

Carina Marquez, MD

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If you're looking for the embodiment of interdisciplinary responsibilities at UCSF, you may not have to look beyond Dr. Carina Marquez. With multifaceted leadership, clinical, and research roles, she is one of the leading HIV and global health physician investigators tackling some of the field's most challenging questions.

An Assistant Professor in the Division of HIV, Infectious Disease, and Global Medicine and based at Ward 86 at Zuckerberg San Francisco General Hospital, she also serves as the Division's Associate Director of Education, has a panel of HIV-positive patients at the clinic, directs the SALUD clinic for monolingual Spanish speaking patients, is Associate Director of the Infectious Disease Clinic, *and* leads a study in East Africa exploring the epidemiology of tuberculosis infection and transmission among children and young adults.

Looking at this resume, one might expect an unapproachable faculty, but Dr. Marquez is just the opposite. Growing up in LA, she has been in San Francisco since starting as a medical student at UCSF in 2004, where she still lives with her husband and daughter. Getting here was a lesson in trusting one's instincts.

Always interested in medicine, global health, human rights, and health equity, HIV naturally sat at the intersection of these disciplines. She was an undergraduate at Harvard when protease inhibitors came onto the market. This shift in perspective, treatment, and hope for those with HIV was monumental for the field, and the timing proved instrumental for Marquez.

With the goal of wanting to live abroad, she spent a couple years as a 1st grade teaching assistant at the Munich International School before working at the WHO in the division of non-communicable diseases. Discovering how much she loved epidemiology ? and how much data can inform policy ? medical school then led her to the more specific love of infectious disease and patient care.

She began working with Dr. Jeff Klausner at the Department of Public Health, looking at meth use among HIV-infected patients at Ward 86 and at Parnassus, a study that also introduced her to the social contexts of HIV. She also did a stint in Uganda, and tried to decide between domestic and global work. It was while at UCSF for residency, which included a rotation in Kisumu, Kenya, that Dr. Marquez began to see how she could combine those interests. As a fellow in infectious disease in the Division, she furthered her training under mentor Dr. Diane Havlir, when she expanded into ? and ultimately specialized in ? not just HIV, but also tuberculosis, a disease that Marquez notes, ?is actually the leading cause of death due to an

infectious disease worldwide.?



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TB proved to be immensely satisfying as a clinician. While HIV is now very manageable, TB offers something else: cure. ?You can get someone on a course of treatment and it's gone ? I like the curability part of it,? Marquez said.

Pediatric TB, a fairly neglected field with very little data, was ripe for exploration (before 2014, there was no reported data on TB in those under the age of 15). While it was previously thought that kids do not transmit TB ? and with it being difficult to diagnose ? it is now understood that children under 5 have an extremely high likelihood of presenting with active TB: about 20%. Dr. Marquez was granted a K award to probe into this burgeoning field.

Embedded in the SEARCH study, her cohort of kids, adolescents, and young adults between 5-24 in Uganda asks the basic questions of what the incidence of latent TB is in kids, and, equally important: when, where, and why are they getting it?

Her study of 5,000 kids who perform TB skin tests in their home on a regular schedule ? a complicated logistical set-up that speaks to the strength of the research team and collaborators in Uganda ? has been running for two years. Such a robust cohort presents an ideal platform for the exploration of both implementation science and basic science questions.

In regards to the former, some of her initial data seems to indicate a strong association between latent TB and those children who attend boarding schools ? a potential intervention site. In regards to the latter, her numbers set the stage for exploring the immunologic reasons about why some children are infected and others are not.

It also offers a compelling human rights argument ? TB preventive therapy is rarely given to children, Marquez explains, but this information suggests that both primary and secondary prevention therapies are needed.

HIV and TB both sit at the intersection of health disparities and social justice ? those areas which Marquez has always passionate about. ?One of the greatest challenges for HIV and TB right now is political will,? she emphasizes.

That?s not the only thing, of course. ?We have the treatments, but there are also a lot of implementation questions. Especially with TB ? this is a curable disease. I mean, we could have better diagnostics, and better shorter treatments (there have been new drugs, but they are slow to get off the ground).

So, I think it?s really the political will and novel implementation strategies [that is holding

progress back].?

While she still travels to East Africa two or three times a year, she is rooted here in San Francisco. Outside of the hospital she takes advantage of the Bay Area's hiking and backpacking trails, and the ever-inspiring food scene of San Francisco with her family. Though her list of duties seems overwhelming, it's not hard to stay focused and engaged, she notes.

"I'm constantly inspired by the people work with here and overseas ? there is great mentorship and such a unity around the same mission in San Francisco and throughout the world to care for those most in need," she says. And, she adds, "clinically, I just love our patients."

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