A Celebration
Science, People, and Values

Jeroan Allison

Population and Quantitative Health Sciences

State of the Department

March 20, 2023

PQHS Strategic Planning Vision, Values, Purpose, and Objectives

PQHS STRATEGY MAP

VISION

Best health and well-being for all through science, community-engagement, and education

MISSION

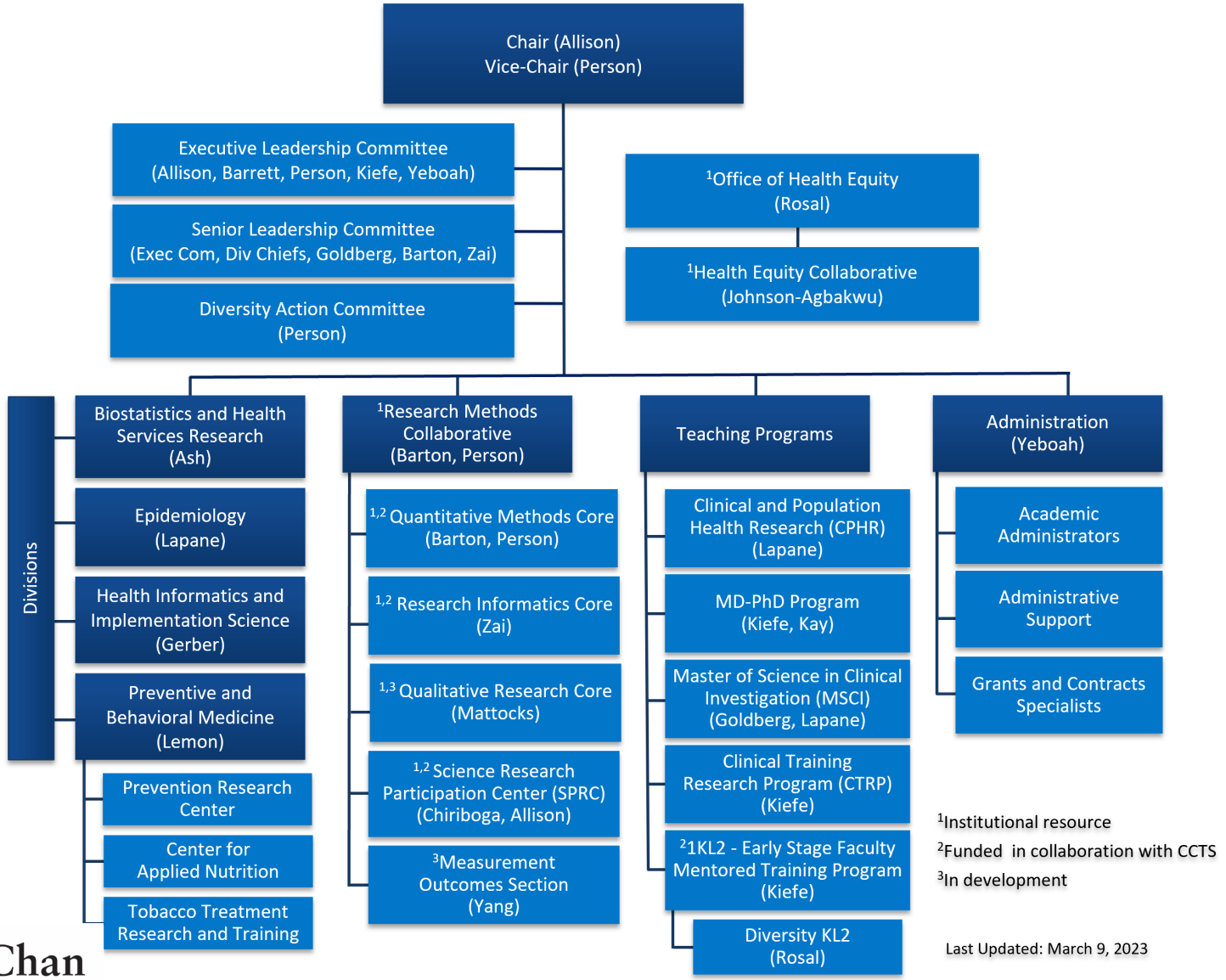
To advance science and improve population health, we will grow a diverse and inclusive learning community of scientists, practitioners, staff and students and collaborate with others (in our institution, our community and beyond) to:

- Create health relevant knowledge
- Invent methods, interventions, and technologies
- Evaluate strategies for implementing, sustaining, and disseminating proven approaches

VALUES

- **Science** that makes a difference
- **Health equity** and **social justice**
- **Lifelong learning** that supports growth for all
- **Collective creativity** through collaboration and engagement
- **Diversity and Inclusion** as a driver of scientific inquiry and excellence

PQHS Organizational Chart



[1]Institutional resource
[2]Funded in collaboration with CCTS
[3]In development

Last Updated: March 9, 2023

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PQHS has a robust portfolio of sponsored projects dedicated to its core mission[1]

Sponsored Projects	Total Award Value	n
Active	$54,494,033	83
Completed	$130,224,451	215
Total	$184,718,484	298
Pending	$43,668,317	28

[1]Only projects for which PQHS investigator is PI or Multi-PI are included.

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We are blessed with top-notch faculty, staff, students, and productivity.

Sarah Yeboah, MBA, MSC

Senior Administrator

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State of the Department
March 20, 2023

Our people are the “heart and soul” of PQHS.

47 primary faculty

38 secondary faculty

45 voluntary or adjunct faculty

8 doctoral students

11 graduate students

56 staff

- 13 administrative
- 43 research

PQHS Finance Team

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Staff translate our vision into reality.

13 Administrative Staff

- Senior Administrator: Yeboah
- 6 Financial: Byron, O'Reilly, Puranik, Lacayo, Holden, McNally
- 6 Secretarial: Armstrong, Baron, McDonald, Raymond, Saber, Stankus

43 Research Staff

- 12 Quantitative Methods Core technical staff
  - Statistical computing: Ayturk, Bhatia, Flahive, Frisard, Lessard, Min, Morrison, Williams
  - Data management: Lazar, Orvek, Rosenberg, Rumbut
  - Project management/coordination: McGrath
- 2 Research Informatics Core staff
  - Informatics Systems: Wong
  - Informatics Operations: Guilarte-Walker
- 28 program directors, research coordinators & assistants, project directors

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PQHS Appointments, Promotions and Awards

- Catherine Dube, EdD – promoted to Professor, non-tenure track
- Hua (Julia) Fang, PhD - promoted to Adjunct Professor, non-tenure track
- Yurima Guilarte-Walker, MS - promoted to Director of Research Informatics Operations
- Michelle Trivedi, MD, MPH - promoted to Associate Professor
- Catarina Kiefe, PhD, MD - named director of the MD/PhD Medical Scientist Training Program
- Sharina Person, PhD - recognized for tremendous contributions to the statistics field in The Membership Magazine of the American Statistical Association (AMSTATSNEWS)
- Kristin Mattocks, PhD, MPH - joined the editorial board of Women's Health Issues, the journal of the Jacobs Institute of Women's Health
- Maira Castaneda Avila, PhD - was accepted to the Meyers Health Care Institute's AGING Initiative MCCs Scholars Program
- Rajani Sadasivam, PhD - nominated as a standing member of the NIH/CSR study section: Interventions to Prevent and Treat Addictions (IPTA)
- Nien Chen Li, MPH, MA; Matthew Alcusky, PhD, PharmD; Grace A. Masters, MD; Arlene Ash, PhD – Their awarding winning manuscript from the American Public Health Association (APHA) 2020 appears in the Medical Care's February 2022 issue. The title of the article is "Association of Social Determinants of Health with Adherence to Second-generation Antipsychotics for People with Bipolar Disorders in a Medicaid Population"

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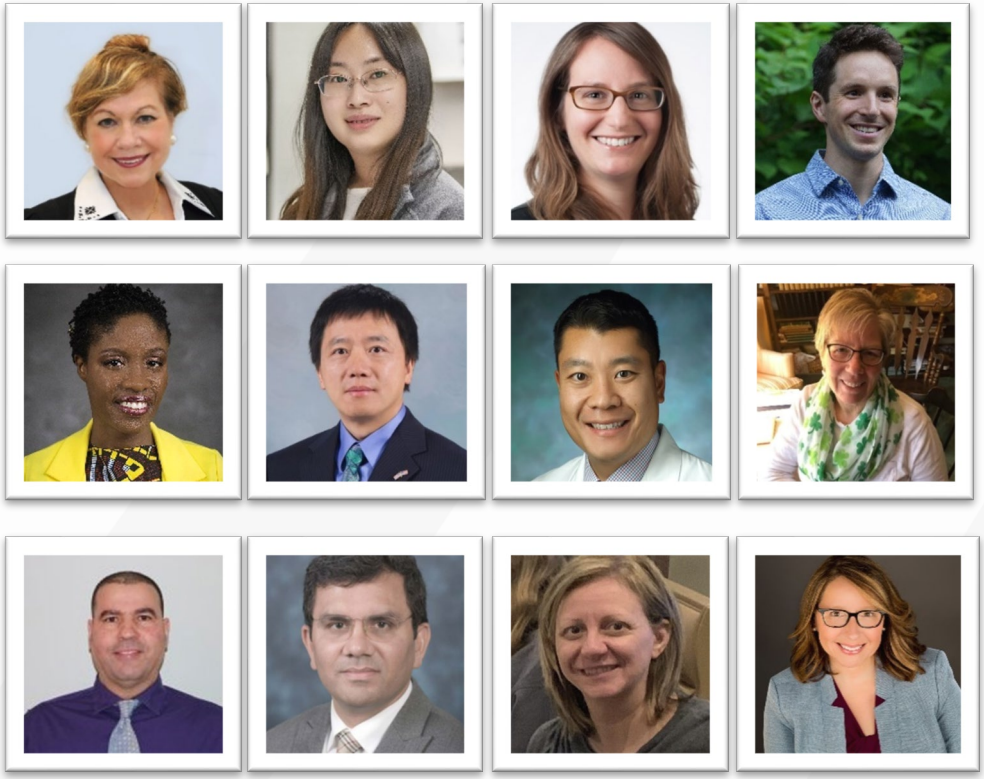
We have an outstanding cadre of new faculty.

Primary
- Hassan Fouayzi, Assistant Professor, BIO
- Clara Filice, Assistant Professor, BIO
- Regina Raboin, Assistant Professor, HIIS
- Jatin Dave, Associate Professor, HIIS
- Yara Halasa-Rappel, Assistant Professor, BIO
- Kurt Hager, Instructor, EPI

Secondary
- Crista Johnson-Agbakwu, Professor
- Johanna Seddon, Professor
- Tianxiao Huan, Assistant Professor
- Kimi Kobayashi, Associate Professor

Affiliate
- Marla Clayman, Associate Professor, PBM
- Ping Gong, Associate Professor, HIIS
- Christie Hager, Associate Professor, BIO



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We are growing …

New Staff

- Jyothi Ananth Pendharkar, Program Director, PBM
- Kellie Armstrong, Executive Assistant to the Chair
- Natalia Nielson, Clinical Research Coordinator, EPI
- Emmanuella Demosthenes, Clinical Research Coordinator, EPI
- Reem Najjar, Clinical Research Coordinator, HIIS
- Supriya Puranik, Business Finance Specialist
- Carla Lacayo, Grants and Contracts Specialist

New post-docs

- Alexandra Onyiego
- Justin Rucci
- Isabelle Pierre-Louis

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And growing... with new arrivals

- Zadie (Dr. Elise Stevens)
- Emiel (Jessica Wijesundara)

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Service Awards

Years in Service	
Lessard,Darlene M	25
Goins,Karin Valentine	25
Andersen,Victoria A.	20
Lemon,Stephenie C	20
Puranik,Supriya	20
Nguyen,Hoa T	15
Shimada,Stephanie L	10
Lazar,Peter G	10
Lapane,Kate L	10
Avcioglu-Ayturk,Mubeccel Didem	10
Stankus,Sandra R	10

Years in Service	
Dube,Catherine E	10
Liu,Feifan	5
Pagoto,Sherry L	5
Hayes,Rashelle B	5
Copeland,Laurel	5
Pimentel,Camilla Benedicto	5
Baek,Jong Gyu	5
Min,Hye Sung	5
Wijesundara,Jessica Gene Golden	5
Forrester,Sarah Nicole	5
Waring,Molly E	5
Wang,Bo	5

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Collaborative in Health Equity

Crista Johnson-Agbakwu, MD, MSc, FACOG

Executive Director

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Population and Quantitative Health Sciences

State of the Department

March 20, 2023

Mission:

- Nurture and sustain community embeddedness and trust
- Center health equity through innovations in clinical care, research, education, and community engagement
- Bolster the recruitment, retention, graduation, and promotion of underrepresented minorities in medicine (URiM)

Vision: Advance health equity for vulnerable, underserved, and historically marginalized communities

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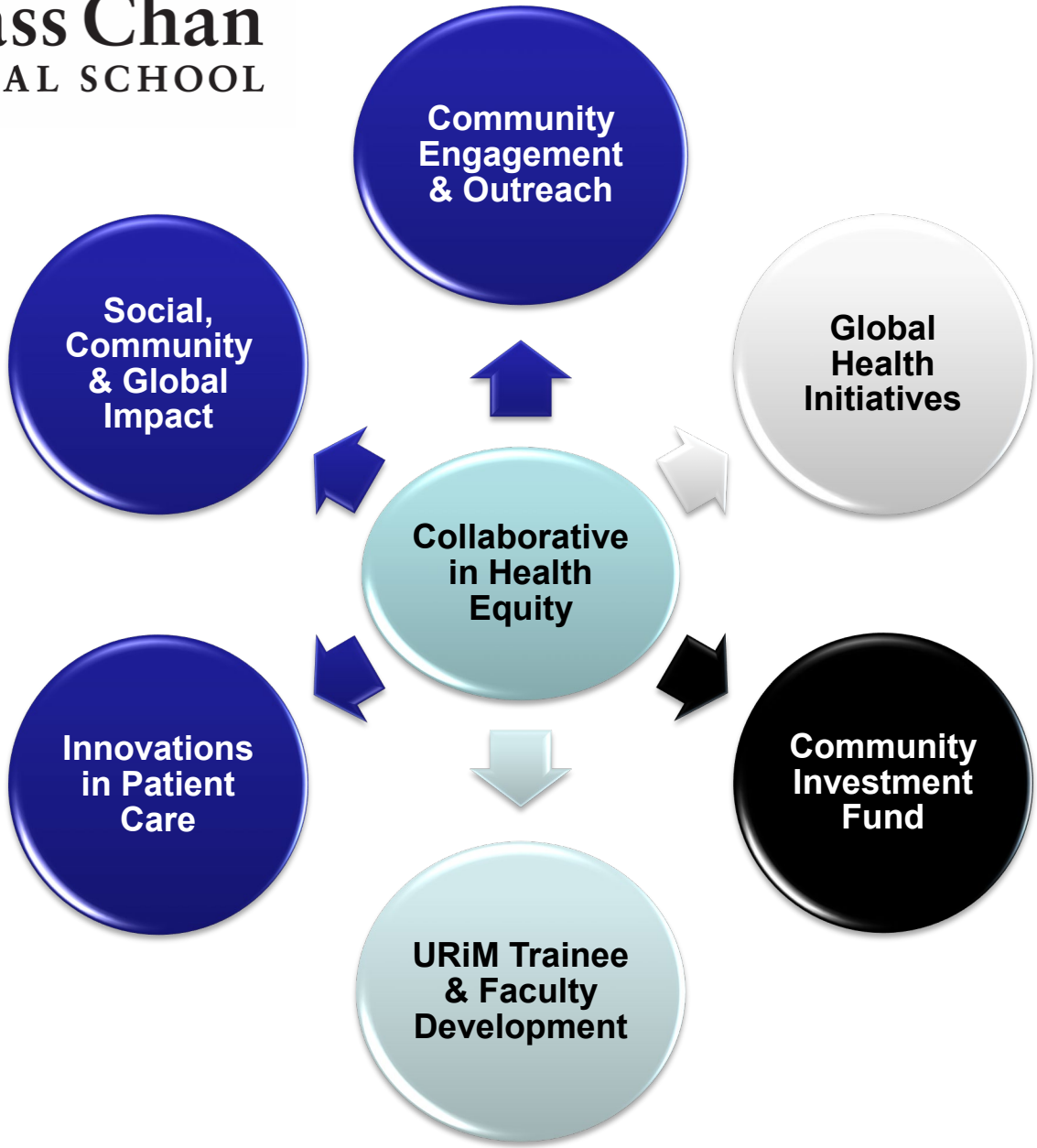

Diversity Action Committee

Sharina D. Person, PhD

Population and Quantitative Health Sciences
State of the Department
March 20, 2023

Overview and Accomplishments

Purpose:

To provide recommendations to the PQHS leadership and information and education about diversity and inclusion to PQHS as it relates to our mission and effectiveness.

Current DAC Membership

- Kellie Armstrong
- Esther Boama-Nyarko
- Amy Borg
- Germán Chiriboga
- Katarina Ferruci
- Sarah Forrester
- Julie Flahive
- Yurima Guilarte-Walker
- Ariana Kamberi
- Jung Ae Lee
- Eric Mick
- Alice Min
- Barbara Olendzki
- Sharina Person
- Milagros Rosal
- Chengwu Yang

Diversity Consultant: Gwen Cochran Hadden

Accomplishments Over The Past Year

- Creation of DAC Virtual Suggestion Box
- Development of the Departmental Equity Action Plan (DEAP)
- Analysis of departmental demographics
- Assessment of DEI educational needs of the department
- Monthly training of DAC in Diversity Topics (*e.g., Neurodiversity, Dimensions of Diversity, High-Low Context.*)
- Creation of the Monthly ***PQHS Diversity Digest***

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Departmental Equity Action Plan (DEAP)

Background

- Established by DIO as part of the Diversity, Equity, & Inclusion Pillar of the Strategic Plan
- PQHS is one of 14 departments participating in the pilot
- Plans should address
  - Culture and Climate
  - Curriculum
  - Education and Engagement
  - Recruitment, Retention, and Advancement
  - Quality Improvement and Accountability
- PQHS DEAP was developed by subcommittee of DAC and ratified by the committee
- DEAP received final approval from Executive Leadership and the Departmental Chair

PQHS DEAP Goals and Activities

PQHS DEAP Goals and Activities	2023 January	February	March	April	May	June	July	August	September	October	November	December
Culture and Climate												
PQHS Website Update	Completed in 2022. Reviewed periodically for updates											
PQHS DAC Virtual Suggestion Box	Completed in 2022. Reviewed periodically for updates											
Diversity Digest												
E-mail Version	Produced monthly and included in the Departmental Newsletter											
Online Edition				X	X	X						
Archived Copies of past editions				X	X	X						
Cultural Assessment									X			
Training of DAC members on Diversity (Ambassadors for department)	Conducted monthly. Past topics include Dimensions of Diversity and High-Low Context.											
Feedback loop with PQHS via suggestion box				X	X	X	X	X	X	X	X	X
Deep dive into Evaluation of PQHS Workshop Evaluation						X	X	X				
Analysis and interpretation of DES department-specific results					X	X	X	X				
Dimensions of Diversity Training (DAC members serve as facilitators)										X		
Recruitment, retention, and outreach												
Determine baseline department demographics	Initially done in 2022			X	X							
In collaboration with the DPAC review time in rank for faculty*	X	X										
Review mentoring plans for URiM faculty*						X	X	X				
Salary Equity review for faculty and staff*			X	X	X							
In collaboration with the CPHR Graduate Program Director, provide access to mentorship resources for students							X	X	X			
Examine the feasibility of supporting career staff development plans and paths for promotion*									X	X	X	
Analysis of faculty and staff turnover in the past 5 years*					X	X						
Compile a departmental best practices resource for effective searches (faculty, staff, and students). (Partner with existing entities e.g. DIO, OHE, OFA)	X	X	X	X	X	X	X	X	X	X	X	X
Curriculum												
Promote University-wide offerings	X	X	X	X	X	X	X	X	X	X	X	X
Education and Engagement												
Assess DEI educational needs of the department	X											
Conduct mini-workshops (co-facilitated by DAC members and DEI Consultant) on DEI needs voiced from assessment				X	X	X			X	X	X	
Examine new opportunities for further engagement with the community using expertise of DAC members (e.g. German, Amy Borg, Barbara, Alice)										X	X	X

*Done by the DAC lead and Departmental Executive Committee at the request of the DAC

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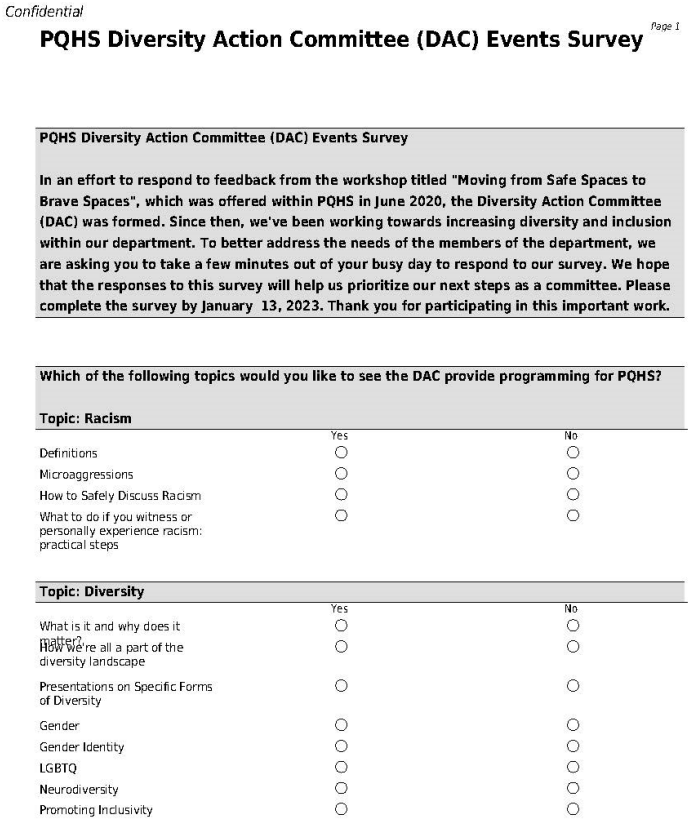
DEI Educational Needs Assessment

Administered in January 2023 to assess the topics and mode of desired DEI educational programming.



Confidential

PQHS Diversity Action Committee (DAC) Events Survey *Page 1*

PQHS Diversity Action Committee (DAC) Events Survey

In an effort to respond to feedback from the workshop titled "Moving from Safe Spaces to Brave Spaces", which was offered within PQHS in June 2020, the Diversity Action Committee (DAC) was formed. Since then, we've been working towards increasing diversity and inclusion within our department. To better address the needs of the members of the department, we are asking you to take a few minutes out of your busy day to respond to our survey. We hope that the responses to this survey will help us prioritize our next steps as a committee. Please complete the survey by January 13, 2023. Thank you for participating in this important work.

Which of the following topics would you like to see the DAC provide programming for PQHS?

Topic: Racism

	Yes	No
Definitions	○	○
Microaggressions	○	○
How to Safely Discuss Racism	○	○
What to do if you witness or personally experience racism: practical steps	○	○

Topic: Diversity

	Yes	No
What is it and why does it matter?	○	○
How we're all a part of the diversity landscape	○	○
Presentations on Specific Forms of Diversity	○	○
Gender	○	○
Gender Identity	○	○
LGBTQ	○	○
Neurodiversity	○	○
Promoting Inclusivity	○	○

57 respondents (approx. 52% response rate)

Student	3
Staff	31
Faculty	23

Top Three Requested Topics

- Racism: What to do if you witness or personally experience racism—practical steps
- Racism: How to Safely Discuss Racism
- Diversity: Promoting Inclusivity

Most Requested Modalities

- Small Group Discussions w/Moderator
- Webinars
- Book Clubs w/ Discussion

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Division of Biostatistics and Health Services Research

Arlene Ash, PhD

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March 20, 2023

BioHSR Highlights

- Research partners:
  - MassHealth (payment models, waiver evaluation)
  - CDC (STI research)
  - NIH (RADx)
  - Multiple individual researchers and teams within and beyond other UMass departments
  - International collaborations
- Weekly Research Meetings Tuesday at 9 am – mix of applied research, methods work, and policy issues
  - Currently re-visioning
- Quantitative Methods Core (Bruce Barton)

Following:
Division members briefly describe some of their diverse and amazing work!

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BioHSR Highlights

- UMass/MassHealth Analytics Team
  - Work with MassHealth on operations and CMS' 1115 Waiver Evaluation.
  - Develop global payment model formulas for TCOC and primary care clinician practices
  - Advise on equity initiatives
- Peter Lazar
  - Collect, extract and process data in REDCap and SAS for multiple research projects
  - Utilize EPIC datamart with claims then train EM team for SOS suicide prevention project
  - Manage data for RADx family of Emergency Use Authorization (EUA) Covid-19 projects
- Chan Zhou
  - Explore non-coding RNAs and RNA modifications in human genetics, immunity, and disease
  - Employ innovative computational and sequencing techniques, combine AI and statistical modeling to analyze multi-omics data
- David Hoaglin
  - Meta-analysis and new methods for random-effects models which avoid the shortcomings of popular inverse-variance-weighted methods
- Jonggyu Baek
  - Developing a method to estimate conditional treatment effects and predict a binary outcome by jointly using propensity and prognostic scores

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BioHSR Highlights

- Didem Ayturk
  - Research in pediatric blood cancer (w Radiation Oncology)
  - Effects of *Trikafta* on growth and puberty in children with cystic fibrosis (w Pediatric Endocrinology)
  - Herpetic Eye Disease after Covid-19 vaccination and infection (w Ophthalmology)
- Jung Ae Lee
  - Conduct food safety research including pandemic-related publications on environmental cleaning practices and face masks as sources of cross-contamination.
  - Use factorial experimental designs, systematic reviews and meta-analyses
- Chengwu Yang
  - Interdisciplinary research focusing on study design, measurement, and oral health
- Austin Lee
  - Statistical collaboration on UMass research projects including safety outcomes for nursing home residents and effects of vitamin and medical nutrition therapy for people with diabetes
  - Teach statistics courses to medical and graduate students
- Bo Wang
  - Develop sustainable international interventions in HIV/STI prevention and mHealth for stigma reduction (The Bahamas, Thailand, Vietnam, Zambia)
  - Use and teach efficient experimental designs (e.g., MOST and SMART) and advanced analytics

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Division of Preventive and Behavioral Medicine

Stephenie Lemon, PhD, MS

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Population and Quantitative Health Sciences
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March 20, 2023

The Division of Preventive and Behavioral Medicine

Mission: ***To improve clinical and public health practice and policy*** through innovative and sustainable education, research, and service in preventive and behavioral medicine.

Our Priority Areas

- Prevention and control of common conditions through behavior
- Emphasis on addressing health disparities
- Tobacco, Obesity, Nutrition, Physical Activity, CVD, Cancer, Asthma, Vaccinations

Our Research

- Focuses on action and impact
- In partnership with public health, community and clinical partners
- Behavioral epi, intervention, implementation and policy research

Our Centers

- Prevention Research Center
- Center for Applied Nutrition
- Center for Tobacco Treatment Research and Training
- Community Engagement Core of the UMass CCTS

Our Team

An AMAZING group of 8 primary faculty, affiliated faculty, staff, and trainees

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Fitline: A Pediatric Practice-based Obesity Intervention to Support Families

What is the public health issue?

Childhood obesity is prevalent. Disparities by race, ethnicity and income persist.

How is this study addressing it?

- Comparing effectiveness of 2 interventions: Fitline coaching and Fitline workbook on child BMI and lifestyle behaviors
- Cluster randomized trial
- 20 MA pediatric practices serving diverse patients

What have we learned?

- Fitline coaching reduced child BMI z score; Both conditions reduced child BMI percentile
- Children made small but sustained changes in sugar sweetened beverage and fast food consumption, among other behaviors

What is the call to action?

Both interventions can support pediatric practices in addressing childhood obesity

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Team: L Pbert (PI), A Geller, C Frisard, S Crawford, S Druker, J Bram, B Olendski, V Anderson, J Hazelton, D Simone, M Trivedi, G Ryan
Partners: 20 pediatric practices; American Academy of Pediatrics
Funding: NHLBI

PR-OUTLOOK: Puerto Rican Young Adults' Stress, Contextual, Behavioral & Cardiometabolic Risk

What is the public health issue?

Middle-age and older Puerto Ricans experience cardiovascular disparities, but cardiovascular health and risk of young adults in Puerto Rico have not been studied.

How is this study addressing it?

- Cohort of 3,000 young adults (ages 18-29) in Puerto Rico
- Assessing cardiovascular health factors and potential predictive and protective factors
- Constructing a biorepository of multiple specimens for future longitudinal studies.

What have we learned?

- Poor overall cardiovascular health (CVH)
- 1/3 have high blood pressure; 1/2 are overweight;1/4 vaping (mostly marijuana)
- High levels of depressive symptoms; associated with poor CVH
- Impact of natural disasters associated with depressive symptoms, PTSD, ataque de nervios

What is the call to action?

Interventions for CVH among young adults in Puerto Rico are urgently needed!

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Team: M Rosal (PI), C Perez (PI), C Kiefe, S Person, I Almodovar, K Tucker, J Mattei, J Rodriguez-Orengo

Partners: UPR, Fundación de Investigación, UMass Lowell and Harvard

Funding: NHLBI

Division of Health Informatics and Implementation Science

Ben Gerber, MD, MPH

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Population and Quantitative Health Sciences
State of the Department
March 20, 2023

Overview

Health Informatics

Implementation Science

- mHealth: apps, SMS, and wearables
- Health behaviors/chronic disease
- EHR data
- AI
- Health equity
- Translation and implementation

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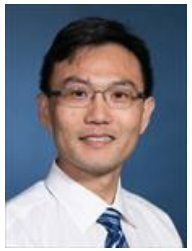
AI2Equity: AI Integrating SDOH to Advance Health Equity in CV Risk Prediction

Feifan Liu, PhD



- Existing prediction tools work poorly in **marginalized** groups
- Limited integration of **Social Determinants of Health (SDOH)**
- **Advanced AI** techniques remain understudied
- AI **fairness and generalizability** not considered

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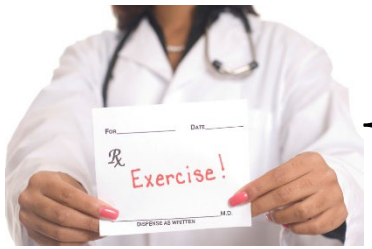
Implementation Science (2 K01s)

Jamie Faro, PhD

ActivityChoice for Cancer Survivors



LIVESTRONG AT THE YMCA

Daniel Amante, PhD

DM-BOOST para Latinx

AADE7™ Self-Care Behaviors

- Healthy Eating
- Being Active
- Monitoring
- Taking Medication
- Problem Solving
- Healthy Coping
- Reducing Risks

Dissemination and Implementation Science Collaborative (DISC)

NEW!

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idapt

Implementation & Informatics: Developing Adaptable Processes & Technologies for Cancer Control

Division of Epidemiology

Kate Lapane, PhD

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Population and Quantitative Health Sciences
State of the Department
March 20, 2023

Division of Epidemiology

Who we are:

- 12 primary faculty
- 5 secondary faculty
- 6 voluntary/adjunct faculty members
- 3 post-doctoral fellows
- 12 staff members

What we do:

- Conduct a wide variety of research in the areas of aging, end of life care, comparative safety and effectiveness research, cardiovascular epidemiology, infectious disease epidemiology, epidemiologic methods
- Train the next generation of scientists to conduct innovative, clinically relevant research

Funding portfolio:

- NINR, NIA, NIMH, NCI, Industry
- Training grant PIs (IMSD, PREP, TL1), Mentoring K24 (Tjia), Fogarty Training Grant with Hanoi Medical University (Hoa Nguyen)

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Pharmacoepidemiologic Evidence for a Vulnerable and Understudied Population: A National Study of Nursing Home Residents with Dementia

Project Title: Antidementia medication use, safety, and effectiveness among nursing home residents with dementia

Specific Aims:

1. Examine contemporary patterns of antidementia medication use in nursing home residents with dementia
2. Compare long-term effectiveness, safety, and survival between residents initiating various treatment regimens
3. Identify residents for whom a given treatment regimen confers a net benefit

Objective: Inform resident-centered shared decision-making regarding pharmacologic management of dementia throughout the nursing home stay.

Research Team, Investigators: Alcusky (PI), Lapane, Tjia, Baek, Liu, Li, Ott

Trainees and Staff: Hollins, Chen, Yuan, Liang, Rataj

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Structural Racism and Engagement of Family Caregivers in Serious Illness Care

Jennifer Tjia, MD, MSCE, FAAHPM
R01 NR020439 (2022-2027)

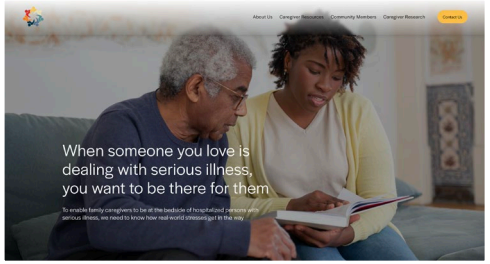
Aim 1. Quantify impact of structural racism (i.e. residential segregation, differential access to palliative care & caregiver resources) on serious illness patients' outcomes.

Aim 2. Use institutional case studies to characterize hospital policies, practices, and cultures affecting caregiver engagement for patients with serious illness.

Aim 3. Engage local communities to develop actionable policy recommendations to improve caregiver engagement for hospitalized patients with serious illness.

More information at our website:

EquityInCaregiving.org



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Educational Activities

Kate Lapane, PhD

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PQHS Educational Efforts

- Post-baccalaureate
- Medical students
- PhD - Clinical and Population Health Research
- MD/PhD – Clinical and Population Health Research
- MSCI degree
- Post-doctoral training

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Melissa Goulding MS, PhD Candidate

Pediatric Hypertension Clinical Practice Guidelines: Implementation and Equity

Local data & community engagement → Clinical partnerships & institutional resources → Funding (F31) → **IMPACT**

Prevention Research Center at UMass Chan Medical School

Healthy Kids & FAMILIES™

Children's Medical Center UMass Memorial Health UMASS MEMORIAL MEDICAL CENTER

Child Health Equity Center

UMass Chan MEDICAL SCHOOL Research Informatics Core

NIH National Heart, Lung, and Blood Institute

Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research

Local
Equity focused quality improvement

Scientific
Contribution to emerging field

Future Directions
Linkage with pediatric obesity initiatives

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Carly Herbert MD/PhD Candidate

Aim 1. Evaluate whether different SARS-CoV-2 symptoms have different timings of onset, relative to rapid antigen positivity.

Aim 2. Examine association between SARS-CoV-2 community transmission levels and peak viral load.

Aim 3. Create a predictive model to estimate time to positivity, considering vaccination, variant, location, symptoms, and exposures.

At-Home COVID-19 Antigen Tests-Take Steps to Reduce Your Risk of False Negative: FDA Safety Communication

Share | Tweet | LinkedIn | Email | Print

Date Issued: August 11, 2022

The U.S. Food and Drug Administration (FDA) is advising people to perform repeat, or serial, testing following a negative result on any at-home COVID-19 antigen test, to reduce the risk an infection may be missed (false negative result) and to help prevent people from unknowingly spreading the SARS-CoV-2 virus to others. **The FDA recommends repeat testing following a negative result whether or not you have COVID-19**

Annals of Internal Medicine ORIGINAL RESEARCH

Comparison of Rapid Antigen Tests' Performance Between Delta and Omicron Variants of SARS-CoV-2

A Secondary Analysis From a Serial Home Self-testing Study

JAMA Network | Open

Original Investigation | Public Health

Use of a Digital Assistant to Report COVID-19 Rapid Antigen Self-test Results to Health Departments in 6 US Communities

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FDA WSJ CDC CENTERS FOR DISEASE CONTROL AND PREVENTION

The Boston Globe The New York Times

Quantitative Methods Core

Bruce A. Barton, PhD

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March 20, 2023

QMC Overview

- Established (officially) in May 2010 to provide support for UMass investigators across the spectrum of research requirements
- Currently, QMCers have conducted over 3200+ consults, 400+ grant applications, and 250+ projects
- Cover all types of NIH applications and industry/FDA submissions
- Support includes study design, analysis, data management, project management, grant writing, and publication

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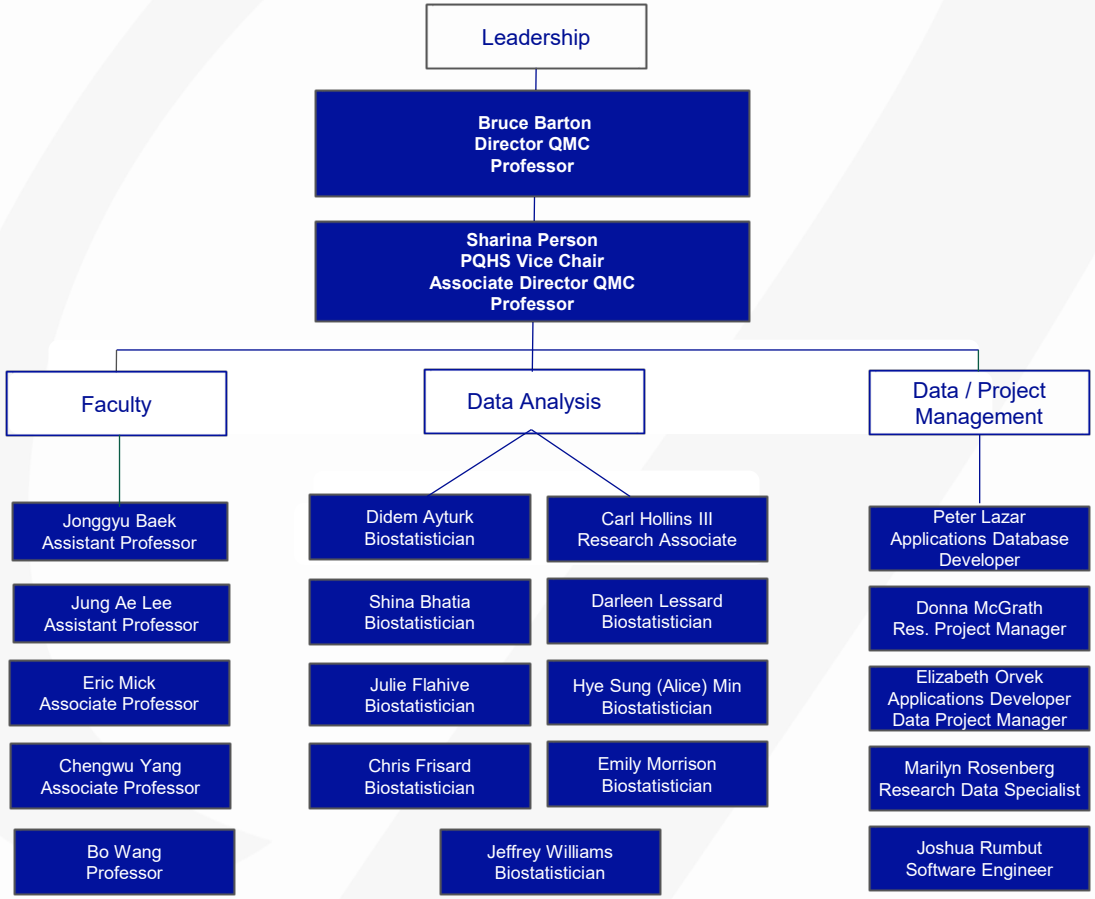
Department of Population and Quantitative Health Sciences
Quantitative Methods Core (QMC) Organizational Chart



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Major Current And Planned Initiatives

Oncology

- Radiation oncology analyses (UMCMS)
- Lahey Med Center Urologic Oncology
- Precision Oncology
- Health Equity in Cancer
- Biostatistics Core of the U Mass Memorial Cancer Center

Other Areas

- Center for Child Health Equity
- Implementation Science and Practice Advances Research Center (iSPARC)
- 1115 Waiver Evaluation
- Social Determinants of Health
- Payment Modeling

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Planned Enhancements

- Increased visibility and rebranding on the UMass website
- Further refinements of current processes
- Ongoing continuing education for faculty and staff

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Research Informatics Core

Adrian Zai, MD, PhD, MPH

Population and Quantitative Health Sciences
State of the Department
March 20, 2023

Research Informatics Core

Services (Yurima Guilarte-Walker)

Clinical Data Access

Provide clinical data from UMass Memorial Health for feasibility assessments, patient recruitments or retrospective studies.

Data Engineering, Data Science and Visualization

Research Data Management for Researchers, Divisions or Departments.

Present data using Tableau or geo-mapping software.

Preparation for Grant Proposal

Develop data plan design, access to aggregate-limited data.

Assist with budgeting, letters of support, security, and grant writing.

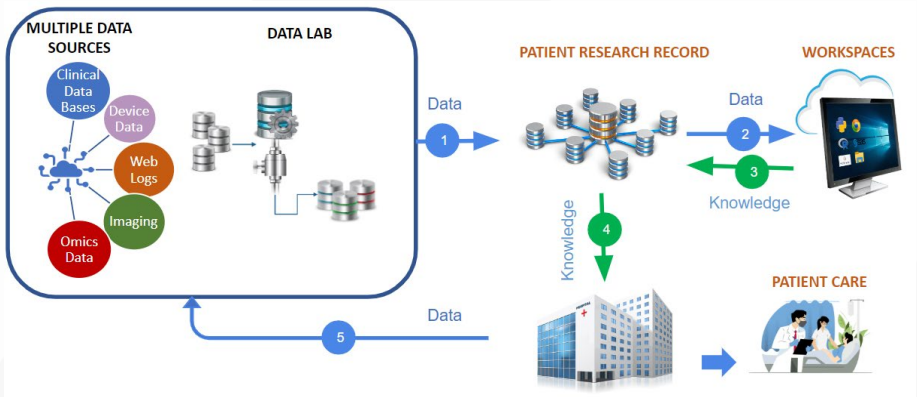
Extended Services

Quantitative Methods Core (Dr. Bruce Barton)

UMass Amherst Intelligent Sensing Lab (Dr. Xian Du)

Epic Research Tools (UMass Memorial BI Unit - Penny Iannelli)

Systems (Steven Wong)



https://www.umassmed.edu/research-informatics/

Email: ResearchInformaticsCore@umassmed.edu

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Automated Classification of At-home SARS-CoV-2 Lateral Flow Assay Test Results using Image Matching and Transfer Learning: multiple-pipeline study

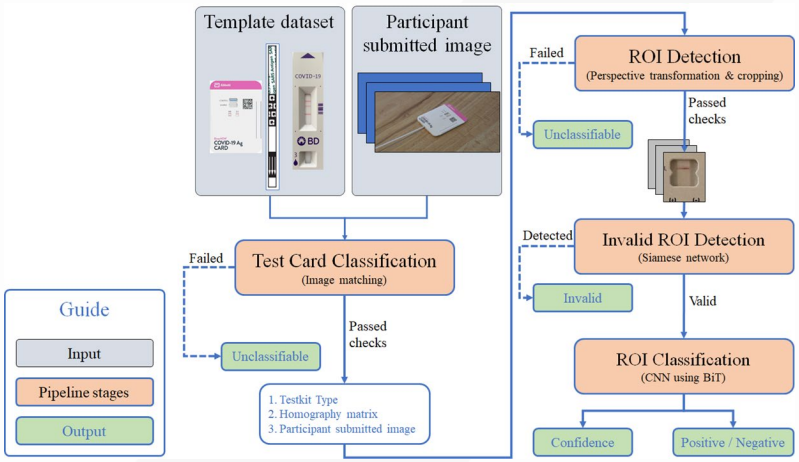
Meysam Safarzadeh, Carly Herbert, Steven Wong, Yurima Guilarte-Walker, Colton Wright, Thejas Survana, Chris Novak, Vik Kheterpal, Shishir Pandey, Biqi Wang, Honghuang Lin, Nathaniel Hafer, Katherine Luzuriaga, John Broach, David McManus, Adrian Zai, Xian Du, Apurv Soni.

Introduction

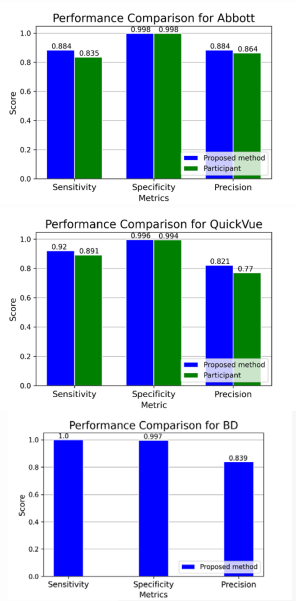
Up to 14% of individuals who are infected with COVID-19 may go undetected, and traditional methods of reading antigen testing results from thousands of study participants can be labor-intensive and prone to errors.

To address this issue, our team developed an AI algorithm that can automatically identify test results from images. By applying this algorithm, we hope to streamline the testing process and improve accuracy in detecting COVID-19. infections.

Method



Results



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Reducing Infections in post-Surgical Events (RISE)

Ugur Celik, Kimi Kobayashi, Richard Ellison, Feifan Liu, Qiming Shi, Steven Wong, Yurima Guilarte-Walker, Adrian Zai.

Introduction

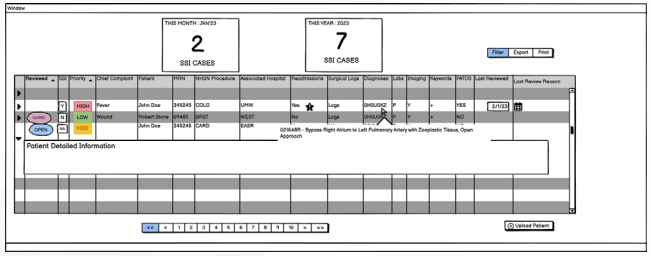
Surgical Site Infections (SSIs) are a significant subset of healthcare-associated infections (HAIs) that result in significant morbidity and mortality. They occur as a result of surgical procedures and can lead to prolonged hospital stays and readmissions.

Challenge

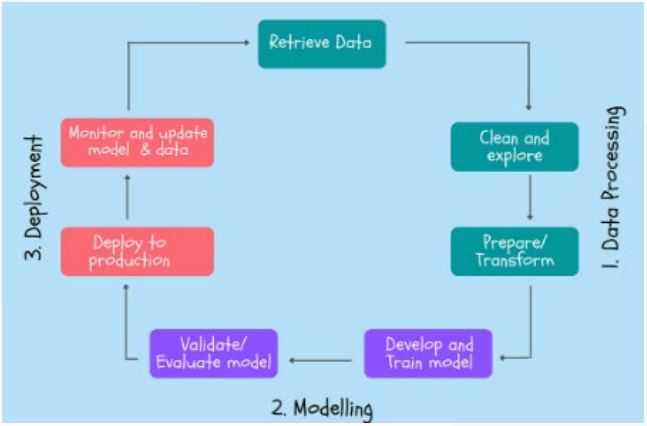
Conventional methods of detecting and tracking SSIs often rely on manual labor, subjective observations, and are time-consuming.

Solution

Our team is currently developing a Machine Learning (ML) model to analyze clinical data and generate risk scores for Surgical Site Infections (SSIs). These risk scores will then be displayed on a dashboard, allowing healthcare professionals to sort patients according to their risk levels.



Mockup of the SSI Dashboard



Machine Learning Workflow

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March 20, 2023

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