



## Profile

# Susan Buchbinder: driving HIV prevention efforts worldwide

Susan Buchbinder's drive to fight the HIV epidemic started, as with many of her colleagues, when she was treating patients during the 1980s. "While some doctors and nurses turned their backs and refused to treat patients with HIV/AIDS in those early days, many of us fought hard to do all we could, when we had so few tools available to us. That same group of colleagues continues to work on HIV to this day, and are some of the leaders in developing new prevention and treatment tools", says Buchbinder, now Clinical Professor of Medicine, Epidemiology, and Biostatistics at the University of California, San Francisco (UCSF), CA, USA.

The AIDS epidemic hit San Francisco hard, just as Buchbinder was beginning her medical training. "Caring for patients and their families was so compelling, it focused my attention, and eventually, my career", she recalls. She had first become interested in medicine during her childhood in Boston, having watched her physician uncle do house calls and care for underserved populations. After studying human biology at Brown University, Buchbinder opted for UCSF for her medical degree. After her training, she took an appointment at the San Francisco City Health Department, working on the San Francisco City Clinic Cohort Study. The study had stored blood samples of nearly 7000 gay and bisexual men who had participated in hepatitis B studies between 1978 and 1980, before AIDS was recognised. With the men's permission, Buchbinder and colleagues were able to reanalyse the samples discovering, among other things, patients who were long-term non-progressors who naturally controlled their HIV infection. Some of the earliest tests for confirming HIV infection were also developed using this cohort.

Buchbinder, who is Director of Bridge HIV, an HIV prevention research unit in the San Francisco Department of Public Health, and attending physician at San Francisco General Hospital's general medical clinic, has been working in HIV prevention for most of her career. In the 1990s, she and her team studied risk factors for HIV infection, and investigated different approaches to prevent infection, including counselling interventions and HIV vaccines. In those earlier years, none of the strategies were successful in driving down infection rates. But, in the late 2000s, success began to emerge, as the Thai vaccine trial (RV144) highlighted the potential of a vaccine for protection from infection and pre-exposure prophylaxis (PrEP) trials and HPTN 052 showed that antiretrovirals were powerful tools to prevent HIV acquisition and transmission.

Throughout this time, Buchbinder continued to work on prevention trials, including the first safety study of tenofovir for PrEP in the USA, the iPrEx trial, which showed PrEP efficacy in men who have sex with men and

transgender women, and newer trials of long-acting PrEP, microbicides, and vaginal rings. Her passion for HIV vaccines continues, as she co-chairs a vaccine protocol taking place in five sub-Saharan African countries, and has a study site participating in the AMP trial that is testing whether broadly neutralising antibodies can prevent HIV infection. "Susan brings extraordinary commitment, clarity of thinking, and focus to HIV prevention research", says Connie L Celum, Professor of Global Health and Medicine at the University of Washington, Seattle, WA, USA, who has known and worked with Buchbinder since medical school. "Her research efforts have spanned discovery to implementation—efficacy trials to implementing what is efficacious in order to have a public health impact." All of these efforts were discussed at the 2018 HIV Research for Prevention (HIVR4P) conference in Madrid, Spain, last month that Buchbinder co-chaired. "It's so important for all the different areas of prevention to come together so we can address common problems and learn from each other", she explains.

For the future, Buchbinder believes that "vaccines are the most effective method we have for controlling (and in the case of smallpox, eradicating) an infectious disease. In the meantime, we have to hit the epidemic with everything else that we have, all of these prevention and treatment strategies", she says. "The next product in the pipeline can seem like it will be the magic bullet, but in truth there is no single solution to stopping this epidemic. Only by working on multiple fronts will we eventually eliminate new infections and keep people living with HIV healthy, with an excellent quality of life. That's what we're all working towards."

Closer to home, Buchbinder is focusing on San Francisco's Getting to Zero project. She sits on the steering committee for the project that brings together multiple sectors of society to get to zero new HIV infections, zero HIV-associated deaths, and zero HIV stigma. Despite new infections in San Francisco falling by more than 50% in the past 5 years thanks to testing, early treatment, and PrEP, the rate of progress may be slowing for the first time in 2017. "We need to provide housing, mental health, and substance use services to our most vulnerable populations to truly turn the tide on HIV", she says.

When not in work mode, Buchbinder devotes time to her husband Chris and their two children and enjoys playing and watching tennis. She also loves to dance, and reflects that when dancing is part of the social programme at big scientific conferences "job titles go out the window and there are no language barriers. Dance is a universal language that binds us together".

Tony Kirby

