainability of the registry
	  ○ Preparing results and recommendations in video format for involved providers

The Role of Local Policy in Creating Healthy Good Zones Around Schools: An Analysis of Issues and Opportunities (2012)	• Developing a causality framework,
	  ○ assessing the role of (local) policy,
	  ○ extrinsic issues and alternative policies
	  ○ serving size, availability of unhealthy food
	  ○ conclusions: current policy environment, the role of advocacy

Year 2011

Title	Methodology
Accountable Care Organizations in the American Health Reform 2010: Its Challenge and Implications for Japan (2011)	• Policy analysis, gathering information on American Health Care Reform and examen implications for ACPs/ Medical Shared Savings Program in Japan • Key informant interviews in California, Washington DC, and Japan
Can Mindfulness Meditation Help Prevent Post-Traumatic Stress Disorder? (2011)	• Secondary data analysis using data from The Heart and Soul Study from the SF Veterans Administration • Data collected in 2000-2010, n=1024 followed for psychological factors and association with cardiovascular events after completing mindfulness meditation intervention • Using validated Hospital Anxiety and Depression Scale
Program Evaluation of the Health Care for Homeless Veterans Program for the San Francisco VA Medical Center Downtown Clinic (2011)	• Initially planned study to evaluate program effect at improving housing proved impossible to implement • Instead review of literature on homeless housing, develop best practices, additionally compilation of summary data on the program, costs and detailed recommendations for modifications
Use of Incentives for Behavior Change in Environmental Health Interventions: Lessons for Improved Cookstove Dissemination (2011)	• Literature review and key informant interviews
Restoring Justice in Public Health: A proposal for preventing youth violence (2011)	• Literature review • Action plan to bring Family Group Conferencing to juvenile justice in Alabama • Planning concept for program, including budget for 138 FGC • Also including evaluation component
Continuing Care for Patients for Alcohol and Other Drug Disorders (2011)	• Collaboration with Kaiser' Division of Research • 18 key informant interviews for regional data and online provider survey (n=73) on knowledge of available resources, attitudes of working with AOD patients, barriers and cost savings
Evaluation of a Substance Abuse, HIV and Hepatitis Prevention Initiative for Urban Native Americans: The Native Vision Program (2011)	• Mixed method outcome evaluation of Native Voices (prevention organization of urban American Indians in the SF Bay Area) • N=100 youth on 4-day retreat, outcome measures: knowledge, risk perception, ethnic identity, sexual risk behavior - using scales and items from National Minority Substance Abuse Initiatives Instrumentations (SAMHSA) and qualitative interviews • Also: evaluating the Gathering of Nations Curriculum

Shifting the Paradigm of Emergency Care in Developing Countries: The Need for Community-Health Worker Administered Emergency Services in Fort Liberte, Haiti (2011)	• Medical record review to assess burden of emergency disease, and community survey to assess barriers to care seeking • Location: Fort Liberte Hospital Haiti, 2000 medical records reviewed from 2009-2010, community survey in 50 households • DALY framework for analysis
The Ashland Youth Center Health and Wellness Center. A Youth-led collaborative project (2011)	• Center developed and run by Clinica de la Raza and Alameda County • Project aimed to community and youth needs assessment, strategic planning of vision, mission and outcomes/ indicators for center, conduct inventory of existing services, recruitment and training of youth advisors for center • Interview process of selected youth, developing model for replicable youth leadership panel, • Good example for how project focus shifted and for initially difficult and then improving relations with the collaborating agency
Safer e-mining: Situational Analyses and recommendations for tackling the electronic waste recycling issues, globally and locally (2011)	• Developing educational toolkit to train workers how to safeguard their health • Collaboration with Silicon Valley Toxics coalition in San Jose • Situational analysis methodology globally (lit review, interviews with experts) and locally (visiting e-waste facility in CA, e-waste drop-off centers, interview local experts and NGOs as well as local stakeholders), exposure assessment • Deliverables: an educational video, poster, manual for workers,

Facebook, Seniors, activity and health. Can social networking empower frail elders? (2011)	• Part 1: detailed Literature review,
	• Part 2: Setting up a pilot with North Berkeley Senior Center and develop a provider webpage for them
	  ○ Recruit 20-30 seniors
	  ○ Baseline survey, teach use of Facebook, follow- up survey after 6 weeks
	  ○ Evaluate use of provider's page and participants use of their FB page to connect with provider and each other
	• Part 3: Proposal for a next step for a Norwegian setting
	• Good example of IRB and MoU process with collaborating organization

The Nutrition Transition in Rural Bolivia: Addressing Diabetes and Obesity in the Context of Food Insecurity (2011)	• Partnering with local community organization, assess nutritional status in rural community, barriers to healthy eating, train health workers to promote improved nutrition • Health screenings (obesity, glucose levels, stunting, blood pressure, eating habits) and focus groups

Year 2010

Title	Methodology
An Ethnographic Study of Latino Children's Dental Health in Oakland/Hayward CA (2010)	• Ethnography studying 21 Latino families recruited at Clinica De la Raza • Surveying parents and children on breast feeding, eating and sleeping habits, oral hygiene, living conditions, dental care
Housing as a Health Intervention for Homeless People Living With AIDS: A Health Care Utilization and Cost Analysis in SF (2010)	• Identified 69 homeless PLWA by linking registries from SFDPH • Determining healthcare visits, hospital stays etc for 24 months before and after entrance into housing program
The Utility of Incorporating Religious Leaders into Disaster Mental Health Preparedness, Response, and Recovery (2010)	• Very detailed literature review • Qualitative interviews with 5 religious leaders in New Orleans, despite massive recruitment efforts through church listservsm snowballing etc. – conducted over telephone, recordings, transcriptions
Bicycle-Related Traumatic Brain Injury in Sonoma County 2004-2009 – Epidemiology, Helmets and Public Health (2010)	• Generate statistics for TBI for Sonoma County and assess helmet utilization patterns and demographic characteristics, also hospitalization rates and cost analysis • Retrospective cohort study using data from Santa Rosa Memorial Hospital 2004-2009, n=279
Geriatrics for Family Caregivers: an Online Education Pilot (2010)	• Collaboration with caring.com website • Development of online case studies as blogs in narrative format (case, challenge, solution), • after 6 months online preliminary analysis of user experience - interviews of 4 site users (care givers for dementia)
Sexual Violence and Accountability (2010)	• Developing the Sexual Violence and Accountability project with the Human Rights Center • Review of barriers to accountability in 5 countries: Kenya, DRCongo, Colombia, Kashmir, Sudan • 20 interviews with victims/first responders in the Bay Area, followed by pilot in Kenya, with 50 informants there
Improving Quality of Primary Care for Low Income Minority Patients: Current Perspectives on Medical Home Policy (2010)	• Policy review
Barriers to Healthcare Utilization in Latino Immigrant Day Laborers (2010)	• Convenience sample of 50 day laborers in 2 Bay Area cities (with Multicultural Institute in Berkeley) • 30 item questionnaire, previously validated on health care utilization, barriers, immigration status, demographics • Attached are questionnaire and CHR forms (useful sample)

The Health Impact of the Deficit Reduction Act (2010)	• Monte Carlo simulation and Markov structure projecting costs for future pregnancies • 2 page self-assessment states: Plans to compare utilization of FP clinics 18 months before and after documentation
Risk Perceptions Around Walking and Biking to School	• developed a framework to understand risk perceptions in a comparative analysis (risk assessment model)

Year 2009

Title	**Methodology**

Injury Patterns and Assessment of Effectiveness in Pre-Hospital Interventions in Uganda (2009)	• UCSF-Uganda collaboration, IRB approved
	• PART 1:
	  ○ Prospective cross-sectional study
	  ○ database for Kampala, dataset from 2007
	  ○ very short result section, mainly frequencies (male/female, type of injury)
	• PART 2:
	  ○ Prospective cohort study
	  ○ Developing first-aid curriculum, first responder training
	  ○ Knowledge baseline of trainees before training, compared to after training in short, self-developed survey
	  ○ short analysis, frequencies

Transportation self-efficacy for older adults, related health outcomes, and the role of social networks (2009)	• focus group and survey (n=41) in convenience sample from North Berkeley Senior Center • Statistical analysis: frequencies, t-test, regression to measure factors influencing transportation self-efficacy and health outcomes • Detailed self-designed questionnaire

Extending Access to Rural Hospice Care: Are Volunteer Hospices the Solution? (2009)	• Detailed intro on history of hospice care in the US
	• Methods:
	  ○ qualitative interviews; transcribed and coded. Post-interview journaling by interviewer.
	  ○ County in Northern California with 4 volunteer and 1 Medicare-certified hospice
	  ○ interviews at all 5 hospices with directors and key informants
	  ○ first round of analysis to extract and sort information, second round re-analyzed per grounded theory

Microbiological Evaluation of a Three Week Hygiene Education and Hand Washing Intervention Among School Children in an Urban Slum Setting in Mumbai, India (2009)	• Had to come up with new project in Mumbai after fire destroyed infrastructure for first study (product survey of water treatment products) • With PSI Mumbai, pilot hygiene training for school children, giving out soap, to increase hand washing, n=29 • Result reported on tested hand rinse cultures
Clinically Significant Trauma Symptoms in San Jose-Based Cambodian Khmer Refugees Interested in Meditation (2009)	• planned as prospective cohort study, but later altered since consistent follow-up proved impossible, no control group established • weekly course for 12 weeks • cohort recruited from UNITED Khmer Krom Temple in San Jose, N=13 • baseline questionnaire (PTSD checklist and others, all validated) • detailed analysis of demographics, PTSD subscales, correlations, reliability, but small sample size
Disparities in Referral for Liver Transplantation Among African Americans: An Update and Public Health Approach to Fixing the "Referral" Speed Bump (2009)	• detailed literature review on process and disparity in referral system for organ transplant in US • based on this, developing a public health approach to improving referral for liver transplants for African Americans (planning ecological framework for interventions following recommendations in the literature)
Community Out-of-School Promotion of Healthy Norms in Children (2009)	• analyzes data after school programs in Alameda County to exam program for learning healthy norms (4/5th graders) • 47-item questionnaire from Kansas State Community Health institute measuring self-efficacy for eating habits, physical activity for children and their families • Analysis of demographic and socio-economic variables
Planning a Malaria Abatement Project in Rural Kenya: The Matitbabu Foundation Malaria Initiative (2009)	• Outlines plan for 3 year project to improve malaria therapy provision and use of insecticide treated bednets, staff and community education, referral of pregnant women to treatment • Baseline assessment of existing malaria prevention and its reach was performed earlier • Proposal includes objectives (85% U5 children with treatment and bednets, behavior change communication) and strategies. • visited 11 of 15 district facilities in Kenya and conducted needs assessment, 270 questionnaires to clients
Mexico City Barriers to Accessing Abortion Services in the Public Sector and Policy Recommendations (2009)	• conduct and analyze qualitative interviews for policy recommendations • extensive literature review • 11 key informant interviews in Mexico City and Morelos • Results broken into sections based on findings (barriers, cost, patient autonomy, providers, discrimination by medical staff etc), recommendations

ASHA Assist: A Mobile Phone Based Teaching Tool for Community Health Workers in Rural India (2009)	• Randomized cluster controlled pilot study to gather preliminary data to assess if intervention has impact (acceptability, feasibility, improved knowledge) to warrant larger trial in rural villages • Randomized into 5 groups (1 control, 4 interventions) • Measure before and after intervention: knowledge of anemia and corresponding iron intake, birth preparedness, client satisfaction • Self developed survey instruments, first version modified after interviews with pregnant women • Study will be conducted 09/2009 (in the future, after MPH completion)
Quantitative Assessment of Delay in Cataract Surgery Uptake in Eastern Nepal and Bordering India (2009)	• Gender or degree of impairment influencing delay? • Cross sectional study • Questionnaire with 14 items plus demographics, revised after piloting on 40 people, final sample n=447 • Statistics: multivariate regression
Considerations for Effective Hospice Outreach: Addressing Disparities in Hospice Care (2009)	• 2 Focus groups with hospice staff (n=4)and community members (n=7) • Transcripts, coding, Atlas.ti • Results: identifying 20 different concepts

INTERDISCIPLINARY MPH PROJECT TITLES, AUTHORS AND YEARS

2003-2008

2008

Risk Factors for Child Malnutrition in a Rural Highland Mayan Population of Guatemala (2008)

Vulnerabilities to HIV Seroconversion Among Biologically Female and Male-to-Female Transgender Prostitutes in San Francisco: A Qualitative Analysis (2008)

Needs Assessment for Pediatric Services in Native American Populations of Northern California Relative to the Scope of Services of Shriners Hospitals for Children Northern California (2008)

The Role of Breastfeeding in Prevention of *Helicobacter pyoleri* Infection: A Meta-Analysis (2008)

Sociodemographic Predictors of Prostate Cancer Risk Category at Diagnosis—Unique Patterns in Those With Significant and Insignificant Disease (2008)

From Features to Functions: A discourse analysis of physicians' communication practices in colorectal cancer screening discussion (2008)

A Public Health Approach to Addressing Adolescent Mental Health in California (2008)

National Trends of Complication Rates During Hospitalization in the US from 1998-2005 (2008)

Cervical HPV Incidence and Persistence in a Community-Based Cohort of HIV-Negative Women in Zimbabwe (2008)

Integrative Epidemiology May Reveal Key Roles for Brain Plasticity and Borderline Intellectual Functioning in Health Inequities (2008)

A Snort in the Dark? Non-Injection Drug Implements and Hepatitis C (2008)

Assessment of Malaria Diagnostic Test in the Remote Settings and Implication for Its Application in the Malaria Eradication Program with Special Reference to Vanuatu (2008)

Asthma and School Achievement in California: A Data Analysis (2008)

Experimental Cost Effectiveness Analysis of Misoprostol Distribution Methodologies for the Prevention of Post-Partum Hemorrhage in Nigeria: A proposal for a Cluster Randomized Controlled Trial (2008)

Campaign to Remove Trans Fats from Kaiser (2008)

A Geospatial Approach to Characterizing the Environmental Public Health Profession in California: New Strategies for New Perspectives on Old Challenges (2008)

HIV/AIDS in Migrant Communities Along the US-Mexico Border (2008)

Using Music Therapy to Improve Cognition in Patients with Alzheimer's Disease: A Meta-Analysis (2008)

An Evaluation of Training Issues for the Preparation of Health Care Providers in the Event of a Large-Scale Disaster (2008)

2007

The Role of Social Support, Self-Efficacy and Health Status on Depression in HIV-Positive Women: A Theoretical Research Approach (2007)

Naloxone Distribution For Out of Hospital Overdose Prevention (2007)

Study of Patients' Satisfaction on Complete Denture Rehabilitation (2007)

Developing a Criteria for Discharge from an Adult Day Care Center for Dementia Patients (2007)

A Review of Process Evaluation and Its Role in an Assessment of PRISMA (2007)

Homeless Veterans and VA Health Care (2007)

A Legislative Advocacy Plan: New Legislation to Improve California's Health Through Mandating Regulation and Reduction of Tropospheric Ozone and Diesel Emissions (2007)

Self-Rated Health and Physical Functioning Among Chinese American Seniors (2007)

A School-Based Mandate for the HPV Vaccine—The Right Cure for Cervical Cancer Inequities in California? (2007)

Permanent Exits from Foster Care: Informing Measures Over Time (2007)

Vasectomy Perceptions Among Tricycle Drivers in Quezon City (2007)

Barriers to Female Education and Family Planning: A survey of two rural villages outside Peshawar, NWFP, Pakistan (2007)

Wellness Reports: New Opportunities in Consumer Health Information (2007)

Reproductive Health Qualitative Surveys with Female Sex Workers in Karnataka, India (2007)

The Preparedness of Biochemical Terrorism in Japan (2007)

Faster, Smaller, Cheaper: The Promise of Point-of-Care Diagnostics (2007)

Displacement Within Displacement: Developing a Deeper Understanding and Responsible Policy for Addressing the "Night Commuter" Phenomenon in Kitgum Town, Northern Uganda (2007)

Developing a Trauma Research Center to Reduce Accidents and Injuries in Jamaica, West Indies (2007)

2006

An Assessment of Information Resources for Families of Children with Special Health Care Needs at Glankler Medical Therapy Unit, Alameda County California Children's Services (2006)

HPV Vaccine – Key Informant Interviews (2006)

Effectiveness of the Influenza Vaccine in Preventing Laboratory-Confirmed Flu in Infants: A Matched Case Control Study (2006)

Dentists' Attitude, Knowledge and Practices Towards Diabetes in Dental Setting: Understanding and enhancing the dentists' extent of current contribution to this public health issue (2006)

A Review of Mind-Body Medicine with a Focus on the Staying Well Study: A Clinical Trial of Mindfulness Based Stress Reduction (MBSR) or Education Groups for HIV Infection (2006)

The Incidence and the Estimated Direct Cost of Sexually Transmitted Infections Among Young People in California, 2005 (2006)

UGTA1A1 Genetic Testing to Avoid Adverse Reactions to Irinotecan: A Pharmacogenomics Study (2006)

Built Environment and Health Specialty Area – A Proposal (2006)

Adolescent Childbearing in Nicaragua: A Quantitative Assessment of Associated Factors (2006)

Knowledge, Attitudes and Acceptability of Vaginal Microbicides Among Health Care Providers (2006)

Medical Students: A Snapshot of Disorders, Coping Methods and Utilization of Mental Health Services (2006)

Japanese American Internment: Coping and the Sense of Coherence (2006)

Assessment of Barriers to Care to in Prevention of Parent-to-Child HIV Transmission Programs in Karnataka, India (2006)

Access to Pain Medication in Neighborhood Pharmacies of Fresno, CA (2006)

Hospital Based Peer Intervention Program for Violently Injured Youth Reduces Involvement in the Criminal Justice System (2006)

Rising C-Section Rates: Trends and Implications (2006)

Effect of Mass Antibiotic Treatment on the Prevalence of Infectious Trachoma in Ethiopia (2006)

2005

California's Uninsured Children: Health Implications (2005)

Oral Health Status of San Francisco Kindergarteners, 2000-2004 (2005)

Infectious Correlates of HIV-1 Shedding in the Female Upper and Lower Genital Tracts (2006)

Improving Public Health Surveillance of Child Maltreatment Deaths in California with Child Protective Services Data (2005)

Comparing Diagnostic Strategies for Chlamydia, Gonorrhea and Trichomoniasis: Data from an Urban Primary Health Care Center Sao Paolo, Brazil (2005)

Evaluation of Clinical STD Training for Health Care Providers (2005)

Prior Antimalarial Use Among Patients Presenting for Enrollment in Clinical Trials: Data Analysis from Eight Sites in Uganda (2005)

California Medical Student Attitudes Toward Health Insurance and Health Education Policy (2005)

Feasibility Analysis of Universal Birth Dose Immunization for Hepatitis B in California (2005)

Smoking in College Students: A Focus on Asian and Pacific Islander Students (2005)

Needs Assessment of Clients Seeking Homeless Services in Palo Alto, CA (2005)

A Cost-Effectiveness Analysis of Hysteroscopic versus Laparoscopic Female Tube Sterilization (2005)

Contraceptive Patterns at School-Based Health Centers in Alameda County (2005)

2004

Cancer Screening Practices and Perceived Discrimination Among California Adults: Research Findings and Policy Implications of Analysis of the California Health Information Survey (2004)

Sexual Violence and Women Refugees: Determination of Incidence and Prevalence (2004)

Risk Factors Associated with Trachoma Among Children in Nepal (2004)

An Inquiry into the Effectiveness of Asthma Teaching in a Community-Based Organization (2004)

Tobacco Industry Manipulation of FCTC Negotiations (2004)

A Survey evaluating knowledge and misconceptions around HIV/AIDs in Guatemala (2004)

Stigma and the HIV/AIDs Epidemic (2004)

Understanding Informed Consent in the Land of the Snows: Lessons Learned from a Randomized Control Trail in Tibet Autonomous Region, PRC (2004)

The Human Right to Water (2004)

An Analysis of the Applicability of U.S. Guideline for the Prevention of Surgical Site Infection in Low Resource Countries (2004)

Water in Malawi: The Sustainability of Shallow Wells (2004)

Historical Trauma Among Native Americans: A Public Health Perspective (2004)

Anti-Racism and Indigenous Australians (2004)

Canadian Survey on Abortion Training in Obstetrics and Gynecology Residency Programs (2004)

Homicides in Oakland 1990-2003: Examining Unemployment, Causes, and Solutions (2004)

Storytellers and Storycollecting: Their Roles in Health Advocacy (2004)

DNIF Rates in Air Mobility Command Aircrews During the Initial Implementation of the US Military Smallpox Vaccination Program (2004)

Association Between Birth Weight and Childhood Acute Lymphocytic Leukemia in the Northern California Childhood Leukemia Study (2004)

2003

Prehospital Care of Road Traffic Injuries in Chang Mai, Thailand (2003)

Health Services in the Lugufu I Refugee Camp: Looking Back Six Years After Deployment of the Basic Health Care Emergency Response Unit (2003)

Regional Variations in the Use and Awareness of the California Poison Control Center (2003)

Religion and Health in Alameda County Korean Americans (2003)

Discussion of Moods and Emotions in Primary Healthcare: Examining Patient and Provider Factors in the Adolescent Population (2003)

Mifepristone Reimbursement in the United States: Evaluation and Development of a Model Coverage Policy (2003)

Benefit Perceptions and Household Demand for Improved Woodburning Stoves in Highland Guatemala (2003)

Getting a Grip on Pesticide Drift: A Study of California County Responses (2003)

Targeted Tuberculosis Skin Testing for Teachers: A Cost Effective Analysis (2003)

Video as an Education Tool for Responding to Health Care Needs of Asian Massage Parlor Workers in San Francisco (2003)

How Do Young Adolescents Make Decisions Regarding Sexual Activity and Safer Sex? (2003)

An Exploratory Analysis of Precursors of Contraceptive Use Among Latino Adolescents: A Case Study of Rural Teens of Mexican Descent (2003)

Predictors of Change in Cardiovascular Risk Factor Reduction Intervention (HEART Health Education and Risk Reduction Training Program) (2003)

Needs Assessment: Access to Nutritious Foods in East Oakland and South Hayward (2003)

Reducing Environmental Asthma Triggers for Children in Sonoma County: A role for School Policy? (2003)

Clinical Infectious Diseases

BRIEF REPORT

Increased Risk of Late-onset *Streptococcus pneumoniae* Meningitis in Adults With Prior Head or Spine Surgeries

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In a case-control study within the Kaiser Permanente Northern California adult population, prior head or spine surgery was associated with increased *Streptococcus pneumoniae* meningitis outside of the postoperative period (no prior head or spine surgery; odds ratio, 6.0 [95% confidence interval, 1.9–18.6]). Among the cases, only 33.3% had received any prior pneumococcal vaccinations.

Keywords. meningitis; *Streptococcus pneumoniae*; neurosurgery; spine surgery; vaccines.

Streptococcus pneumoniae meningitis is a severe illness with changing epidemiology over the last 2 decades as a result of the introduction of pneumococcal vaccines. Currently, 57% of bacterial meningitis cases are caused by *Streptococcus pneumoniae* [1]. Although there are >90 *S. pneumoniae* serotypes, much of invasive pneumococcal disease (IPD) is due to a small subset of serotypes included in the 2 pneumococcal vaccines used in the United States [2].

Known risk factors for IPD among adults that are also indications for pneumococcal vaccination include immunocompromising conditions; asplenia; chronic heart, lung, liver, or renal disease; cigarette smoking; cochlear implants; and cerebrospinal fluid (CSF) leaks [3]. However, there are a number of case reports of pneumococcal meningitis occurring in patients many years after a head injury (HI), presumably as a result of an injury-related cranial defect [4–6]. A retrospective review of 2013–2014 California hospital discharge data found that individuals with prior HI or brain surgery had an increased risk of pneumococcal meningitis [7].

In the United States, 13-valent pneumococcal conjugate vaccine (PCV13) is a routine childhood vaccination, and PCV13 and 23-valent pneumococcal polysaccharide vaccine (PPSV23) are routinely recommended for all persons ≥65 years of age [8]. Adults aged 19–64 years with specific risk factors are also recommended to receive 1 or both pneumococcal vaccines [3, 6].

The objective of this study was to determine whether prior HI or head or spine surgery (H/SS) is associated with pneumococcal meningitis among adults. Healthy US children have been recommended to receive 7-valent pneumococcal conjugate vaccine since it was introduced in 2000; PCV13 was recommended in 2010. Therefore, most of the current healthy adult population is unvaccinated against pneumococcal disease. Pneumococcal vaccination coverage among high-risk adults aged 19–64 years old is suboptimal. In 2016, coverage in this group was estimated at 24%; coverage among adults ≥65 years old was 67% [9].

METHODS

This case-control study was conducted within Kaiser Permanente Northern California (KPNC). Potential cases were patients ≥18 years of age with an *International Classification of Diseases, Ninth Revision* or *Tenth Revision* diagnosis of bacterial or pneumococcal meningitis between 1 January 2008 and 31 October 2017. Cases were included if they had (1) a positive CSF culture for *S. pneumoniae*, or (2) CSF white blood cell count >10 leukocytes/μL and a positive blood culture or polymerase chain reaction (PCR) for *S. pneumoniae* within the same hospitalization. Exclusion criteria included oncologic or rheumatologic conditions with immunosuppressive treatment within 3 months prior to the date of the positive culture or PCR, asplenia, human immunodeficiency virus infection, the presence or history of cochlear implants, or the presence or history of an intracranial shunt. Controls were matched 2:1 to cases by age, sex, KPNC facility, and KPNC membership length.

A blinded medical record review was performed for cases and controls to identify HI and H/SS history, comorbidities, and pneumococcal vaccination history. HIs were defined as concussions, facial fractures, and skull fractures. H/SSs were defined as any surgical history involving the skull or the spine such as nasal surgery, mastoidectomy, or posterior spinal fusions. Patients aged 19–64 years with clinical indications for pneumococcal vaccination were considered "high-risk" patients.

The association between each individual demographic characteristic, clinical characteristic, and history of HI or H/SS and case (pneumococcal meningitis) status was evaluated using separate bivariate conditional logistic regression models. Statistical analysis was performed using SAS version 9.3 (SAS Institute, Cary, North Carolina).

RESULTS

Eighty-four patients ≥18 years of age with pneumococcal meningitis were identified and matched with 168 controls. The

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median age was 60 years (range, 19–86 years); 32 (38.1%) were male (Table 1). Comorbidities did not differ significantly among cases and controls. Two of the 84 (2.4%) cases had recurrent episodes of meningitis. One patient had 2 episodes of otogenic meningitis, both occurring >20 years prior, and a more recent mastoidectomy 6 years prior to the meningitis episode in 2013. The other patient had 2 episodes of meningitis during the study period, and was found to have chronic right CSF otorrhea with multiple skull base defects in the middle fossa floor, thought to be secondary to repeat episodes of mastoiditis.

Fifteen of the 84 (17.9%) cases and 6 of the 168 (3.6%) controls had prior HI or H/SS (Table 1). Cases had 5.6 times higher odds of having a history of HI or H/SS (95% confidence interval [CI], 1.94–12.89). Separately, the odds remained significantly elevated for H/SS (odds ratio [OR], 6.0 [95% CI, 1.94–18.60]), but not for HI (OR, 3.0 [95% CI, .50–17.95]). HI consisted of concussions only as no facial or skull fractures were identified. The median time period between HI or H/SS and pneumococcal meningitis onset was 5 years (range, 0–30 years) among the 15 cases with HI or H/SS.

Prior H/SS procedures were aneurysm clip (1), chordoma excision (1), craniopharyngioma excision (1), decompressive laminectomies of the thoracic and lumbar regions (4, 2 of which also included thoracic and/or lumbar fusions), encephalocele removal (1), encephalocele removal and cribriform plate defect repair with a known CSF leak (1), nasal septoplasty (2), and unknown (1). The nasal septoplasties and decompressive laminectomies were elective. No known CSF leaks were present postoperatively in any patients; the patient with the cribriform plate defect had subsequent CSF leak studies that were negative.

One case developed pneumococcal meningitis during the postoperative period (defined as within 30 days of the procedure) and was symptomatic on postoperative day 1 after an elective nasal septoplasty. No active infection was present at

Table 1. Unadjusted Odds Ratios for Associations Between Clinical and Demographic Characteristics, Vaccine History, and Prior Head Injury or Head/Spine Surgery With *Streptococcus pneumoniae* Meningitis

Characteristics	*Streptococcus pneumoniae* Case (n = 84)	Control (n = 168)	Unadjusted OR (95% CI)	*P* Value
Median age, y (range)	60 (19–86)	60 (19–86)	…	…
Patient sex				
Male	32 (38.1)	64 (38.1)	…	…
Comorbidities[a]				
Cigarette smoking	6 (7.1)	15 (8.9)	0.8 (.3–2.1)	.618
Diabetes mellitus	12 (14.3)	29 (17.3)	0.8 (.4–1.7)	.533
CSF leak	0 (0.0)	0 (0.0)	…	…
Heart disease	12 (14.3)	16 (9.5)	1.7 (.7–4.1)	.232
Liver disease	0 (0.0)	1 (0.6)	…	…
Lung disease	15 (17.9)	22 (13.1)	1.4 (.7–2.9)	.327
Renal failure	2 (2.4)	1 (0.6)	4.0 (.4–44.1)	.258
Injury or surgery types[b]				
Head injury or surgery	15 (17.9)	6 (3.6)	5.6 (1.9–12.9)	**<.001**
All head injuries[c]	3 (3.6)	2 (1.2)	3.0 (.5–18.0)	.229
Concussion	3 (3.6)	2 (1.2)	3.0 (.5–18.0)	.229
All head/spinal surgeries	12 (14.3)	4 (2.4)	6.0 (1.9–18.6)	**.002**
Spinal surgery	5 (6.0)	1 (0.6)	10.0 (1.2–85.6)	**.036**
Mastoidectomy	2 (2.4)	1 (0.6)	4.0 (.4–44.1)	.258
Nasal surgery	3 (3.6)	1 (0.6)	6.0 (.6–57.7)	.121
Neurosurgery	4 (4.8)	1 (0.6)	8.0 (.9–71.6)	.063
Immunization history[d]				
Any pneumococcal vaccination	28 (33.3)	70 (41.7)	0.6 (.3–1.1)	.107
≥1 polysaccharide vaccine dose received				
All	28/84 (33.3)	69/168 (41.1)	0.6 (.3–1.2)	.134
High-risk 19–64 y old	7/18 (38.9)	15/38 (39.5)	…	…
>65 y old	19/31 (61.3)	47/61 (77.0)	0.4 (.1–1.4)	.152
≥1 conjugate vaccine dose received	2 (2.4)	7 (4.2)	0.4 (.04–3.4)	.360

Data are presented as No. (%) unless otherwise indicated. Bolded *P* values are statistically significant (<.05).

Abbreviations: CI, confidence interval; CSF, cerebrospinal fluid; OR, odds ratio.

[a]For each comparison by comorbidity, the referent is not having that comorbidity.

[b]For each comparison by injury or surgery type, the referent is not having that injury or surgery type.

[c]No facial or skull fractures were noted.

[d]For each comparison by immunization, the referent is not having that immunization.

the time of the nasal surgeries and 1 of the 2 mastoidectomies. The second mastoidectomy was performed 8 years prior to the meningitis incident, and additional information regarding the surgical indication and presence of active infection at the time of that surgery was unavailable.

Twenty-eight (33.3%) cases and 70 (41.7%) controls had received at least 1 dose of a pneumococcal vaccine; almost all doses were PPSV23 (Table 1). Among high-risk patients 19–64 years old, 7 of 18 cases (38.9 %) and 15 of 38 (39.5%) controls received at least 1 dose of a pneumococcal vaccine. Among those ≥65 years old, 19 of 31 (61.3%) cases and 47 of 61 (77.0%) controls received at least 1 dose of PPSV23. Two case patients (1 high-risk patient between the ages of 19 and 64 years, and 1 patient ≥65 years old) received PPSV23 vaccine <2 weeks prior to their meningitis diagnosis. There was no significant difference in pneumococcal vaccination status between cases and controls when stratified by age and vaccination indication. Because *S. pneumoniae* serotyping was not performed, it is unclear if any vaccinated cases had vaccine-preventable infections.

DISCUSSION

A history of TI/SS was associated with significantly increased odds of developing pneumococcal meningitis among this adult population. Large studies for neurosurgery and SS have identified acute, postoperative central nervous system infection rates to be approximately 1% 10% and 0.2% 2.1%, respectively [10, 11]. In our study, 1 (1.2%) case who underwent H/SS developed postoperative pneumococcal meningitis, consistent with the incidence rate from the literature. Our results suggest that a history of H/SS increases the pneumococcal meningitis risk far beyond the postoperative period. Traumatic injury to the blood-brain barrier (BBB) has been shown to lead to BBB dysfunction years after the initiating event [12]. A direct anatomic connection from the nasopharynx to the intracranial compartment resulting from prior head surgery, and transient bacteremia leading to meningitis via a dysfunctional BBB, could explain the increased risk of pneumococcal meningitis seen in patients with prior H/SS. Concussion was not found to be significantly associated with the development of meningitis.

While pneumococcal meningitis is a rare condition, our sample size was adequate for many statistical comparisons. However, the study was underpowered for a close analysis of HI and H/SS types. No patients had a history of facial and skull fractures; therefore, it was not possible to evaluate the risk of these types of IIIs. Childhood concussions may not have been documented, although incomplete documentation should have been similar for cases and controls.

This is the first published study demonstrating an association between a history of TI/SS and pneumococcal meningitis outside the 30-day postoperative period. IPD, including meningitis, is largely a vaccine-preventable disease [2]. Among both cases and controls aged 19 64 years with clinical indications for pneumococcal vaccination, less than half of the patients had been vaccinated. This study emphasizes the need for provider education to improve overall adult pneumococcal vaccination rates. Given the significantly increased OR, H/SS should be considered as a potential risk factor for pneumococcal meningitis among adults. Additional investigations are needed to confirm these results, as this was a relatively small study. Future investigations are also needed to explore the risk of facial and skull fractures, as well as the risk of developing other neuroinfectious diseases in persons with prior H/SS. In the meantime, pneumococcal vaccination is a safe and efficacious intervention, and we would recommend vaccinating patients with prior or upcoming elective H/SS, particularly if they are in a risk group already recommended for vaccination.

Notes

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Potential conflicts of interest. All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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ORIGINAL ARTICLE aFP

Dissecting and Streamlining the Medical Record Acquisition Process in Death Investigation Systems

Nicole A. Croom, Judy Melinek

ABSTRACT

Though medicolegal death investigation (MDI) systems are generally associated with criminal justice, they serve an integral role in the realm of public health and safety. Medicolegal death investigation offices collect information, including medical records, from a variety of outside sources. For data to travel efficiently, transmission should be fully integrated between the MDI office and external organizations. This is often not the case. Delays in the transmission of medical records in particular lead to subsequent delays in autopsy report completion and death certification or to resource waste in cases where a timely record would have let the pathologist know an autopsy was not required. Almost no peer-reviewed literature currently exists regarding the problem of record acquisition by MDI systems. To develop a better understanding of how electronic medical records have impacted MDI systems, we conducted a mixed methods survey through the National Association of Medical Examiners (NAME) e-mail listserv. We inquired about the medical records acquisition processes at MDI systems around the nation to gauge opinions about the use of electronic health data and the integration of MDI data in public health. Concurrently, we piloted a quality improvement project at the Alameda County Sheriff-Coroner's Office (ACSCO) in Oakland, California, in which we worked with various hospitals to get ACSCO employees direct access to decedents' electronic health records. With data from the survey and pilot project, we were able to document the barriers encountered when attempting to reform medical record acquisition and to suggest systemic changes to reduce delays and wasted resources. *Acad Forensic Pathol. 2016 6(4): 679-690*

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INFORMATION

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INTRODUCTION

Though medicolegal death investigation (MDI) systems are generally associated with criminal justice, they serve an integral role in the realms of public health and safety (1-6). Historically, the majority of a medical examiner's caseload has been due to sudden, natural death, making public health the primary function of MDI systems (7). Even the 10 – 15% of the total caseload that constitute homicides can be considered within the realm of public health due to the fairly recent recognition of violence as a public health problem (7, 8). The information obtained from MDI has a broad impact as it is the largest source of national mortality statistics, which are used to monitor trends and patterns of specific causes of disease and to identify health and safety problems in the community (1, 5, 9). Medicolegal death investigation data are used for population-level surveillance of injury, infectious disease, violent crime, and incidents of bioterrorism to determine where to focus public health resources (1, 4, 6, 10-15). Medicolegal death investigation findings can drive the development of policy and lead to the evaluation of the effectiveness, accessibility, and the quality of services provided to the community (5). Feedback can then be given to healthcare systems to inform quality improvement (2, 5). For example, voluntary reporting of deaths caused by consumer products to the Consumer Products Safety Commission has resulted in merchandise recalls and improved standards (6).

In order to investigate death, MDIs collect data from a variety of outside sources, including health records from hospitals and doctors' offices both within and outside of their jurisdiction (14, 16). For improved efficiency, data transmission should be fully integrated between MDI offices and the external organizations giving information to and receiving information from those offices (16). Due to technological, financial, and administrative challenges, this is often not the case (3, 10, 13). Current inefficiencies in data transmission from hospitals to their regional MDI are the area of focus for this project.

Almost no peer-reviewed literature currently exists regarding the particular problem of record acquisition by MDI systems. Dibdin identified the flow of information through MDI systems as a potential area for continuous quality improvement, but did not focus on a specific area of need (16). Most literature focuses on the transmission of data either to the MDI office from laboratory services (14, 17), or from the MDI to public health instruments, such as surveillance databases (6, 12).

Clinical informatics is a relatively new subspecialty that focuses on evaluating information and communication systems (6). Within the field are the pathology informatics and public health informatics subdomains, which are both applicable to MDI systems (6). Levy provides the single mention of the inefficiencies of the medical record acquisition process in MDI found in reviewing the literature (7); therefore it is unclear how many MDIs consider it a problem. Of particular interest is if and how the widespread transition to electronic medical records (EMR), spurred by the American Recovery and Reinvestment Act of 2009, which encouraged clinical providers to develop these systems, has impacted MDI offices (18).

To develop a better understanding of how EMRs have impacted MDI systems, the authors conducted an online mixed methods survey through the National Association of Medical Examiners (NAME) e-mail listserv. In the survey, we inquired about the medical records acquisition processes at MDI systems around the nation to gauge forensic pathologists' opinions about the use of electronic health data and subsequent integration of MDI data in public health.

In an effort to directly contribute to increased efficiency of MDI, the authors concurrently piloted a quality improvement project at the Alameda County Sheriff-Coroner's Office (ACSCO) in Oakland, California. The ACSCO serves a population of 1 510 271 people who reside in 14 cities and several unincorporated communities (19). Improved efficiency of the medical record acquisition process at the ACSCO will hasten the office's ability to communicate important public health information to the people who can utilize it to improve population outcomes.

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The ACSCO has had many difficulties with their current system of medical record acquisition. At the start of the study, investigators had to phone hospitals and wait for records to be faxed to the ACSCO or assign personnel to physically pick up the copied paper records at the hospital. This led to delays in the investigation depending on how speedily records were sent over and whether the necessary sections of the requested record were sent. If a record was faxed but important information was missing, another phone call had to be made and a repeat fax sent to the ACSCO. The length of faxes was also an issue, as there is only one fax machine in the office and it often ran out of paper or jammed when numerous records were sent.

Security is another issue with the current system. A medical examiner at the ACSCO described an incident wherein a patient's medical record was sent to her home fax machine. The clinic had the wrong number written down in their records. Luckily, the fax was sent to the home of a physician, who notified them and discarded the record securely, but it highlights the risk with the current system. One misdialed digit could send personal health information into the hands of an unauthorized individual. Disposal of the faxed records poses an additional opportunity for security lapses (7). As several of the hospitals the ACSCO deals with have electronic health records (EHR) systems, this laborious and resource-intensive method of record acquisition was clearly outdated.

For the pilot project, the authors attempted to expedite the ACSCO's acquisition of medical records by getting the ACSCO employees, including forensic pathologists and deputy coroners, direct access to decedents' EHR. Throughout the process, the authors were able to document the barriers encountered while attempting to reform medical record acquisition.

METHODS

The NAME needs assessment survey was developed with the primary goal of investigating the medical record acquisition procedures at MDI systems around the nation, particularly surrounding the impact EMR reform has had on medical record acquisition. The secondary goal was to examine whether and how current death investigators see their work fitting into the larger sphere of public health and safety. A mixed methods approach was selected for the needs assessment because while certain variables, such as average time to receive records and average length of records, can be analyzed quantitatively, qualitative methods are uniquely structured to explore complex and/or previously unstudied topics (20). The authors chose to use an online survey instrument because there was a convenient avenue of distribution to the target population. The survey was created using the online tool, SurveyMonkey. It underwent three rounds of pretesting with an experienced forensic pathologist. After each round, changes were made to the survey. **Figure 1** presents a copy of the final form of the survey.

The survey was sent to the NAME listserv on February 22, 2016. The link to the survey remained open until March 4, 2016. It was closed temporarily due to concerns from the Office for the Protection of Human Services at the University of California, Berkeley (UCB). On April 20, 2016, the UCB Committee for Protection of Human Subjects (CPHS) granted the project exempt status and the survey was re-opened. On April 22, 2016, a second e-mail was sent to the NAME listserv with the link to the newly re-opened survey. The survey was closed at midnight on May 4, 2016.

The same rationale described under the "NAME Medical Record Acquisition Process Needs Assessment" section was used to decide that online mixed methods surveys would be the best way to collect pre- and post-EMR access data at the ACSCO.

To measure baseline data at the ACSCO, a pre-EMR access survey was created in Google Forms. The survey was pretested by two employees of the ACSCO. Over two rounds of testing, changes were made to the survey based on their suggestions. A copy of the final version of the survey is in **Figure 2**. The survey link to the pre-EMR access survey was sent to the ACSCO employees on October 12, 2015. The survey was closed on October 28, 2015. To encourage par-

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Figure 1: Needs Assessment Survey (Nationwide Medical Record Acquisition Survey for Death Investigation Offices)

1. Checking this box signifies that you have read the above information regarding participation in this survey and give consent to participate in the research to which it pertains:
   a. I consent
   b. I do not consent and will not fill out the survey
2. What type of death investigation system do you work in?
   a. Coroner's
   b. Medical Examiner's
   c. Other (please specify):
3. Is your autopsy facility physically located within a hospital or does your staff have a hospital affiliation?
   a. Yes
   b. No
4. Briefly describe how your office currently acquires a decedent's medical record:
5. On average, how many days does it take your office to receive a requested medical record?
   a. Less than 1 day
   b. 1 - 3 days
   c. 4 - 6 days
   d. More than 6 days
6. If you answered "Less than 1 day," how many hours on average does it take your office to receive a requested medical record?
   a. Less than 2 hours
   b. 2 - 6 hours
   c. 6 - 12 hours
   d. 12 - 24 hours
7. Briefly describe any current problems with your office's process for acquiring medical records:
8. If your office has tried to fix the problems with the current system of medical record acquisition in the past, please give a brief description of what was done and the barriers that were faced in making the changes:
9. Does your office have electronic health records access to any of the health care facilities in your jurisdiction?
10. If you answered "Yes" to the above question, which staff members have access to electronic health records?
    a. Only investigators
    b. Only doctors
    c. Both
    d. Other (please specify):
11. If your office does have access to electronic health records, do you have access to records at one facility or multiple facilities?
    a. One facility
    b. Multiple facilities
    c. Other (please specify):
12. If your office does have access to electronic health records, do you believe the amount of access the office has is sufficient?
    a. Yes
    b. No
    c. Other (Please Specify):
13. Do you think that your office would benefit from the ability to remotely access the electronic health records of deceased patients?
    a. Yes, I think that my office would benefit from the ability to remotely access electronic health records
    b. No, I do not think that my office would benefit from the ability to remotely access electronic health records
    c. My office already has access to electronic health records
14. Briefly describe any obstacles you think would prevent a death investigation office from getting remote access to the electronic health records of the deceased:
15. In your jurisdiction, what role does death investigation have in public health?
16. Do you have any observations or critiques of how death investigation data is utilized in public health? (ex: whether death investigation data is interpreted correctly)

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ticipation, one reminder e-mail was sent to ACSCO employees during the open period of the survey.

To measure any changes in baseline data, a post-EMR access survey was also created in Google Forms. The survey was pre-tested by the same two employees who vetted the pre-EMR survey. Due to the similarity to the pre-EMR access survey, the post-EMR access survey underwent only one round of testing. No changes were suggested. A copy of the final version of the survey is in **Figure 3**. The link to the post-EMR access survey was sent to the ACSCO employees requesting access to hospital EMRs on July 15, 2016. The survey was closed on July 31, 2016. To encourage participation, one reminder e-mail was sent to ACSCO employees during the open period of the survey.

The authors were provided a list of all the hospitals within the ACSCO's jurisdiction along with current contact information for the medical records department at each hospital. Beginning November 2015, the hospitals were contacted to find out if and how login credentials could be assigned to each of the ACSCO employees. The order in which hospitals were contacted was based on the results of question 12 on the pre-intervention survey (**Figure 2**).

As previously described, all three surveys contained questions that gathered both quantitative and qualitative data. Quantitative results were analyzed in Stata/IC version 14.0. Different statistical tests were used to calculate the significance of results depending on whether the variables were categorical or numerical (21). For all calculations, a p-value < 0.05 was considered significant. The authors operated under the grounded theory research strategy for analyzing qualitative data (20). Qualitative answers were coded and then unified into larger themes by the author using the practical techniques presented by Dr. Ryan Greysen (22).

Figure 2: Alameda County Sheriff-Coroner's Office Employee Pre-Electronic Medical Records Access Survey

1.	What is your role at the medical examiner's? Choices: investigator, doctor, or supervisor
2.	How many years of experience have you had in your current role at the medical examiner's? (If less than 1 year please type, "< 1", otherwise round to the nearest year)
3.	On average, how many times per shift do you need to look at decedents' medical records? Choices: Less than one time per shift, 1 – 3 times per shift, 4 – 6 times per shift, more than 6 times per shift
4.	Briefly describe how you currently acquire a decedent's medical records.
5.	On average, how many days does it take you to acquire a decedent's medical records? Choices: Less than one day, 1 – 3 days, 4 – 6 days, more than 6 days
6.	If you answered "Less than 1 day." how many hours on average does it take you to acquire a decedents' medical records? Choices: Less than 2 hours, 2 – 6 hours, 6 – 12 hours, 12 – 24 hours
7.	Estimate the number of times within the last month that you have needed to contact a medical records a second time because the records you received were missing information you needed for the investigation.
8.	Estimate the number of times in the last month you have needed to contact a medical records a second time because no records had been sent over the first time.
9.	Have you ever had to contact a medical records a third time for any reason? Choices: Yes, No
10.	How many pages long is the average medical record you receive? Choices: less than 10 pages, 10 – 20 pages, 21 – 30 pages, 31 – 40 pages, longer than 40 pages
11.	Briefly describe the problems you have experienced with the current system of acquiring medical records.
12.	Please list the three Alameda County hospitals that you most want direct, electronic access to medical records to.

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RESULTS

NAME Needs Assessment

About 5% (36/700) of the forensic pathologists and death investigators subscribed to the NAME listserv responded to the online survey. Not all participants gave responses to every question.

The majority of participants (57%; 20/35) who chose to answer responded that their MDI office receives medical records an average of one to three days after the request is submitted. Twenty-six percent (9/35) of participants answered that it takes less than one day; 3% (1/35) answered four to six days, and 14 % (5/35) answered more than six days.

Nearly half, 46% (16/35), of respondents answered that their MDI office already has some level of EMR access. Having an autopsy facility located in a hospital was significantly correlated with having EMR access (Fisher's Exact Test, $p = 0.003$).

Of those participants who work in offices that do have some amount of EMR access, 63% (10/16) work in offices that have EMR credentials for both investigators and doctors and 31% (5/16) work in offices that have credentials for doctors or hospital-employed assistants only. Sixty-three percent (10/16) responded that their office has EMR access at multiple facilities and 31% (5/16) responded that their office has access at only one facility. Overall, having EMR access was not significantly associated with average length of time to

Figure 3: Alameda County Sheriff-Coroner's Office Employee Post-Electronic Medical Records Access Survey

1.	Did you fill out the pre-intervention survey last year? Choices: Yes or No
2.	What is your role at the medical examiner's office? Choices: investigator, doctor, or supervisor
3.	How many years of experience have you had in your current role at the medical examiner's? If less than 1 year please type, "< 1", otherwise round to the nearest year
4.	On average, how many times per shift do you need to look at decedents' medical records? Choices: Less than one time per shift, 1 – 3 times per shift, 4 – 6 times per shift, more than 6 times per shift
5.	Briefly describe how you currently acquire a decedent's medical records.
6.	On average in the last month, how many days did it take you to acquire a decedent's medical records? Choices: Less than one day, 1 – 3 days, 4 – 6 days, more than 6 days
7.	If you answered "Less than 1 day," in the last month how many hours on average has it taken you to acquire a decedents' medical records? Choices: Less than 2 hours, 2 – 6 hours, 6 – 12 hours, 12 – 24 hours
8.	Estimate the number of times within the last month that you have needed to contact a medical records department a second time because the records you received were missing information you needed for the investigation.
9.	Estimate the number of times in the last month you have needed to contact a medical records department a second time because no records had been sent over the first time.
10.	Within the last month, have you needed to contact a medical records department a third time for any reason? Choices: Yes, No
11.	In the last month, how many pages long is the average medical record you have received? Choices: less than 10 pages, 10 – 20 pages, 21 – 30 pages, 31 – 40 pages, longer than 40 pages, I only access records electronically
12.	How many electronic medical record systems do you currently have access to? Choices: 1, 2, 3, more than 4
13.	Briefly describe the problems you have experienced with the current system of acquiring medical records within the last month.
14.	Briefly describe how you think the current system could be further improved.
15.	If obtaining medical records as an electronic fax (meaning hospitals would send a PDF copy of a decedent's medical record directly to your e-mail inbox) from hospitals not willing or able to give sheriff coroner/medical examiner's office employees access to their health record system was an option, would you be supportive of a switch to electronic fax? Choices: Yes, No

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receive medical records (chi-square statistic 0.9333; $p = 0.817$). The lack of significance remained when looking specifically at the types of employees who have access (chi-square statistic 4.0238; $p = 0.403$) or the number of facilities an institution had EMR access at (chi-square statistic 3.8304; $p = 0.429$).

One third, 33% (12/36), of participants gave an example of a change that their office has tried to make to improve the efficiency of their medical record acquisition process and the barriers that were faced when making that change. One office had attempted reform at the institution level by switching to virtual fax. The respondent wrote,

> *We stopped printing out records received by fax; instead of the old-fashioned fax machine which prints them as they arrive, we receive a PDF and make that available in our own in-house records system...*

Eighty-three percent (10/12) of the offices who have attempted reform are trying to work with hospitals within their jurisdiction or the local government to expedite record acquisition, 80% (8/10) by asking for EMR access.

A majority, 70% (23/33), of respondents felt that medical record providers' fear of the legal ramifications of security breaches was the biggest obstacle to gaining remote EMR access. One respondent wrote,

> *HIPAA* [Health Insurance Portability and Accountability Act]. *This is what most institutions cite when this has come up before, even though there is a clear HIPAA exclusion for death investigation; the argument has been that we would have the technical ability to access any patient records, not just those whose death or possible death (as in an unidentified individual) we are investigating. While that argument fails on logic since it is no different from the access hospital staff have (not allowed to access records for anyone except 'their' patients, even though they have the technical ability to access anyone's), it is what has been cited...*

Another respondent expanded on this idea further by writing,

> *...I can see hospitals not being comfortable with granting access to individuals who have not undergone their security clearance and who are not a part of their organization.*

Other obstacles mentioned included the scope of an office's jurisdiction and the current limitations of EMR systems. One respondent discussed all three, stating that,

> *Having to somehow register with all the hospitals in the area (we serve 5.5 million people, roughly); teach everyone how to use multiple EMRs; the potential to accidentally access someone else's medical record by mistake is staggering.*

In terms of the relationship between MDI and public health, 23% of participants (7/30) indicated that their offices are considered part of the local or state public health department. Fifty-three percent of participants (16/30) responded that their MDI office's role in public health has to do with surveillance, including the discovery of notifiable diseases, trends in causes of death, and consumer product safety. Some respondents cited advocacy as a primary role of MDI in public health, an example of which stated,

> *Military: Suicide prevention is our #1 problem. Motor vehicle accidents is #2. Family advocacy (child abuse and domestic violence) is #3.*

The most commonly reported hindrances to the correct use of MDI data for public health were that differences in cause of death determination and coding lead to skewed data and that MDI data are interpreted incorrectly by certain entities, such as the "media and special interest groups." One respondent summarized this by writing,

> *Coding of deaths in certain populations at the government level is not always correct because the persons who created the coding system and persons who use the coding system do not un-*

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derstand the differences in what various causes of death mean (example is that SUID deaths the last time I checked were still coded the same as SIDS). The other issue is the lack of consistency with how medical examiner's certify deaths which is an issue that cannot be completely corrected, but with appropriate CME [continuing medical education] *can at least be minimized and become the result of differences in the intellectual approach of the pathologist instead of ignorance of the current recommendations.*

Quality Improvement Project at the ACSCO

Many of the complications with the current ACSCO medical record acquisition system were highlighted in the introduction. Over half, 56.5% (10/23), of pre-EMR survey respondents mentioned time delays as being problematic, particularly if the respondent predominantly worked night shifts because medical records departments are only open during regular daytime hours. All respondents cited some form of wasted resources, whether due to lost time spent trying to acquire the appropriate records, the copious amounts of paper used due to the length of faxes, or, as several respondents discuss, the performance of unnecessary autopsies, which,

...can cause families additional cost/suffering when we have to bring cases in to the Coroner's Bureau for examination simply because a hospital/medical office could not provide the needed information in a timely fashion.

Table 1 highlights several results from the pre- and post-EMR access surveys. By the time of the post-EMR access survey, most employees only had access to one EMR system. The majority of respondents in both the pre- and post-EMR access groups answered that they receive records one to three days after requesting them. The association between average length of time to receive records and whether a respondent was answering the pre- or post-access survey was not significant (chi-square statistic = 1.0802; p-value = 0.583). The difference between the pre- and post-EMR access mean number of times ACSCO employees have to call hospitals a second time: 1) was not statistically significant when a second call is made because a record is never received (t-test, p-value = 0.2324) and 2) was not statistically significant when a second call is made because vital information was missing from the record that was received (t-test, p-value = 0.0588). There was, however, a significant reduction in the number of employees who needed to call a medical records office a third time for any reason (Fisher's Exact Test, $p = 0.043$).

Table 2 summarizes the progress of the quality improvement project to date and the barriers to gaining EMR access to several of the health systems within the ACSCO jurisdiction. A major challenge to completing the quality improvement project was finding the employee at each hospital system who has the power to grant EMR access. We began by contacting the medical records department at each institution and, after repeating our project objective and reasoning to several different employees, would typically be transferred up

Table 1: Summary of Alameda County Sheriff-Coroner's Office Survey Results

	Pre-Electronic Medical Records Access Survey		Post-Electronic Medical Records Access Survey	
Participation rate	19/23	83%	8/23	35%
Average time to get records	1 – 3 days	11/19 (58%)	1 – 3 days	5/8 (63%)
Average number of times record was not sent in the past month	Range: 0 – 20 times/ month	Avg. = 3.8 times/ month	Range: 0 – 5 times/ month	Avg. = 2.6 times/ month
Average number of times important information was missing from the record in the past month	Range: 0 – 10 times/ month	Avg. = 3.1 times/ month	Range: 0 – 8 times/ month	Avg. = 1.1 time/ month
Has needed to make third call to record provider's office in past month	11/19	58%	1/8	13%
Average length of faxes	10 – 30 pages	10/19 (53%)	21 – 40 pages	6/8 (75%)

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the ladder to the staff member with the appropriate authority. This process could take anywhere from hours to months depending on the institution and often took multiple follow-up phone calls.

Another barrier to accessing regional EMR was that two local systems don't have a fully integrated EMR system. The American Recovery and Reinvestment Act of 2009 stipulated that as of January 1, 2014, healthcare systems had to convert to EMR and prove the conversion was successful by demonstrating and documenting "meaningful use" or risk getting less than full Medicare/Medicaid reimbursement (23). Despite the law, two systems in the ACSCO's jurisdiction have not fully transitioned to EMR (23).

The other two barriers we encountered were specific to the Livermore Veteran Affairs Hospital (VAH). Per their Director of Medical Records, individual VAHs cannot make major decisions without consulting the VA Department in Washington, D.C. Getting access to the VAH EMR would require national policy changes. According to the director, the VAH also has a strong firewall that prevents those not on a VAH computer from accessing the system. Apparently, technological workarounds would need to be developed in order for employees at the ACSCO to access the VAH EMR system from the office, even if they could be granted access by the local VAH.

DISCUSSION

This is the first study to examine the process of medical record acquisition at MDI offices in depth. We have shown that inefficiencies in the medical record acquisition process are widespread and that there is need for intervention as timely MDI data is used for public health and safety research, and delays in medical record receipt can lead to resource waste in the forms of investigators' time, paper, and the performance of unnecessary autopsies. Though many MDI offices have made attempts to reform there are perceived and true barriers to change that make reform difficult.

In qualitative research, credibility, dependability, and transferability are the analogous concepts of validity, reliability, and generalizability (20). Credibility is hard to measure; however, the facts that our results offer plausible explanations and are coherent between the NAME survey and ACSCO pre-EMR access survey are evidence of its presence in this study (20). To enhance dependability, the authors altered the research design as findings emerged, adding the NAME needs assessment component a few months after the initiation of the ACSCO pilot project. Using a multi-coder team could have further enhanced dependability. Our study of medical record acquisition is possibly applicable to another environment, though transferability outside of the population of death investigators was not an important component of this project (20). Though

Table 2: Current Status of Alameda County Sheriff-Coroner's Office Quality Improvement Project

Hospital	Last Action as of August 30, 2016
Alameda Health System - Fairmont Hospital, Highland Hospital, Alameda Hospital, San Leandro Hospital	Denied: Hybrid system (still have paper charts in some departments)
Sutter and Sutter-Affiliated - Alta Bates (Ashby and Summit), Eden Medical Center	Log-in credentials with limited access acquired
Children's Hospital Oakland	Individual employees need to apply through the online form
Kaiser - Emergency Prospective Review Program, Fremont, San Leandro, Oakland, Pleasanton, and Union City	Written request submitted; awaiting Regional Director's reply
St. Rose Hospital	Log-in credentials with full access acquired
Veterans Affairs Hospital Livermore	Denied: Electronic medical record firewall; D.C. is decision maker for all Veterans Affairs Hospitals
Valley Care Medical Center	Denied: Paper charts only
Total number of hospitals: 17	

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the participation rate for the NAME survey was only 5%, the number of participants appeared to reach theoretical saturation. For all open-ended questions, no new themes were generated after reviewing 30 or fewer responses. This gives the authors confidence that the response rate was sufficient for qualitative data.

The same was not true for the quantitative data. The power to calculate a chi-square statistic with a *p*-value of 0.05 or less with three degrees of freedom (the parameters used when looking for an association between EMR access and average length of time to receive records, was a mere 11% (24). This lack of power could explain why a statistically significant association between EMR access and length of time to receive medical records was not found, although another explanation could be that the complications that arise in dealing with EMR, such as having to learn how to use different systems for different providers or having difficulty with log-in credentials, lead to similar length of delays in record acquisition.

A similar paucity of power was present when comparing the pre-EMR access survey results to the post-EMR access survey results due to the low participation rate in the post-EMR access survey. For example, the power to detect a *p*-value 0.05 or less for the t-test comparing average number of times a second call needed to be made to a record provider's office because received records were missing vital information was only 58%. A paired t-test would have been the preferred way of comparing the groups since they were matched samples, but the number of participants in each would have needed to be equal (21).

Due to the voluntary nature of the survey instruments, selection bias was almost certainly present in this study. However, to what degree and in which direction this might have influenced the results is unknown.

Recommendations and Future Actions

Mandatory Training for Medical Record Providers

Both the NAME and ACSCO surveys found that medical record providers lack understanding about both the current statutes regarding the HIPAA-exempt status of MDI offices and the importance of timely medical record acquisition for MDI offices. Title 45 of the Code of Federal Regulations, Part 164, Subpart E specifies that,

> *A covered entity may disclose protected health information to a coroner or medical examiner for the purpose of identifying a deceased person, determining a cause of death, or other duties as authorized by law* (25, 26).

NAME survey responses indicate that educating medical record providers about the existence of this regulation has led to minor improvements in paper medical record turnarounds time.

During the quality improvement project, we also found that educating medical record providers about the ACSCO's HIPAA-exempt status was sufficient to assuage security concerns and be granted EMR access. However, as was mentioned by one of the respondents, MDI offices that attempt to replicate this work may find that HIPAA-exempt status is not enough to appease all healthcare institutions. The Sutter and Sutter-affiliated hospital system had a technological solution for this security dilemma. Alameda County Sheriff-Coroner's Office employees now have login credentials for the Sutter EMR system, but can only open the EMRs of approved patients. While this does add an extra step in acquiring these medical records, employees are able to call and get approval at any time of day, including outside of normal business hours.

This recommendation can be a joint venture between MDI offices and the providers within their jurisdiction, can speed paper record acquisition, can possibly convince providers to grant an MDI office EMR access, and is relatively easy to implement.

Standardization of Death Certification and Death Codes

To prevent MDI data from being skewed at the public health level, there should be national standards for completing death certificates and national coding

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standards. Standardization will help to maintain validity and accuracy of MDI data.

Future Studies to Spur Policy Development and Implementation

Policymakers who want to avoid scandals like the one surrounding the San Francisco medical examiner's office's backlog of 802 cases in 2013 (27) will be interested in implementing any method shown to expedite investigations. Unfortunately, our study did not show significant reductions in length of time to acquire medical records when an MDI office had EMR access. Before policymakers can be convinced that policies mandating MDI offices be given EMR access are a necessity, more studies are needed to directly address why access to records does not improve turn around time. A potential follow-up study that would have adequate power to detect the significance of EMR access could be a national telephone survey of all NAME offices (28).

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Nutrition Education in Internal Medicine Residency Programs and Predictors of Residents' Dietary Counseling Practices

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ABSTRACT

BACKGROUND: Although physicians are expected to provide dietary counseling for patients with cardiovascular (CV) risk factors such as hypertension, hyperlipidemia, diabetes, and obesity, nutrition education in graduate medical education remains limited. Few studies have recently examined nutrition education and dietary counseling practices in Internal Medicine (IM) residency training.

OBJECTIVES: To conduct a contemporary assessment of outpatient nutrition education in IM residency programs in the United States, identify predictors of residents' dietary counseling practices for CV risk factors, and identify barriers for educators in providing nutrition education and barriers for residents in counseling patients.

DESIGN: Cross-sectional anonymous surveys were completed by IM program directors (PDs) and residents throughout the United States. Linear regression was used to examine the association between the amount of nutrition education received and the number of instruction methods used by the residents and frequency of residents' dietary counseling for patients with CV risk factors.

KEY RESULTS: A total of 40 educators (PDs and ambulatory/primary care PDs) and 133 residents across the United States responded to the survey. About 61% of residents reported having very little or no training in nutrition. Nutrition education in residency, both the amount of education ($\beta = 0.20$, $P = .05$) and the number of instruction methods used ($\beta = 0.26$, $P = .02$), predicted frequency of residents' dietary counseling practices independent of nutrition education in medical school, which was also significantly associated with counseling ($\beta = 0.20$, $P = .03$). Residents' total fruit and vegetable intake likewise predicted frequency of counseling ($\beta = 0.24$, $P < .001$). Low perceived faculty expertise was a major barrier for educators and was associated with lower level of provided nutrition education ($r = -.33$, $P = .04$). Low resident and low perceived clinic preceptors' interests in nutrition were also associated with lower frequency of residents' dietary counseling ($r = -.19$, $P = .04$; $r = -.18$, $P = .05$).

CONCLUSIONS: The provision of nutrition education in IM residency programs and IM residents' dietary counseling for patients need to be systematically assessed nationally. This study's preliminary findings suggest that multimodal nutrition education in IM residency and better resident dietary habits are associated with higher frequency of dietary counseling for patients. Lack of faculty expertise and low faculty and resident interests in patient counseling need to be addressed perhaps by mandating nutrition education in graduate and continuing medical education.

KEYWORDS: Nutrition education, residency, dietary counseling, Internal Medicine

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Background

The US Preventive Services Task Force and the American College of Cardiology/American Heart Association recommend dietary intervention for diet-related cardiovascular (CV) risk factors such as hypertension, hyperlipidemia, diabetes, and obesity.[1,2] Yet, rates of dietary counseling by physicians are generally low, ranging from 25% to 40% of primary care visits.[3–5] Moreover, physicians consistently report inadequate training in nutrition and believe that better training would improve their patient care, underscoring the importance of further research in this area.[3,6]

Internal Medicine (IM) is the largest specialty that trains physicians in adult chronic disease management and accounts for 24% of US physician residency positions.[7] However, nutrition education is not explicitly mentioned under the Accreditation Council for Graduate Medical Education (ACGME) program requirements for IM.[8] Only 2 older studies from the early 1990s which examined the provision of nutrition education across 7 medical specialties included educators from IM programs.[9,10] Given that each residency specialty has different curricula, priorities, and ACGME requirements, results from one specialty may be not applicable to another. Later studies found that 94% of first-year IM residents felt that dietary counseling was their obligation, but only 14% felt that physicians were adequately trained in this area.[11] Furthermore, only 20% of residents reported always counseling patients on diet for CV risk reduction.[12] However, these findings cannot be generalized because the studies were conducted at single academic institutions.

Certain predictors of residents' counseling practices have been identified, such as higher comfort levels and self-efficacy[13];

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having a practice preference for primary care; and working with supervising physicians committed to prevention.[14] However, no studies to date have examined the relationship between nutrition education in residency and residents' counseling practices. Personal eating habits have also been shown to be predictor of counseling among medical students,[15] but this association has not yet been examined among medical residents. Barriers to providing nutrition education have been examined among family medicine educators,[16] but these findings may not be applicable to IM programs.

Objectives and Hypotheses

Given the paucity of research on outpatient nutrition education during IM residency training, we piloted a nationwide needs assessment evaluating nutrition education and examining factors that might predict IM residents' counseling practices for hypertension, hyperlipidemia, diabetes, and obesity. Our main hypothesis was that resident nutrition education (ie, amount of education and number of instruction methods used) would predict residents' frequency of dietary counseling for patients. We also hypothesized that nutrition education would have stronger effects on counseling given a higher personal fruit and vegetable intake and residency program support for healthy eating habits. Finally, we explored barriers that educators face in providing nutrition education and barriers that residents face in counseling their patients.

Methods

Study design

We conducted a cross-sectional study using 2 structured online surveys, one for the program directors (PDs) and another for IM residents across the nation. We excluded combined programs, such as IM-Pediatrics or IM-Psychiatry and fellowships related to IM, to avoid heterogeneity of residency programs. We used the American Medical Association's FREIDA online database of ACGME-accredited residency programs to obtain PDs' contact information.[17] Because the residents' contact information was not publicly available, we requested the PDs to forward the survey to the residents. The survey was administered anonymously and confidentially, and the resident responses could not be matched to the PD responses and vice versa. The study was reviewed and approved by the University of California, Berkeley Institutional Review Board (protocol #2013-10-5737).

After a small pilot phase in December 2013, the surveys were administered nationally from January to February 2014, using Qualtrics software (Qualtrics LLC, Provo, UT, USA). Both surveys were designed to be completed in less than 10 minutes. We used phone calls and emails to the PDs to disseminate information and reminders about the study, and optional Amazon gift card raffles were used to increase participant response rate.

Survey instrument

The surveys were developed based on previously published surveys used for medical students and residents.[18–21] To inform the survey design, we used semistructured informal interviews with selected PDs at the lead author's residency program, as well as interviews with residents from other programs. Appendix 1 shows the main measures in the survey instrument, response options, reliability, and validity information. Educators and residents were asked about the use of instruction modes for nutrition education at their institution. Residents were asked about the frequency of their counseling practices, perceived program support for healthy eating habits, and personal fruit and vegetable intake. In addition, the educators were asked about barriers to providing nutrition education to the residents, and the residents were asked about barriers they faced in providing dietary counseling.

Statistical analysis

Inferential analyses were conducted using analyses of variance, t test, and χ^2 test to examine associations between predictor variables (ie, amount of nutrition education and number of instruction methods used) and covariates as appropriate. For bivariate tests, the amount of education was summed across the 4 CV disease categories and then divided into "low" and "high" categories based on a median split. Similarly, the total number of instruction methods was collapsed into 2 categories (≤3 and >3) based on the identified median level of 3. The outcome variable (ie, residents' frequency of dietary counseling) was summed across all 4 diseases and then condensed into 3 categories: "never/rarely," "sometimes/half the time," and "often/very often/always."

For hypotheses testing, we first examined the outcome variable (ie, frequency of counseling) in relation to each predictor variable (ie, amount of nutrition education and number of instruction methods used) using linear regression techniques. Next, we examined the relationships between the outcome and the predictors using multivariable linear regression, controlling for confounders chosen based on prior literature review and bivariate associations from the descriptive analyses.

The 2 hypothesized moderators were program support for healthy eating and personal daily intake of fruits and vegetables. Responses across the 2 items assessing program support for healthy eating were summed. Similarly, responses across the 6 items assessing daily intake of fruits and vegetable items were summed. We tested moderation of the effect of each predictor variable by the moderators using interaction terms (eg, amount of education × fruit and vegetable intake, amount of education × program support for healthy eating habits) in multivariable analyses, and nonsignificant interaction terms were dropped.

For the barriers reported by the PDs, the "moderate" and "major" barriers were collapsed into one category. Similarly, the

"important" and "very important" barriers reported by the residents were collapsed into one category. Pearson correlations were computed between the barriers reported by PDs and the predictor variables and between barriers reported by residents and frequency of counseling. We also calculated the frequencies of PDs' and residents' endorsement of barriers.

All analyses were conducted using Stata/IC 12.1 (StataCorp LLC, College Station, TX, USA), with exclusion of missing data. A P value of ≤.05 was used as the criterion for statistical significance.

Results

Sample characteristics of educators

A total of 40 educators (31 PDs and 9 associate PDs) responded out of the 393 eligible educators (response rate = 10.4% [40/393]), representing residency programs in 23 states. Most of the educators felt that nutrition education was moderately (41%) or somewhat (56.4%) important, but only 1 educator reported the presence of a formal curriculum on this topic at his or her program (Table 1). Less than 50% of the educators reported providing "quite a bit/extensive training in dietary counseling" on hypertension, hyperlipidemia, and obesity. The top 4 instruction methods for nutrition education were teaching by outpatient preceptors, teaching on inpatient wards, providing online material, and providing the residents a resource list of texts. The mean fruit and vegetable intake of the educators was 5.3 servings a day, and 60% reported 5 or more servings of fruits and vegetables per day.

Sample characteristics of residents

A total of 133 IM residents from 19 states took the survey. Approximately 10% of the residents reported receiving nutrition education via a formal curriculum, and 61% of the residents reported having none or little bit of training in nutrition across the 4 CV risk factors. The median number of instruction methods was 3, ranging from 0 to 7. The most frequently used instruction methods were the same as those reported by the PDs. A total of 38% of residents reported counseling their patients "none of the time" or "rarely," 48% reported counseling "half the time," and 22% reported counseling "often or always." Furthermore, 61% of residents agreed or strongly agreed that their program encouraged healthy eating habits, and 55% of residents agreed or strongly agreed that their program provided healthy meal options. The mean fruit and vegetable intake of the residents was 3.2 servings a day, and 32% reported 5 or more servings of fruits and vegetables per day.

Resident characteristics by nutrition education received and frequency of dietary counseling

Residents were more likely to report a higher amount of nutrition training if they belonged to a program in the Northeast and Western regions (vs Midwest and Southern regions), if their program was a community-based program (vs a university-affiliated community program or a university-based program), and if they went to medical school abroad (vs medical school in the United States). Similarly, residents were significantly more likely to report more than 3 instruction methods if they were older, if they belonged to a program in the Northeast or West (vs Midwest and Southern regions), if they belonged to a community-based program (vs community-based-university-affiliated and university-based programs), and if they had any nutrition education (vs none) before medical school (Table 2). Residents reported counseling their patients more frequently if their program was in the Northeast or Midwest (vs West and Southern regions) and if their program had a primary care track (vs not) (Table 3).

Predictors of frequency of dietary counseling

In the unadjusted linear regression analyses, 2 key predictors (ie, amount of education received and number of instruction methods used) were positively associated with frequency of counseling patients (β = 0.39 and 0.43, respectively, P < .001) (Table 4). As hypothesized, these 2 predictors remained positively associated with frequency of patient counseling (β = 0.20, P = .05; β = 0.26, P = .02) after adjusting for confounders listed in the table. In addition, total fruit and vegetable intake (β = 0.24, P < .001) and nutrition education in medical school (β = 0.20, P = .03) were positively associated with frequency of counseling (Table 4).

Contrary to expectations, personal fruit and vegetable intake, healthy meal provision by residency programs, and program support for residents' healthy eating habits did not significantly moderate the relationships between the 2 predictor variables and the frequency of dietary counseling. Interaction terms were thus dropped.

Barriers faced by educators in providing nutrition education

Pearson correlation tests showed that lack of faculty expertise was associated with using fewer instruction methods used in the program (r = −.33, P = .04) (Table 5). The most frequently endorsed moderate-to-major barriers were competing curricular demands, lack of physician faculty with expertise in nutrition, inadequate financial resources, and lack of administrative support (Table 5).

Barriers faced by residents in dietary counseling

Even though endorsed by a minority of residents, lack of personal interest in providing dietary counseling and perceived lack of clinic preceptors' interest in nutrition were associated with lower frequency of counseling (r = −.19, P = .04; r = −.18, P = .05, respectively; Table 6). The most frequently endorsed important barriers were lack of time, perception that patients

Table 1. Sample characteristics of the educators and the Internal Medicine programs they belonged to.

		NO. (%)
Respondent type	Program director	31 (77.5)
	Associate program director	9 (22.2)
Region	Northeast	11 (27.5)
	Midwest	7 (17.5)
	South	10 (25.0)
	West	12 (30.0)
Type of program	Community-based	5 (12.5)
	Community-based-university-affiliated	19 (47.5)
	University-based	14 (35.0)
	Other	2 (5.0)
Presence of primary care track	Yes	14 (35.0)
	No	26 (65.0)
% of residents entering primary care	0-20	22 (55.0)
	21-40	11 (27.5)
	41-60	5 (12.5)
	61-80	1 (2.5)
	81-100	1 (2.5)
Opinion on importance of nutrition education[a]	None	1 (2.6)
	Somewhat	16 (41.0)
	Moderately important	22 (56.4)
	Extremely important	0 (0.0)
Presence of formal curriculum[a]	Yes	1 (2.6)
	No	38 (97.4)
Reported providing "quite a bit"/"extensive" training in dietary counseling for[b]	Obesity	16 (42.1)
	Hypertension	18 (47.4)
	Dyslipidemia	18 (47.4)
	Diabetes	20 (52.6)
Methods used to teach[b]	Teaching by preceptors in primary care clinic	36 (95.0)
	Teaching on inpatient wards	30 (79.0)
	Providing online material	30 (79.0)
	Providing resource list of texts	23 (60.5)
	Participating in specialty clinic that focusses on nutrition	15 (40.0)
	Scholarly projects (eg, quality improvement/curricula improvement)	14 (37.0)
	Elective offering	11 (29.0)
	Structured individual study with selected reading material	8 (21.1)
	Other	4 (10.5)
	Structured individual study with educational CD	1 (2.6)
	Attendance at a national nutrition conference	1 (2.6)
Total fruit and vegetable intake (mean ± SD)		5.3 ± 2.8
≥5 servings of fruit and vegetable intake a day		24 (60)

[a]1 educator with missing information.
[b]2 educators with missing information.

Table 2. Resident sample characteristics by the number of methods used to learn about nutrition for the outpatient setting.

	NO. OF METHODS		*P* VALUE
	≤3	>3	
No. (%)[a]	70 (56.0)	55 (44.0)	
Age (y, mean ± SD)	29 ± 3	30 ± 3	**.02**
Gender (n)			.94
Female	39 (55.7)	31 (44.3)	
Training level (n)			.47
Post graduate year 1	29 (55.8)	23 (44.2)	
Post graduate year 2	22 (64.7)	12 (35.3)	
Post graduate year 3	12 (44.4)	15 (55.6)	
Post graduate year 4	7 (58.3)	5 (41.7)	
Career path (n)			.89
Primary care	19 (57.6)	14 (42.4)	
Subspecialty	35 (53.0)	31 (47.0)	
Undecided	10 (62.5)	6 (37.5)	
Other	6 (60.0)	4 (40.0)	
Region (n)			**.05**
Northeast	23(49.0)	24 (51.0)	
Midwest	16 (66.7)	8 (33.3)	
South	21 (72.4)	8 (27.6)	
West	9 (39.1)	14 (60.8)	
Type of program (n)			**<.001**
Community-based	8 (24.2)	25 (75.8)	
Community-based-university-affiliated	29 (63.0)	17 (40.0)	
University-based	33 (71.7)	13 (28.3)	
Presence of PC track (n)			.24
Yes	44 (52.4)	40 (47.6)	
No	26 (63.4)	15 (36.6)	
In PC track (of those in programs with a PC track) (n)			.14
Yes	11 (40.7)	16 (59.3)	
No	33 (57.9)	25 (42.1)	
Medical education (n)			.09
US	52 (61.2)	33 (38.8)	
Foreign	18 (45.0)	23 (55.0)	
Prior nutrition education (n)			
Before medical school	16 (76.2)	6 (23.8)	**.04**
In medical school	42 (53.2)	39 (46.8)	**.33**
Daily fruit and vegetable intake (mean no. of servings ± SD)	3.6 ± 2.6	4.9 ± 4.9	

Abbreviation: PC, primary care.
[a]8 residents with missing information.
Bold values in the table represents numbers which are statistically significant.

Table 3. Resident sample characteristics by frequency of nutrition counseling in the outpatient setting.

	NEVER/RARELY	SOMETIMES/HALF THE TIME	OFTEN/VERY OFTEN/ ALWAYS	*P* VALUE
No. (%)[a]	38 (32.7)	56 (48.3)	22 (19.0)	
Age (y, mean ± SD)	28.9 ± 2.2	29.6 ± 3.2	30.4 ± 2.7	.13
Gender (n)				.51
Female	23 (35.4)	32 (49.2)	10 (15.4)	
Training level (n)				.53
Post graduate year 1	16 (34.0)	21 (44.7)	10 (21.3)	
Post graduate year 2	13 (39.4)	16 (48.5)	4 (12.1)	
Post graduate year 3	6 (24.0)	15 (60.0)	4 (16.0)	
Post graduate year 4	3 (27.2)	4 (36.4)	4 (36.4)	
Career path (n)				.38
Primary care	8 (25.0)	21 (65.6)	3 (9.4)	
Subspecialty	22 (36.1)	25 (41.0)	14 (22.9)	
Undecided	5 (33.3)	6 (40.0)	7 (26.7)	
Other	3 (37.5)	4 (50)	1 (12.5)	
Region (n)				**.01**
Northeast	9 (20.4)	24 (54.6)	11(25.0)	
Midwest	3 (13.0)	15 (65.2)	5 (21.7)	
South	14 (53.9)	9 (34.6)	3 (11.5)	
West	11 (52.4)	7 (33.3)	3 (14.3)	
Type of program (n)				.20
Community-based	8 (26.7)	14 (46.6)	8 (26.7)	
Community-based-university-affiliated	17 (38.7)	17 (38.7)	10 (22.7)	
University-based	13 (31.0)	25 (59.5)	4 (9.5)	
Presence of PC track (n)				**.03**
Yes	20 (25.6)	44 (56.4)	14 (18.0)	
No	18 (47.4)	12 (31.6)	8 (21.0)	
In PC track (n)				.66
Yes	5 (19.2)	16 (61.5)	5 (19.2)	
No	15 (28.9)	28 (53.8)	9 (17.3)	
Medical education (n)				.10
US	29 (36.7)	39 (49.4)	11 (13.9)	
Foreign	9 (24.3)	17 (46.0)	15 (29.7)	
Prior nutrition education (n)				
Before medical school	8 (42.1)	8 (42.1)	3 (15.8)	.64
In medical school	20 (26.3)	41 (54.0)	20 (19.7)	.12
Daily fruit and vegetable intake (mean no. of servings ± SD)	3.4 ± 2.1	4 ± 2.4	7.5 ± 6.7	.45

Abbreviation: PC, primary care.
[a]12 residents with missing information.
Bold values in the table represents numbers which are statistically significant.

Table 4. Bivariate and multivariate predictors of residents' frequency of dietary counseling in the outpatient setting.

	β[a]	SE	*P* VALUE
Bivariate linear regression			
Amount of training	0.39	0.18	**<.001**
No. of methods	0.43	0.06	**<.001**
Multivariable linear regression			
Amount of training	0.20	0.21	**.05**
No. of methods	0.26	0.08	**.02**
Total fruit and vegetable intake	0.24	0.03	**<.001**
Nutrition education in medical school	0.20	0.24	**.03**
Post graduate level	0.19	0.12	.06
Age	−0.05	0.04	.62
Gender	0.09	0.21	.31
Path	0.13	0.14	.15
Type of program	−0.10	0.17	.32
Presence of primary care track	0.03	0.23	.72
Being in primary care track	0.08	0.31	.40
Medical education in the United States	−0.03	0.28	.78
Nutrition education before medical school	0.10	0.31	.28
Region			
Northeast (as reference)			
Midwest	0.36	0.30	.71
South	−0.16	0.31	.13
West	−0.16	0.32	.12

[a]A standardized β coefficient was used to account for differences in units of the variables.
Bold values in the table represents numbers which are statistically significant.

were coming in for a different purpose, and perceived lack of patient interest in nutrition (Table 6).

Discussion

In this contemporary assessment of nutrition education in IM residency training among 40 educators and 133 residents across the United States, most of the residents reported insufficient training in dietary counseling for CV risk factors such as hypertension, dyslipidemia, diabetes, and obesity. Multimodal nutrition education during residency independent of nutrition education in medical school as well as personal fruit and vegetable intake was found to be predictors of residents' frequency of counseling their patients. Educators lacked expertise in teaching nutrition and faced competing curricular demands in providing nutrition education. Residents in training faced lack of personal and supervising faculty interests as barriers to counseling their patients.

Nutrition education in residency

Over the past 2 decades, studies have consistently shown that nutrition education is valued in the medical community, but not adequately covered in medical training.[5,6] Our study confirms this alarming finding for IM across the United States, the specialty that produces the largest number of physicians each year,[7] most of whom will see patients in the outpatient setting (primary care or subspecialty).[22] Most of the residents reported having none or only a little training in nutrition counseling for the 4 diet-related CV risk factors. Furthermore, only 1 IM program in our study provided a formal curriculum in nutrition education; however, this may be a conservative estimate due to our small sample size.

Several teaching instruction methods, other than a formal curriculum, have been recently proposed to teach nutrition during residency. These range from brief immersion courses to longitudinal exposure and from required rotations to optional online modules.[23] Contrary to these new proposals and older studies,[9,10] we found that currently the most frequently used instruction methods in IM programs are resource list of texts, preceptor teaching in the outpatient setting, inpatient teaching, and online sources. We found differences by region and type of residency program in the utilization of multimodal education by the residents, which need to be explored further.

Residents' dietary counseling practices

Our study found that only 22% of residents reported counseling their patients often/always on dietary changes, similar to the low proportion (20%) reported 10 years ago.[12] To our knowledge, this is the first study conducted across multiple programs in the United States that provides evidence for the need to improve contemporary nutrition education in IM residency programs. We showed that nutrition education in residency, independent of education in medical school, is associated with higher frequency of dietary counseling by residents. Nutrition education in medical school was also a predictor of counseling practices, but based on the effect sizes as shown in the results, multimodal nutrition education in residency may be a more important predictor of residents' counseling practices, reflecting recent discussions among medical educators.[24] This finding supports use of multiple educational strategies for nutrition education in residency programs similar to the longitudinal nutrition education approach that has been proposed for the medical school curriculum.[25]

In addition to receiving more nutrition education, we found that residents with better personal dietary habits (ie, fruit and vegetable intake) also counseled their patients on dietary changes more frequently. Several studies have reported associations between practicing physicians' health and patient counseling outcomes.[26–28] Our study is among the first to explore residents' dietary habits using a validated screening tool.[20] We found that residents had a lower mean intake of

Table 5. Barriers faced by program directors in providing nutrition education.

BARRIER	CORRELATION WITH NO. OF METHODS USED	*P* VALUE	CORRELATION WITH AMOUNT OF TRAINING PROVIDED	*P* VALUE	% REPORTING MODERATE-TO-MAJOR BARRIER
Lack of physician faculty with expertise in nutrition	−0.33	**.04**	−0.13	.45	76
Lack of faculty interest	−0.17	.33	0.03	.83	54
Competing curricular demands	−0.15	.36	−0.22	.19	80
Unclear evidence base for nutrition interventions	−0.11	.53	0.21	.20	33
Lack of ACGME requirement	−0.09	.59	0.10	.55	26
Lack of administrative support	−0.08	.63	0.05	.76	61
Lack of resident interest	0.06	.69	0.21	.20	43
Inadequate financial resources for program development	−0.06	.73	0.12	.47	61
Other	0.02	.87	−0.22	.18	22
1. "Teaching nutrition takes time"					
2. "Work flow challenges"					
Lack of insurance reimbursement for nutrition interventions	0.008	.96	−0.04	.81	48

Bold values in the table represents numbers which are statistically significant.

Table 6. Barriers faced by residents in counseling patients on diet.

BARRIER	CORRELATION WITH COUNSELING PROVIDED	*P* VALUE	% REPORTING AS IMPORTANT/ VERY IMPORTANT
Lack of personal interest in providing nutrition counseling	−0.19	**0.04**	21
Lack of clinic preceptor's interest in nutrition	−0.18	**0.05**	31
Lack of proper patient education materials	−0.18	0.06	45
Patients come for a different purpose	−0.17	0.08	59
Lack of availability of health educators	−0.13	0.16	45
Insufficient reimbursement	−0.13	0.17	33
Lack of time	−0.12	0.20	69
Lack of patient interest in nutrition	0.08	0.40	52
Lack of systems for tracking and prompting nutrition counseling	−0.05	0.55	46
Cultural differences between you and your patients	0.01	0.91	25

Bold values in the table represents numbers which are statistically significant.

fruits and vegetables per day than their educators. Although most of the educators met the daily requirement of 5 servings, only a minority of residents met this requirement. Reassuringly, we found that most residents felt that their programs provided healthy meal options and encouraged a healthier diet. Therefore, other factors, such as high stress levels, need to be explored to explain residents' unhealthy eating habits and to identify ways to promote a healthier diet among the residents.

Barriers

Consistent with an older study from the 1990s,[3] educators' responses indicated that lack of physician faculty expertise remains a key barrier to nutrition education in residency programs today. In addition, and similar to previous studies,[16,18] competing curricular demands, inadequate financial resources, and lack of administrative support were found to be major barriers for IM educators in our study. However, contrary to an

older study,[3] we did not find that lack of evidence for nutrition interventions or inadequate reimbursement for dietary counseling was a major barrier to providing nutrition education. These findings are reassuring given the strong evidence for dietary changes in CV risk management.[2] Thus, accreditation organizations should consider supporting institutional reform by including prevention and nutrition education in IM residency curricula, which would then prioritize financial and administrative resources for nutrition education and ultimately generate greater physician faculty expertise.

Regarding counseling patients on diet, we found that lack of personal and perceived clinic preceptor's interests in nutrition were associated with less nutrition counseling by residents. Hence, while residents and educators may not have control over lack of time and patient factors, we speculate that by starting a culture of nutrition education in residency programs, we can increase interest in this area. Interestingly, lack of health educators was not one of the top barriers reported by the residents. This may be because the respondents belonged to programs that were likely to have support from registered dieticians/health educators already. Nonetheless, per national labor statistics, for every 24 physicians, only 1 dietician is available,[29,30] so expecting dieticians alone to provide dietary counseling would be unrealistic.

Our study has several limitations. First, despite extensive efforts to ensure a high response rate, the response rate of the PDs remained low. Also, because resident participation was dependent on the PDs forwarding the survey to residents, we could not determine the number of residents that received the survey link or calculate resident response rate. However, our study could serve as a pilot for more formal and systematic data collection (eg, through accreditation organizations) to capture all residency training programs in the United States.

Second, the resident sample was not representative of the national pool of residents, limiting the generalizability of our findings. Although we did receive resident responses from 19 states, the Western United States was overrepresented. Furthermore, comparison of the characteristics of our resident sample with those of the national pool of residents[31] showed that while the average ages were similar (29 vs 29.2 years), our sample included higher proportions of women (56% vs 40%) and foreign medical graduates (42% vs 32%). Similarly, while only 13% of IM programs nationally were designated as "Medicine-Primary" in 2014,[7] in our study, 35% of the programs had a primary care track based on educators' responses. As prior literature[14] demonstrates that female physicians, foreign medical graduates, and residents interested in primary care report higher dietary counseling rates, a nationally representative sample may show even lower counseling rates than our results. In addition, we speculate that the *relationships* between nutrition education and dietary counseling reported here would likely hold in a representative sample. Nonetheless, future research would need to confirm these findings in larger and representative samples.

Third, as with any study using self-reported survey data not verified by chart audits or observation, the results may be subject to error due to recall, selection, social desirability biases, and such. Similarly, we could not assess the quality of the dietary counseling provided, which may be a better predictor of patient outcomes than the frequency of dietary counseling.

Finally, our cross-sectional study cannot establish a causal association between nutrition education and patient counseling. However, our multivariable analyses did comprehensively address potential confounders, including nutrition education in medical school, thus supporting the need to improve nutrition education in graduate medical training.

Conclusions

The provision of nutrition education in IM residency programs and IM residents' dietary counseling for patients need to be systematically assessed nationally (eg, through accreditation organizations). The preliminary findings of this study suggest that multimodal nutrition education in IM residency and better resident dietary habits are associated with higher frequency of dietary counseling for patients. Faculty expertise and faculty and resident interests in patient counseling could be improved perhaps by mandating nutrition education in graduate and continuing medical education. Future studies need to replicate current findings in large, representative samples; assess quality of dietary counseling; and examine how different instructional modes relate to resident learning and patient outcomes.

Author Note

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Author Contributions

SK, SEZ, and AH designed the research; SK conducted the research; SK analyzed data; SK, SEZ, and AH wrote the paper; SK had primary responsibility for final content. All authors read and approved the final manuscript.

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Appendix 1. Survey instrument and variable treatment.

VARIABLE		ITEM	ANSWER OPTIONS
Predictor variables	Amount of nutrition education across each: obesity, diabetes, hypertension, dyslipidemia	"How much training have you had on dietary counseling for the following diseases in the outpatient setting?"	"None at all," "a little bit," "quite a bit," and "extensive"
	No. of instruction methods[18]	"How have you learned about outpatient nutrition and dietary counseling for cardiovascular risk factors (obesity, hypertension, dyslipidemia, diabetes) during residency?"	"Teaching by preceptors in primary care clinic" "Teaching on inpatient wards" "Providing online material" "Providing resource list of texts" "Participating in specialty clinic that focusses on nutrition. Specify": "Scholarly projects (eg. quality improvement/ curricula improvement) Elective offering, Specify": "Structured individual study with selected reading material" "Structured individual study with educational CD" "Attendance at a National nutrition conference" "Other, Specify"
Outcome variable	Self-reported frequency of counseling[a]	"In a typical ambulatory week, for what percentage of patients with the following cardiovascular risk factors, do you engage in dietary counseling?"	"Never (0%)," "rarely (1%-20%)," "sometimes (21%-40%)," "half the time (41%-60%)," "often (61%-80%)," "very often (81%-99%)," and "always (100%)"
Moderators	Program support for healthy eating habits[b]	"Residency sponsored meals have healthy food options" "My residency program encourages me to eat healthy"	"Strongly disagree," "disagree," "agree," and "strongly agree"
	Personal daily fruit and vegetable intake[c]	Diet screener with 6 items: fruit juice, fruit other than as juice, vegetable juice, green salad, vegetable soup or stew, any other vegetables	No. of servings per day ranging from 0 to 6 and per day/week/month

[a]Adapted from the Preventive Medicine Attitudes and Activities Questionnaire (PMAAQ) scale ($\alpha = .85$, test-retest reliability correlation = 0.72).[19]
[b]Two-item scale had an α of .78.
[c]Validated in medical students with reproducibility correlation $r = .77$ and correlation with Food Frequency Questionnaire $r = .50$.[20]

UC BERKELEY CAMPUS MAP KEY

Alumni House, D-5
Andersen Auditorium (Haas School of Business), C-2
Anthony Hall, C/D-4
Architects and Engineers (A&E), D-4
Bancroft Library, C-4
Banway Bldg, D-7
Barker Hall, A/B-6
Barrow Lane, D-4
Barrows Hall, D-4
BART Station, C-7
Bechtel Engineering Center, B-3/4
Berkeley Art Museum, C-6/7
Berkeley Way West, A/B-7
Birge Hall, C-3
Blackwell Hall, F-5
Blum Hall, A/B-4
Boalt Hall, D-2
Botanical Garden, C-1
Brain Imaging Center, B-5
C.V. Starr East Asian Library, B-4
California Hall, C-4
California Memorial Stadium, D-1
Calvin Laboratory, D-2
Campanile (SatherTower), C-3
Campbell Hall, B/C-3/4
Career Center, D/E-5
Chan Shun Auditorium
(Valley Life Sciences Bldg.), C-5
Chávez Student Center, D-4
Choi Hall, C-2
Chou Hall, C-2
Clark Kerr Campus, F-1
Class of 1914 Fountain, D-3
Class of '54 Gate, A/B-4
CNMAT, A-5/6
Cory Hall, A/B-3
Cyclotron Rd., B-7
Davis Hall, B-3/4
Doe Memorial Library, C-4
Donner Lab, B-3
Durant Hall, C-4
Durham Studio Theatre (Dwinelle Hall), C-5
Dwinelle Annex, C/D-5
Dwinelle Hall, C-4/5
East Gate, B-3
Edwards Stadium, D-6
Energy Biosciences Building, A/B-6/7
Esslemian Hall, D-4/5
Etcheverry Hall, A-4
Evans Diamond, D-6
Evans Hall, B-3
Eye Center (Minor Hall Addition), C/D-3
Eye Center (Tang Center), D/E-6
Faculty Club, C-3
Faculty Glade, C-3
Founders' Rock, A/B-3
Fox Cottage, E-3
Frank Schlessinger Way, C-6
Gayley Rd., B/C-7
Genetics and Plant Biology Bldg, B-6
Giannini Hall, B-5
Glauque Hall, C-3
Gilman Hall, C-3
Golden Bear Recreation Center, F-2
Goldman Field, D-6
Goldman Plaza, D-1/2
Goldman School of Public Policy, A-3
Greenhouse, A-7
Grinnell Natural Area, C-6
Haas Pavilion, D-5
Haas School of Business, C-2
Hargrove Music Library, D-3
Haste Street Child Development Center, F-5
Haviland Hall, B-4/5
Hazardous Materials Facility, C/D-6
Hearst Field Annex, D-4
Hearst Greek Theatre, B-2
Hearst Memorial Gymnasium, D-3
Hearst Memorial Mining Bldg, B-3
Hearst Mining Circle, B-3
Hearst Museum of Anthropology, D-3
Heating Plant, Central, C-6
Hellman Tennis Complex, C-6
Hertz Hall, C/D-3
Hesse Hall, B-4
Hewlett-Packard Auditorium (Soda Hall), A-3/4
Hildebrand Hall, C-3
Hilgard Hall, B-5
Intercultural, A-7
International House, D-2
Ishi Court, C-5
Jacobs Hall, A-4
Jones Child Study Center, F-6
Kleeberger Field House, D-6
Koshland Hall, A/B-6
Knoeber Hall, D-3
Kroch Theater, F-2
Latimer Hall, B/C-3
Lawrence Berkeley National Laboratory, B-2
Lawrence Hall of Science, C-1
LeConte Hall, C-3
Legends Aquatic Center, E-6
Levine Fricke Field, C-1
Lewis Hall, C-2/3
Life Sciences Addition, C-5
Lower Sproul Plaza, D-4/5
Martin Luther King Jr. Student Union, D/E-4
Mathematical Sciences Research Institute, C-1
Maxwell Family Field, C-2
McCone Hall, B-4
McKenney Hall, A-5/6
McLaughlin Hall, B-4
Memorial Glade and Pool, B-4
Minor Hall, C-2/3
Minor Hall Addition, C-3
Moffitt Undergraduate Library, B/C-4
Morgan Hall, B-5/6
Morrison Hall, C/D-3
Moses Hall, C-4
Mulford Hall, B-6
Natural Resources Laboratory, A-6
North Field, D-3
North Gate Hall, A-4
Northwest Animal Facility, A/B-6
O'Brien Hall, B-4
Observatory Hill, B-1
Old Art Gallery, C/D-4
Optometry Clinic (Eye Center,
Minor Hall Addition), C-3
Optometry Clinic (Eye Center,Tang Center), D/E-6
Parking Lots/Structures, A-3, A-4/5, A-6, C-7,
D-3, D-5, D-7, E-4, E/F-3, E/F-5/6
Pimentel Hall, B-3
Pritzer Auditorium (Latimer Hall), C-2/3
Police, UC (Sproul Hall), D-4
Recreational Sports Facility, D-5/6
Residence Halls
Bowles Hall, C-2
Clark Kerr Campus, F-1
Cleary Hall, D/F-4/5
Foothill Residence Halls, A/B-2/3
Ida Louise Jackson Graduate House, F-2/3
Martinez Commons E/F-4
Stern Hall, B-2/3
Unit 1, F-3
Unit 2, F-3
Unit 3, E-5
Residential and Student Services Bldg, E-3
Sather Gate, D-4
Sather Rd., C-4
SatherTower (Campanile), C-3/4
Senior Hall, C-3
Sibley Auditorium (Bechtel Engineering
Center), B-4
Silver Space Sciences Laboratory, C-1
Simon Hall, D-2
Simpson Center, C/D-1/2
Soda Hall, A-3/4
South Hall, C-4
Spieker Aquatics Complex, D-5
Spieker Plaza, D-5
Springer Gateway, C-6
Sproul Hall, D-4
Sproul Plaza, D-4
Stadium Rim Way, C-1/2
Stanley Hall, B-3
Stephens Hall, C-3/4
Strawberry Canyon Recreation Area, C-1
Sutardja Dai Hall, A/B-3/4
Tan Hall, B/C-3
Tang Center, F-6
UC Berkeley Extension, B-7
Underhill Playing Field, E-3
University Dr., B-5
University Hall, B-6
University Health Services, D/E-6
University House, A/B-5
Valley Life Sciences Bldg., C-5
Visitor Center (Memorial Stadium), D-1/2
Warren Hall, A-6/7
Wellman Hall, B-5
West Circle, B/C-5/6
West Gate, B/C-6
Wheeler Hall, C-4
Wickson Natural Area, B-5
Witter Field, C-1
Women's Faculty Club, C-3
Woo Hon Fai Hall, D/E-3
Wurster Hall, D-2/3
Zellerbach Hall, D-5
Zellerbach Playhouse, D-5

A
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Faculty Glade
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Hearst Field Annex
Hearst Museum of Anthropology
Lawrence Hall of Science
Levine-Fricke Field
Silver Space Sciences Lab
Witter Field
Strawberry Canyon Recreation Area
Mathematical Sciences Research Institute
Simpson Center for Student-Athlete High Performance
California Memorial Stadium
Clark Kerr Campus
Conference Services
Golden Bear Rec Center
Krutch Theater
Residence Halls
Residential & Student Services Building
Underhill Parking Facility and Playing Field
Unit 1 Parking Lot
Unit 2 Parking Lot
Martinez Commons
People's Park
Alumnae Hall
Rochdale Village
Fenwick Weavers Village
Haste Street Child Development Center
Ellsworth Parking Structure
Berkeley City Club
MLK Student Union Garage (underground)
Recreational Sports Facility Garage (underground)
Tang Center University Health Services
Jones Child Study Center
Manville Hall / Student Housing
Physical Plant-Campus Services
Mail Services
Communications & Network Services
Public Parking
Bancroft/Fulton West Parking (underground)
Bancroft/Fulton Parking Lot
Office of Public Affairs
Banway Building
Banway Parking Lot
Parking & Transportation
Institute of East Asian Studies
The Magnes
Edwards Stadium/ Goldman Field
David Epstein Plaza
Founder's Building
Hellman Tennis Complex
Springer Gateway
Central Heating Plant
Hazardous Materials Facility
Stow Plaza
Kleeberger Field House
Alumni House
Dwinelle Annex
Dwinelle Plaza
Zellerbach Hall
Zellerbach Playhouse
Chavez Student Center
Martin Luther King Student Union/ ASUC
Ehsleham Hall
Career Center
Stiles Hall
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Maxwell Family Field
Blackberry Entrance
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Dining Hall
Berkeley Lab Guest House
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Calvin Lab
Girton Hall
Cheit Hall
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