

Monica K. Lieng, Ph.D.

CONTACT INFORMATION	Phone: (650) 479-5060 E-mail: mlieng@ucdavis.edu
RESEARCH INTERESTS	Epidemiology, Telemedicine, Biomedical Informatics, Healthcare Disparities
EDUCATION	<div><div>University of California, Davis, Davis, California USA2013 -Present</div><div>Physician Scientist Training Program</div><div>M.D. Student (2013 -Present)</div><div>Ph.D. Epidemiology Graduate Group (2015 - 2020)</div><div><ul style="list-style-type: none"><li>Dissertation Title: “Evaluation of Telemedicine to Facilitate Care Transitions between Generalists to Specialists”</li></ul></div><div>Juniata College, Huntingdon, Pennsylvania USADec 2012</div><div>Department of Biology</div><div>B.S.: Biology; Magna Cum Laude</div><div>Minors: Visual Fine Arts and Spanish/Hispanic Cultures</div><div><ul style="list-style-type: none"><li>One year study abroad at Universidad San Francisco de Quito, Ecuador (2011-2012)</li></ul></div></div>
HONORS AND AWARDS	<div>University of California Office of the President:Jul 2019 - Present</div> <div>Dissertation Year Fellowship (6 chosen per school)</div> <div>Phi Kappa Phi Honor: Dissertation Fellowship (10 chosen nationally)Jul 2019 - Present</div> <div>Association for Clinical and Translation Science:Mar 2019</div> <div>Golden Ribbon (Top 10% of Accepted Abstracts)</div> <div>Association for Clinical and Translation Science:Mar 2019</div> <div>Burroughs Wellcome Fund Trainee Travel Award</div> <div>NIH Clinical and Translational Science Center:Jul 2018 - Jun 2019</div> <div>TL1 Predoctoral Clinical Research Training Program Scholar Award</div> <div>UC Davis: Phi Kappa Phi Honor Society (Top 10% of Graduate Students)June 2018</div> <div>American Physician Scientists Association: Travel AwardApr 2018</div> <div>UC Davis: Graduate Group in Epidemiology-Block Grant FellowshipSep 2017 - Jun 2018</div> <div>UC Davis: Medical Student Research FellowshipMay - Jun 2014</div> <div>Juniata College: Dr. Andrew B. and Maria F. Brumbaugh Science Prize RecipientMay 2013</div> <div>Bioinformatics Institute: Singapore International Pre-Graduate AwardMar - Jun 2013</div> <div>Pennsylvania Health Occupations Students Association: Scholarship RecipientMay 2013</div> <div>Juniata College:Aug 2009 - Dec 2012</div> <div>Quinter Scholarship Recipient, Leadership Scholarship Recipient</div> <div>Alleghany Branch of American Society for Microbiology:Nov 2012</div> <div>1st Place Poster in Medical Category</div> <div>UCSF Summer Research Training Program: Amgen ScholarJun - Aug 2012</div> <div>Air Force Association Chapter 116: Scholarship for Students in STEMMay 2012</div>

## University of California, Davis

*School of Medicine, Division of Pediatrics*

**2017 - Present**

- Dissertation Committee: James Marcin, MD, MPH (Epidemiology), Patrick Romano, MD, MPH, Daniel Tancredi, PhD, Jennifer Rosenthal, MD, MAS
- Dissertation Title: Evaluation of Telemedicine to Facilitate Care Transitions between Generalists and Specialists
- *Telemedicine for Interfacility Nurse Handoffs*: Designed and implemented a prospective cross-sectional study comparing telemedicine (synchronous video) handoffs with telephone handoffs. Analyzed using multi-level linear models. Manuscript under revision.
- *Association between Pediatric Readiness and Potentially Avoidable Transfer Among Interfacility Transfers from Emergency Departments*: Submitted data requests for large administrative datasets from California and for primary data collected to assess emergency department pediatric readiness.
- *Telemedicine Consultation: Evaluating Physician Adherence to Psychiatry Recommendations*: Designed a secondary analysis of a R01-funded randomized clinical trial.

*School of Medicine, Division of Pulmonary, Critical Care, Sleep Medicine and Division of Public Health Sciences*

**2014 - 2017**

- Advisors: Nicholas Anderson, PhD. (Biomedical Informatics), Jason Adams, MD, MS (Critical Pulmonary Care), Jean-Pierre Delplanque, PhD(Mechanical/Aerospace Engineering), Patrick Romano, MD, MPH (Epidemiology)
- Developed visual analytic pipeline for processing and annotating flow and pressure data from the PB840 Ventilator.
- Developed algorithms for automated calculation of clinically relevant values, three types of patient ventilator interactions (PVI).
- Supervised undergraduate and medical students in developing analytical skills and technical writing skills.

## Bioinformatics Institute of Agency for Science, Technology and Research, Singapore

*Division Imaging Informatics*

**Mar - Jun 2013**

- Advisor: Yan Nei Law, Ph.D. (Computer Science)
- Developed algorithms for a classification system that uses second order statistical information for determining mammographic density, a strong breast cancer risk factor.

## Juniata College

*Department of Biology*

**Aug - Mar 2013**

- Advisor: Regina Lamendella, Ph.D. (Microbial Ecology)
- Lab manager. Instructed new lab members on microbial ecology analytic techniques.
- Studied the effects of resistant starch on gut microbial communities through analysis of high-throughput sequencing data.

## University of California, San Francisco

*Department of Epidemiology and Biostatistics*

**May - Aug 2012**

- Advisor: Sáunak Sen, Ph.D. (Biostatistics)
- Determined the quantitative trait loci for interhemispheric commissure development in a cross between I/LnJ and C57BL/6J mice strains. The Elliott Sherr neurology lab could then focus their genotyping efforts to find the specific genes that could be causing autism in mice and humans.

## Universidad de San Francisco Quito, Ecuador

*Colegio de Ciencias Biológicas y Ambientales/ College of Biological and Environmental Sciences*  
**2011 - 2012**

- Advisor: Verónica Barragan, M.S. (Microbiology)
- Studied Brucella and Leptospira in pigs in slaughterhouses in relation to human populations throughout Ecuador.

## Empiristat

**Mar -2011 Jun 2011**

- Advisors: Devin Hunt and Nicole Close, Ph.D. (Epidemiology)
- Literature review on the effects of short messaging service use for subject compliance in clinical trials.

## Juniata College

*Department of Biology*

**2010 - 2011**

- Advisor: Michael Boyle, Ph.D. (Immunology)
- Optimized albumin depletion from fetal bovine serum using binding proteins from bovine group G streptococcal isolates to facilitate proteomic analysis of tissue culture samples grown with fetal bovine serum as a nutrient supplement.
- Compared sensitivity of two *E. coli* probes.

*Department of Biology*

**2010**

- Advisor: Jill Keeney, Ph.D. (Immunology)
- Investigated if the genes RTT105 and GRH1 were involved in overlapping processes in regulating Ty1 transposition.
- Learned the basic lab techniques of the transposition assay in yeast and sterile technique.

## MANUSCRIPTS

1. **Lieng, M.K.**, Siefkes, H.M., Rosenthal, J.L., Sauers-Ford, H.S., Mouzoon, J.L., Sigal, I.L., Dayal, P., Chen, S.T., McBeth, C.L., Dial, S.D., Dizon, G., Dannewitz, H.E., Kozycz, K., Jennings-Hill, T.L., Martinson, J.M., Huerta, J.K., Pons, E.A., Vance, N., Warnock, B.N., Marcin, J.P. Telemedicine for Interfacility Nurse Handoffs\*. *Pediatric Critical Care Medicine*. 2019;20(9):832. doi:10.1097/PCC.0000000000002011.
2. Rosenthal, J.L., **Lieng, M.K.**, Marcin, J.P., Romano, P.S. Profiling Pediatric Potentially Avoidable Transfers Using Procedure and Diagnosis Codes: *Pediatric Emergency Care*. March 2019;1. doi:10.1097/PEC.0000000000001777.
3. Adams, J.Y., **Lieng, M.K.**, Kuhn, B.T., Rehm, G.B., Guo, E.C., Taylor, S.L., Delplanque, J.P., Anderson, N.R. Development and Validation of a Multi-Algorithm Analytic Platform (ventMAP) for the Study of Off-Target Mechanical Ventilation. *Sci Rep*. 2017 Nov 3;7(1):1602.
4. Rehm, G.B., Kuhn, B.T., Delplanque, J.P., Guo, E.C., **Lieng, M.K.**, Nguyen, J., Anderson, N.R., Adam, J.Y. Development of a research-oriented system for collecting mechanical ventilator waveform data. *Journal of the American Medical informatics Association*. 2017;25(3):295-299. doi:10.1093/jamia/ocx116.
5. Y. N. Law, **M.K. Lieng**, J. Li and A. Khoo. Automated breast tissue density assessment using high order regional texture descriptors in mammography. *Proc. SPIE 9035, Medical Imaging 2014: Computer-Aided Diagnosis*, 90351Q. March 2014.

MANUSCRIPTS  
UNDER REVIEW

1. **Lieng, M.K.**, Marcin, J.P., Dayal, P., Tancredi, D.J., Swanson, M.B., Haynes, S.C., Romano, P.S., Sigal, I.S., Rosenthal, J.L., Emergency Department Pediatric Readiness and Potentially Avoidable Transfers. Submitted Mar 2020.
2. **Lieng, M.K.**, Marcin, J.P., Sigal, I.S., Haynes, S.C., Dayal, P., Tancredi, D.J., Romano, P.S., Mouzoon, J.L., Rosenthal, J.L. The Association Between Emergency Department Pediatric Readiness and Transfer of Non-injured Children. Submitted Nov 2019.
3. Kim, C.H., **Lieng, M.K.**, Rylee, T.L., Gee, K.A., Marcin, J.P., Melnikow, J.A. School-Based Telehealth Interventions for Asthma: A Systematic Review. Submitted Sept 2019.

#### INVITED TALKED

1. Lieng, M.K. "Smile! You're on camera! The impact of telemedicine on psychiatry consults." Presented as part of the Clinical Informatics Lecture Series at University of California, San Diego. Dec 10th, 2019.

#### CONFERENCE PRESENTATIONS

Presenter name is underlined.

1. **Lieng, M.**, Marcin JP, Chan S, Aurora MS, Kang Y, Kim JM, Mouzoon JL, Parish MB, Gonzalez AD, Yellowlees PM. The Impact of Telemedicine on Psychiatry Consultations. Presented at the Western Medical Research Conference, Jan 25th, 2020, Carmel, CA.
2. Yang S, **Lieng, M.**, Mouzoon J, Sigal I, Marcin JP, Pakyurek M, Restrepo B, Hoch JS, Yellowlees, PM. The Impact of Tele-behavioral Health in Rural American Indian Communities. Presented at the Western Medical Research Conference, Jan 25th, 2020, Carmel, CA.
3. **Lieng, M.**, Marcin JP, Chan S, Aurora MS, Kang Y, Kim JM, Mouzoon JL, Parish MB, Gonzalez AD, Yellowlees PM. Characterization of Telepsychiatry Consultation Recommendations. Presented at the National Telehealth Research Symposium, Sept 12th, 2019, Chicago, IL.
4. **Lieng, M.**, Rosenthal JL, Sigal IS, Dayal P, Haynes S, Mouzoon JL, Favila A, Marcin JP. Association between Transfer of Children from the Emergency Department and Pediatric Readiness of the Hospital. Presented at the Association for Clinical and Translational Science Translational Science 2019 Meeting, Washington DC, March 8, 2019. Abstract Gold Ribbon (Top 10% of Accepted Abstracts)
5. **Lieng, M.**, Kuhn, B., Rehm, G., Guo, E., Delplanque, J.P., Anderson, N., Adams, J. (2016). An Automatic, Multi-Algorithm Approach to Classify Ventilator Waveforms. AMIA Symposium.
6. Adams, J.Y., **Lieng, M.K.**, Kuhn, B.T., Rehm, G.B., Guo, E., Taylor, S., Delplanque, J.P., Anderson, N. (2017). Development and Validation of a Multi-Algorithm Analytic Platform (ventMAP) for the Automated Detection of Off-Target Mechanical Ventilation. American Thoracic Society Meeting 2016.
7. **Lieng, M.**, Delplanque, JP. Kuhn, B, Anderson, N., Adams, J. Development of a Pipeline for Automated Ventilator Waveform Analysis. AFMR Western Regional Meeting. January 31st, 2015.
8. **Sing, K.**, Apostolides, J.K., Hunt, D.J., Close, N.C. The Effect of Short Messaging Service (SMS) Use for Subject Compliance in Clinical Trials. Society for Clinical Trials Annual Meeting, Vancouver, BC Canada, May 16th, 2011. Podium Presentation. November 14th 2016.

#### SYMPOSIA PRESENTATIONS

1. **Lieng, M.** Algorithm Development for Automated Ventilator Waveform Analysis. Monthly Scholars Presentation. UC Davis, January 14th, 2016.
2. **Sing, M. Keiko**, Rider, E., Jones-Davis, D., Sherr, E., Sen, S. Is there a genetic basis for abnormal brain development in the I/LnJ mouse strain? UCSF Summer Research Training Program Oral Presentation Session, San Francisco, CA, July 30th, 2012.

Presenter name is underlined.

1. Favila A, Davidson L, Bares A, Yoo BK, Mouzoon JL, Sigal IS, Haynes S, **Lieng MK**, Marcin JP. Supporting California's Medical Therapy Program Serving Children with Disabilities through Telemedicine. Presented at the Western Medical Research Conference, Jan 23, 2020, Carmel, CA.
2. Favila A, Davidson L, Bares A, Yoo BK, Mouzoon JL, Sigal IS, Haynes S, **Lieng MK**, Marcin JP. Using Telehealth to Support California's Medical Therapy Program Serving Children with Disabilities. Presented at the National Telehealth Research Symposium, Sept 11th, 2019, Chicago, IL.
3. Kim CH, **Lieng MK**, Rylee TL. School-Based Telehealth Interventions for Asthma: A Systematic Review. Presented at the Pediatric Academic Societies (PAS) 2019 Meeting, Baltimore, MD, April 29, 2019. E-PAS2019:3805.53. (Poster presentation)
4. **Lieng MK**, Siefkes H, Rosenthal J, Sauers-Ford H, Kisse J, Sigal I, Dayal P, Chen S, McBeth C, Dial S, Dizon G, Dannewitz H, Kozycz K, Jennings-Hill T, Martinson J, Huerta J, Pons E, Vance N, Warnock B, Marcin JP: Handoffs Using Telemedicine to Improve Nurse Preparedness. Presented at the Society for Education and Use Advancement of Research in Connected Health (SEARCH) Conference. San Diego, CA, October 24th, 2018.
5. Dayal P, Chang CH, Benko WS, Ulmer AM, Sigal IS, Kisse J, Sauers-Ford HS, **Lieng MK** and Marcin JP: Visit Completion and Hospital Utilization of Children Using Telemedicine in Remote and Underserved Communities of Northern California. Presented at the Society for Education and Use Advancement of Research in Connected Health (SEARCH) Conference. San Diego, CA, October 24th, 2018.
6. **Lieng MK**, Siefkes H, Sauers-Ford H, Kisse J, Rosenthal J, Sigal I, Dayal P, Chen S, McBeth C, Dial S, Dizon G, Dannewitz H, Kozycz K, Jennings-Hill T, Martinson J, Huerta J, Pons E, Vance N, Warnock B, Marcin JP: Association between Nurse Handoff Quality and Use of Telemedicine for Interfacility Transfers. Presented at the Pediatric Critical Care Colloquium. Baltimore, MD, October 6th, 2018.
7. Rosenthal, JL, Marcin JP, **Lieng M**, Romano, PS. Profile of Pediatric Potentially Avoidable Transfers. Association for Clinical and Translational Science Conference, Washington, DC, May 2018.
8. **Lieng MK**, Sauers-Ford H, Kisse J, Sigal I, Dayal P, Chen S, Marcin JP: Evaluating Use of Telemedicine for Interfacility Nurse Handoffs. Presented at the Association of American Physicians (AAP), American Society for Clinical Investigation (ASCI) and American Physician-Scientists Association (APSA) Joint Meeting. Chicago, IL, April 21st, 2018.
9. Dayal P, Sigal IS, Kisse J, Sauers-Ford HS, **Lieng MK**, Marcin JP: Impact of a Pediatric Outpatient Tele-Neurology Program on Patients' Access to Care and Hospital Utilization. Presented at the American Telemedicine Association's (ATA) Annual Conference, May 1, 2018, Chicago, IL.
10. Maul, A., **Sing K**, Jannson, J., Knight, R., Krauss, R., Lamendella, R. Impact of Resistant Starch Diets on Gut Microbial Community Dynamics. Alleghany Branch of American Society for Microbiology. October 10th, 2012.
11. **Sing, M. Keiko**, Rider, E., Jones-Davis, D., Sherr, E., Sen, S. Is there a genetic basis for abnormal brain development in the I/LnJ mouse strain? UCSF Summer Research Training Program Poster Presentation Session, San Francisco, CA, July 30th, 2012.
12. **Sing, K.**, Boyle, M.D.. Depleting albumin from fetal bovine serum to facilitate proteomic analysis. Landmark Conference Summer Research Symposium, 2010.

TEACHING	<b>Teaching Assistant, UC Davis School of Medicine</b>	<b>2017-2019</b>
	<i>Professor: Patrick Romano, Class: MDS 415</i> <ul style="list-style-type: none"> <li>• Developed problem-based learning curricula for first year medical students in foundational concepts in epidemiology and biostatistics</li> </ul>	
	<b>Employee, Teaching Learning Technology</b>	<b>2009 - 2012</b>
	<i>Organization dedicated to innovating and integrating mainstream applications of technology at Juniata College</i> <ul style="list-style-type: none"> <li>• Taught students and staff how to use software for completing their projects.</li> <li>• Assisted users with network-related problems.</li> <li>• Assisted professors with audio/visual troubleshooting.</li> </ul>	
SERVICE	<b>Web Master, Epidemiology Graduate Group Student Committee</b>	<b>2016 - Present</b>
	<i>Student lead committee motivated to improve the quality of education and well being of students in the Epidemiology Graduate Group</i> <ul style="list-style-type: none"> <li>• Currently building a repository of resources for students in the Epidemiology graduate group.</li> <li>• Organize communications with Epidemiology graduate group.</li> <li>• Attend monthly meetings for coordinating Epidemiology events.</li> </ul>	
	<b>Co-Director, Knights Landing One Health Center</b>	<b>Jan - Dec 2014</b>
	<i>Knights Landing One Health Center is a student run clinic that provides free primary care and translation services to medically uninsured and underinsured.</i> <ul style="list-style-type: none"> <li>• Organized in-clinic information resources in cloud-accessible database and maintained resource and EMR access rights.</li> <li>• Oversaw committee on women's health.</li> </ul>	
	<b>Co-Director, Flu Crew</b>	<b>2013 - 2014</b>
	<i>Partnership with UC Davis Department of Pharmacy and Sacramento County Division of Public Health to provide free flu vaccinations in the greater Sacramento Region.</i> <ul style="list-style-type: none"> <li>• Developed multi-lingual advertisements and improved injection rates by 100% from previous year.</li> <li>• Organized 5 community events and coordinated preceptors and volunteers.</li> <li>• Taught new volunteers how to deliver intra-muscular injections.</li> <li>• Designed buttons and banner for publicity.</li> </ul>	
	<b>Volunteer, Physicians for Humanity</b>	<b>2013 - 2014</b>
	<i>Non-profit organization dedicated to provide compassionate, socially and globally minded care in Duran, Ecuador. The majority of my efforts were concentrated at Fundación Padre Damián (FPD)</i> <ul style="list-style-type: none"> <li>• Painted a mural for clinic beautification at FPD</li> <li>• Assisted in miscellaneous tasks such as helping in the kitchen, making posters and organizing medications at FPD.</li> <li>• Assisted in wellness presentations at women's diabetes club.</li> </ul>	
	<b>Volunteer, Health Occupations Students of America</b>	<b>Jan - Oct 2010</b>
	<i>Juniata College Chapter.</i> <ul style="list-style-type: none"> <li>• Patient advocate at free breast cancer screening clinic for uninsured Huntingdon residents.</li> <li>• Won 1st place in HOSA state conference event for Nutrition.</li> </ul>	
COMPUTER AND COMPUTATIONAL SKILLS	<ul style="list-style-type: none"> <li>• Languages - R, Stata, Python, SAS, MatLab, HTML, CSS</li> <li>• Applications - Adobe Creative Suite, Microsoft Office, L<sup>A</sup>T<sub>E</sub>X</li> </ul>	

- Operating Systems: Windows, MAC OS

LABORATORY  
SKILLS

PCR Amplification, DNA Extraction by CTAB, Affinity Protein Purification, Western Blots, SELDI, SDS-PAGE, Yeast Transformation Assay, Medium Preparation, Sterile Technique