UCSF

# The University of California San Francisco Urologic Epidemiology K12 Program

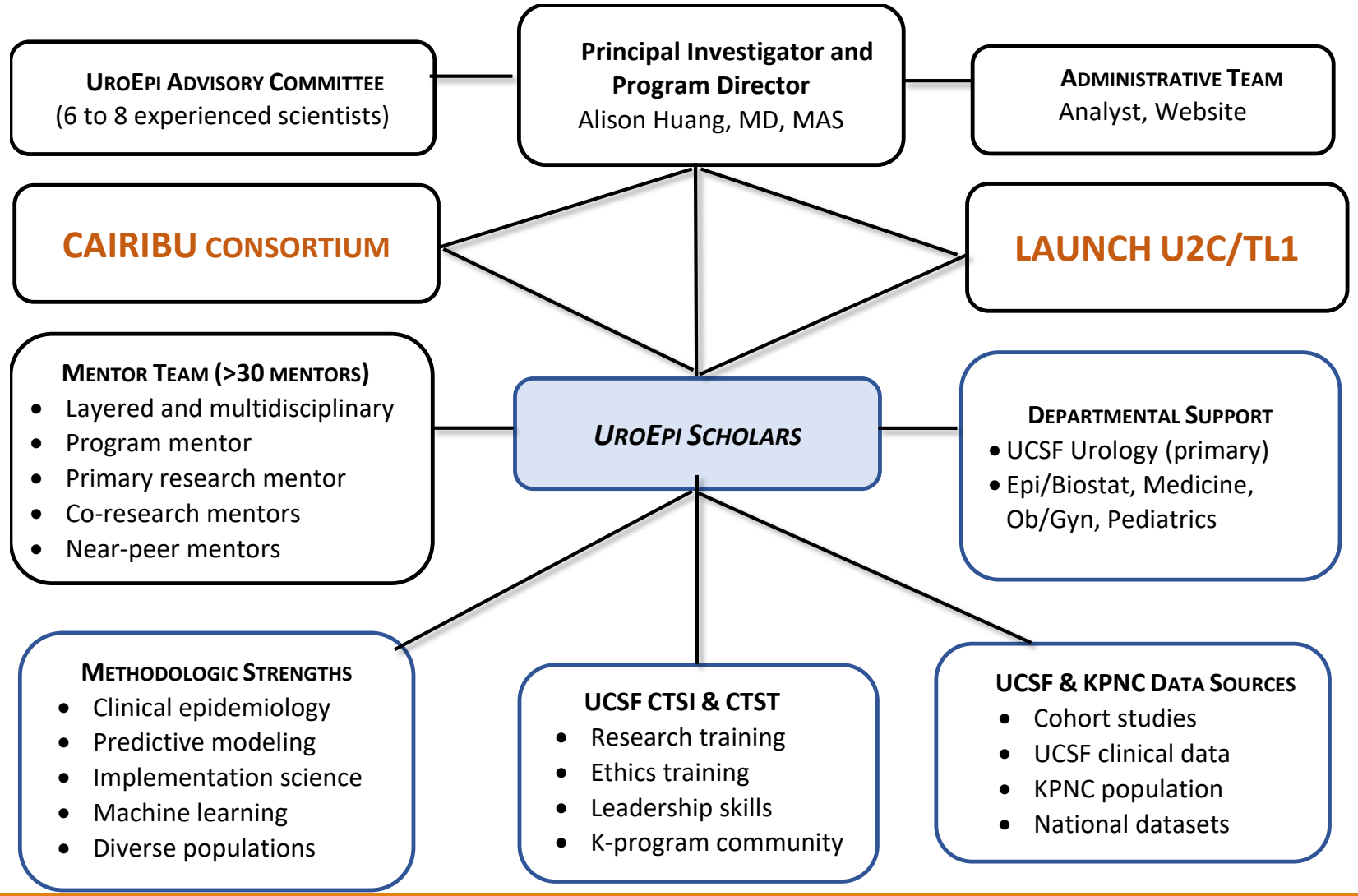
# Program History

- Launched in 2016 as a joint program between UCSF and Kaiser Permanente Northern California (KPNC)
- Initially designed to support two K12 scholars at any one time, then increased to support up to three K12 scholars at any time in cycle 2
- Led by Alison Huang, MD, MAS (UCSF) and Stephen Van Den Eeden, PhD (KPNC) from 2016-2024
- Converted to a UCSF-based program in 2024 with Dr. Van Den Eeden's retirement

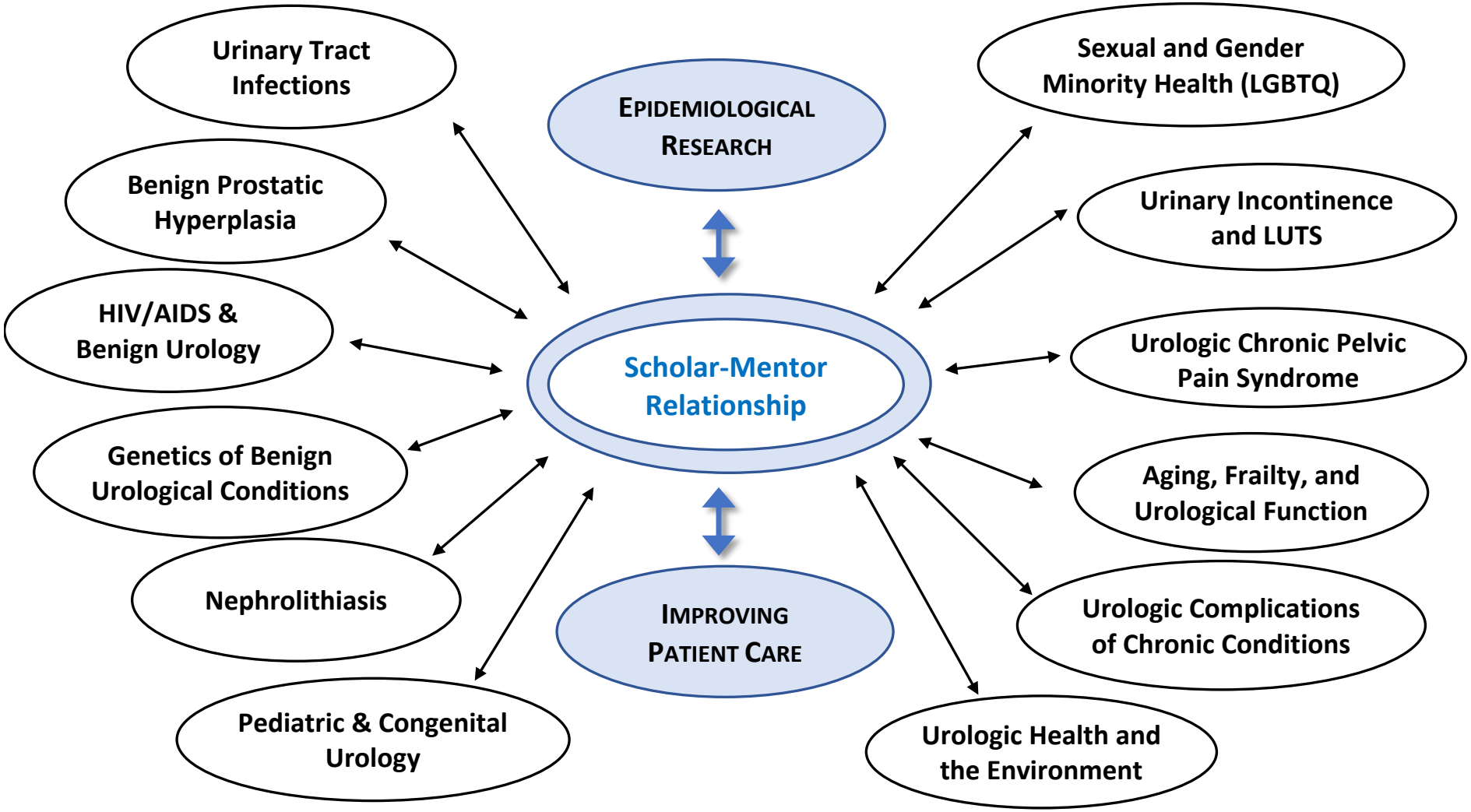
# Program Priorities

- Designed for junior faculty (i.e., assistant professors) rather than postdoctoral fellows seeking to develop urologic epidemiology careers
- Emphasis on developing unique, innovative research programs likely to lead to independence
- Focus on transdisciplinary science–cross-pollination of urology/uro-gynecology, epidemiology, geriatrics, infectious disease, health disparities
- Promotion of diverse epidemiologic methods (clinical and translational epidemiology, health services research, implementation science)

# UCSF UroEpi K12 Program Overview



# Diverse Possible UCSF UroEpi K12 Topic Areas



# Training Infrastructure and Resources for Epidemiologic Science at UCSF

- **UCSF Clinical & Translational Science Institute's "K Scholars" Program**
  - Weekly-to-biweekly works-in-progress sessions for >50 scholars, both those from institutional KL2/K12 programs plus independent NIH K awardees
  - Sessions facilitated by experienced faculty investigators (including UroEpi K12 PI/PD Alison Huang)
  - Methodologic and career development seminars (e.g., time management, scientific communication skills, community-participatory research)
  - Access to one-on-one support from faculty biostatisticians, grant-writing coaches, scientific writing coaches

# Training Infrastructure and Resources for Epidemiologic Science at UCSF

- **UCSF Training in Clinical Research (TICR) Program**
  - Master's degree, certificate program, and individual courses on epidemiologic design, data management, statistical computing, biostatistics (including courses by UroEpi K12 PI/PD and other program faculty)
- **UCSF Implementation Science (IS) Training Program**
  - Master's degree, certificate program, mini-courses, and individual courses (e.g., human-centered design, community-engaged research)
- **UCSF Health Data Science (HDS) Training Program**
  - Master's degree, certificate program, and individual courses (e.g., machine learning, big/complex data)

# Collaborations with Other NIH-funded Training Programs at UCSF (and Affiliated Institutions)

- **Learners-to-leaders in Urology, Nephrology, and non-Cancerous Hematology (LAUNCH) U2C/TL1 Program**
  - Career development, networking, and emerging leadership opportunities across four northern California institutions (UCSF, Stanford, UC Berkeley, UC Davis)
  - Multiple UroEpi K12 faculty and alumni engaged in leadership (Alison Huang as admin core lead, Scott Bauer and Eva Raphael as emerging mentors)
- **"Stronger Together" career development initiative involving UroEpi, BIRWCH, WRHR K12 programs**
  - Workshops on working with mentors, navigating the manuscript review process, communication about research with the press or public

# Data Resources and Strategies for UroEpi K12 Scholars

## Pre-existing urologic registries and cohorts

Example: Registry for Stones of the Kidney and Ureter (ReSKU) – longitudinal registry of patients with urologic stone disease from 5+ institutions

## Addition of urologic measures to other cohorts

Example: SOMMA – addition of urologic symptom measures to a prospective cohort study of 879 ambulatory men and women aged 70 years and older

## Healthcare system patient populations

Example: Electronic health record data on >4,000 safety net patients in San Francisco with E. coli bacteriuria

## Development of all-new research cohorts

Example: PRIDE de novo national cohort study of sexual minority individuals

# Career Development for UCSF UroEpi K12 Scholars

- One-on-one mentor meetings (weekly to monthly, depending on the mentor), separate quarterly program director meetings
- Twice yearly group meetings of primary/secondary mentors plus UroEpi K12 program director, with review of Career Development Plan
- Regular local works-in-progress and career development seminars (via the UCSF CTSI “K Scholars” Program, LAUNCH U2C/TL1 workshops)
- Completion of Responsible Conduct of Research training within the first year of K12 support
- Didactic coursework tailored to the specific background, goals, and proposed research of the scholar

# Milestones for UCSF UroEpi K12 Scholars

- Originally conceived as a “pre-K” rather than “pre-R” program—but some scholars may transition directly to independent grants

- 3 years of K12 support for those with prior formal epidemiologic or clinical research training (master’s or doctoral degrees)—possibly more for others

- 3 research publications submitted by end of year 2, two as first or last author

- One extramural grant submitted by end of year 2, and transition to external support by the end of the K12 program (e.g., K23/K08/K01, R-type grants)

# UCSF K12 Scholar Summary

- Total of 5 past scholars, and 4 current scholars

- 6 primary departments (obstetrics & gynecology, medicine, Kaiser DOR, urology, epidemiology & biostatistics, pediatrics)

- 7 clinician scientists (MDs, with or without master's degrees), 2 non-clinician scientists (PhDs)

- 4 individual K grants, 2 R01 grants, 1 other large NIH grant, 2 other small NIH grants (R03, R21), other independent funding (PCORI)









# Cycle 1: Past UroEpi Scholars

| Scholar | Department | K12 Focus | Outcomes |
|---|---|---|---|
| Juno Obedin-Maliver, MD, MAS | UCSF Obstetrics, Gynecology, & Reprod. Sciences | Genitourinary health in sexual and gender minority individuals | NIH R21, NIH OT2, PCORI grant awarded |
| Scott Bauer, MD, MS | UCSF Medicine and Urology | Lower urinary tract symptoms and muscle function in older men | NIH R03, NIH K76, NIH R01, CAIRIBU funding awarded |
| Marvin Langston, PhD | KPNC Division of Research | Acute and systemic inflammation and benign urological conditions | NIH K01, NIH R01 awarded |

# Juno Obedin-Maliver: Research Themes

- The PRIDE study– first prospective, nationwide, longitudinal cohort of sexual and gender minority individuals (SGM) (pridestudy.org)
- Launched by Dr. Obedin-Maliver in collaboration with a nephrologist researcher (Dr. Mitch Lunn)
- Pilot study based on smartphones, followed by dynamic web-based portal enrolling ~12,000 people since 2017, with K12 and PCORI support
- Recruited via social media, transitional media, and 41 dedicated community partners (service, advocacy, and policy organizations)

# Scott Bauer: Research Themes

- Focus on lifestyle factors, mobility, and muscle function as modifiable risk factor for lower urinary tract symptoms (LUTS) in older adults
- Integration of urologic and other measures into large prospective cohorts (SOMMA, MrOS), to examine aging-specific risk factors for LUTS in older adults
- Partnerships with basic science researchers to use animal models to investigate translational mechanisms underlying BPH and LUTS in older men

# Marvin Langston: Research Themes

- Initial: Differences in prevalence and incidence of UTI-mediated urological conditions between men-who-have-sex-with-men and heterosexual men.
- Follow-up: Acute and systemic inflammation and benign urological conditions, with a focus on the prostate
- ‘Big data’ phenotyping and clinical and epidemiologic sources: California Men’s Health Study; Research Program in Genes,  Environment and Health study (RPGEH); Kaiser EHR

# Cycle 1 - 2: Past UroEpi Scholars

| Scholar | Department | K12 Focus | Outcomes |
|---|---|---|---|
| David Bayne, MD, MPH | UCSF Urology | Food insecurity and social determinants of recurrent kidney stone disease | Intramural grant awarded, NIH K23 grant awarded |
| Eva Raphael, MD, MPH | UCSF Epidemiology & Biostatistics, Family & Community Medicine | Antimicrobial resistant Escherichia coli causing bacteriuria in safety net patient populations | NIH K23, intramural grant awarded |

# David Bayne: Research Themes

- Focus on understanding and reducing disparities in outcomes for urologic stone disease (USD)
- Leveraging electronic health record data to investigate risk factors for poor outcomes and to automate identification of patients at risk for being lost to follow up after USD diagnosis
- Elucidating stakeholder perspectives on root causes of, and potential solutions for, loss-to-follow-up for USD in vulnerable populations
- Evaluation of the feasibility of early risk identification with stakeholder-informed patient navigator support

# Eva Raphael: Research Themes

- Application of advanced social, spatial, and molecular epidemiology methods to investigate community drivers of drug-resistant urinary tract infections (UTIs) in vulnerable populations
- Evaluation of >4,000 safety net patients in San Francisco with culture-documented extended-spectrum beta-lactamase (ESBL)-producing Escherichia coli bacteriuria
- Identification of neighborhood-related risk factors that could explain increasing community-onset extended-spectrum beta-lactamase-UTIs; and associations with distinct E. coli genotypes

# Cycle 2: Current UroEpi Scholars

| Scholar | Department | K12 Focus |
|---|---|---|
| Jennifer Yarger, PhD | UCSF Epidemiology & Biostatistics, Institute for Health Policy Studies | Opportunities to improve access and quality of care for UTIs in emerging adults via telemedicine and e-visits |
| Abigail Shatkin-Margolis, MD | UCSF Obstetrics, Gynecology, & Reproductive Sciences | Long-term consequences of pelvic procedures on lower urinary tract function in women |
| Rachel Wattier, MD, MAS | UCSF Pediatrics | Antibiotic overtreatment of children evaluated for UTI in emergency departments |
| Alexandra Bicki, MD | UCSF Pediatrics | Prevention and management of UTIs among kidney transplant recipients |

# Innovative Approaches by UroEpi Scholars

- Leveraging novel approaches to participant engagement and enrollment (e.g., Dr. Obedin-Maliver)
- Creation of transdisciplinary and translational partnerships to spearhead novel research projects (e.g., Dr. Bauer)
- Integration of real-world healthcare delivery system data with other biomedical data (e.g., Drs. Langston and Raphael)
- Applying mixed qualitative and quantitative research methods (e.g., Drs. Bayne, Yarger, Shatkin-Margolis) to investigating health access problems

# UCSF UroEpi Program Facilitators

- Rich overall environment for population- and patient-oriented research, strong connections to other clinical science training programs
- Strong pipeline of research trainees (likely to increase with the recently launched LAUNCH U2C/TL1 program)
- Integration of UroEpi K12 scholars with diverse other junior faculty facing shared challenges/goals in pursuing epidemiologic/clinical science at UCSF
- Cultivation of near-peer relationships in urologic science (senior K scholars serve as resources for K12 scholars, K12 scholars advise TL1 fellows)

# UCSF UroEpi Program Challenges

- Competing time pressures for clinician or surgeon investigators (patient care, operative time)
- Need for alternate co-support for scholar salaries, since K12 funds do not cover 50%-75% of scholars' effort at institutional salary rates
- Higher bar for developing independent research programs with increasing diversity and specialization of epidemiologic science
- Constraints on use of K12 scholar research funds (allocation for career development/training versus generation of pilot data)