Directions to Berkeley Law School

In General
The law school is located at the intersection of Piedmont Ave. and Bancroft Way. Look for the large green fence surrounding the sidewalk. The law school is under construction so it will be hard to miss. On the Berkeley Campus map, the law school is located in D-2.

Driving Directions

Coming from 880 N
1. Continue on **I-880 N**
2. Slight **right** at **I-980 E** (signs for **Walnut Creek/State Hwy 24/I-980**) 2.1 mi
3. Continue on **CA-24 E** 1.1 mi
4. Take the **Claremont Ave** exit 0.3 mi
5. Turn **left** at **Claremont Ave** 0.7 mi
6. Slight **left** at **College Ave** 1.1 mi
7. Turn **right** at **Dwight Way** 0.2 mi
8. Sharp **left** at **Piedmont Ave**
9. Arrive at Piedmont Ave and Bancroft Way

Coming from 580/80E
1. Take exit **11** to merge onto **University Ave** 2.4 mi
2. Turn **right** at **Shattuck Ave/Shattuck Square**
3. Continue to follow Shattuck Ave 0.4 mi
4. Turn **left** at **Durant Ave** 0.9 mi
5. Turn **left** at **Piedmont Ave/Piedmont Ext**
6. Arrive at Piedmont Ave and Bancroft Way

Coming from 101N
1. Continue on **I-80 E** Partial toll road 9.3 mi
2. Take the **State Hwy 13/Ashby Ave** exit 0.4 mi
3. Merge onto **Ashby Ave/CA-13** 2.1 mi
4. Turn **left** at **Telegraph Ave** 0.6 mi
5. Turn **right** at **Dwight Way** 0.4 mi
6. Sharp **left** at **Piedmont Ave** 0.1 mi
7. Arrive at **Piedmont Ave. and Bancroft Way**

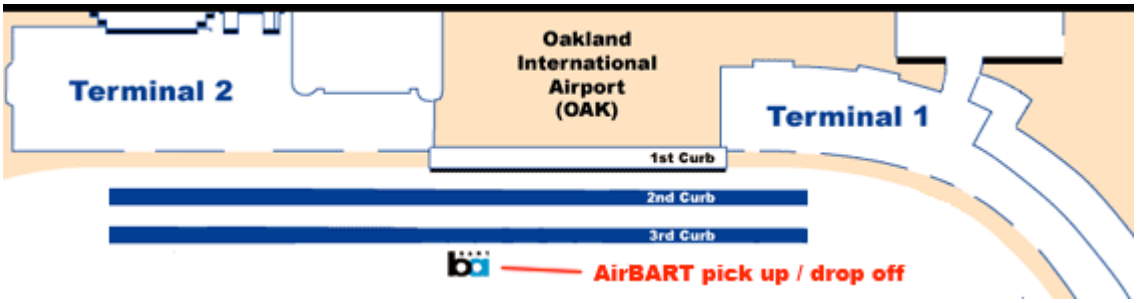
From Oakland Airport
Driving
1. Head **southeast** on **Airport Dr** 0.5 mi
2. Slight **right** to stay on **Airport Dr** 0.7 mi
3. Continue on **98th Ave** 1.0 mi
4. Merge onto **I-880 N** via the ramp to **Oakland** 7.1 mi
5. Slight **right** at **I-980 E** (signs for **Walnut Creek/State Hwy 24/I-980**) 2.1 mi
6. Continue on **CA-24 E** 1.1 mi
7. Take the **Claremont Ave** exit 0.3 mi

8. Turn **left** at **Claremont Ave** 0.7 mi
9. Slight **left** at **College Ave** 1.1 mi
10. Turn **right** at **Dwight Way** 0.2 mi
11. Sharp **left** at **Piedmont Ave** 0.1 mi
12. Arrive at the law school at the corner of **Piedmont Ave** and **Bancroft Way**

Public Transportation

Another way to get to from OAK to the Berkeley campus is to take BART. The AirBART shuttle runs from Oakland Airport to the Coliseum/Oakland Airport BART Station every 10 minutes during the day.

Fares for AirBART are $3.00 for an adult, $1.00 for children (12 and under), seniors (65 and over) and persons with disabilities (with ID). AirBART fare is payable in cash (exact change only) or a $3.00 BART ticket from a regular BART ticket machine (bus fare boxes will not return BART tickets with more than $3.00 in value). I am not sure if there is a BART ticket machine at the airport so the best idea is to have exact change.



The AirBART will take you to the Coliseum BART Station. From there you should buy a regular BART ticket to Downtown Berkeley ($2.20 one way/ $4.40 round trip). Take the **Richmond train** (leaves about every 15 minutes) and get off at the **Downtown Berkeley** station.

From the Downtown Berkeley station you can walk up to the law school (about 15 minutes – keep in mind it is all uphill), or take a bus. Right outside the BART station are a bunch of bus stops in a row along Shattuck Ave. You can take the **51** or **7**, which will go up Durant Ave. You should get off at **Durant and College Ave**. Cross the street across Durant and walk two blocks to campus. The law school will be on your right.

From San Francisco Airport

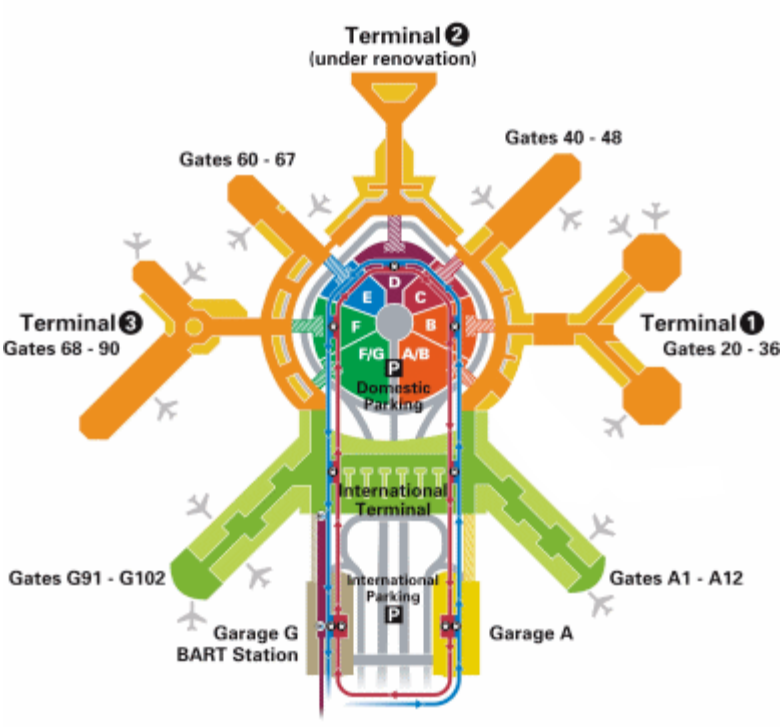
Driving

8. Head **east** 0.7 mi
9. Merge onto **US-101 N** via the ramp to **San Francisco** 11.3 mi
10. Continue on **I-80 E** Partial toll road 9.3 mi
11. Take the **State Hwy 13/Ashby Ave** exit 0.4 mi
12. Merge onto **Ashby Ave/CA-13** 2.1 mi
13. Turn **left** at **Telegraph Ave** 0.6 mi
14. Turn **right** at **Dwight Way** 0.4 mi
15. Sharp **left** at **Piedmont Ave** 0.1 mi

16. Arrive at **Piedmont Ave. and Bancroft Way**

<u>Public Transportation</u>

You can take BART from San Francisco Airport. The BART station at SFO is located in the International Terminal. It's a short walk from United Airlines in Terminal 3 and a slightly longer walk from Terminal 1. You can also take the free AirTrain from both terminals directly to the BART station. Just follow the signs to AirTrain and board the Red Line train. When you arrive, take the escalator down to the departures level and walk straight ahead to the BART station. Terminals 1, 2 & 3 are approximately a one to three-minute AirTrain ride to the BART station.



Take the **Pittsburg/Baypoint Train** and transfer to the **Richmond** Train at the **Oakland City Center/12th Street** stop. There is usually a timed transfer, and the Richmond train should be waiting just across the platform. You should get off at the **Downtown Berkeley Bart**.

From the Downtown Berkeley station you can walk up to the law school (about 15 minutes – keep in mind it is all uphill), or take a bus. Right outside the BART station are a bunch of bus stops in a row along Shattuck Ave. You can take the **51** or **7**, which will go up Durant Ave. You should get off at **Durant and College Ave**. Cross the street across Durant and walk two blocks to campus. The law school will be on your right.

Campus Map


A
B
C
D
E
F
1
2
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8
Lawrence Berkeley National Laboratory
University of California Berkeley

Berkeley Food Choices

Durant Food Court and Telegraph Area

The Durant Food Court is a quick 5 minute walk from the law school and it has a great variety of cheap and tasty food. The food court is located on Durant, east of Telegraph. There is a Bank of America nearby if you need cash, as some restaurants do not accept credit card. If you walk down Telegraph Avenue away from campus you will also find a lot of great food.

Restaurant Name	Type of Food	Price	Address/Location
Le Petite Cheval	Vietnamese	$	2600 Bancroft Way (between Bowditch St & College Ave)
Top Dog	Hot dogs	$	2534 Durant Ave - between Bowditch St & Telegraph
La Burrita	Mexican	$	2530 Durant Avenue – next to Top Dog
Henry's	American	$$	2600 Durant Ave – Durant and Bowditch
Thai Basil	Thai food	$	Durant Food Court
Gypsies	Italian	$	Durant Food Court
Sweetheart Café	Bubble tea, snacks	$	Durant Food Court
Sushi House	Japanese	$$	Durant Food Court
Meesha's Berkeley Gyros	Middle Eastern	$	Durant Food Court
Steve's Bar-B-Que	Korean	$	Durant Food Court
Mandarin House	Chinese	$	Durant Food Court
Viet Nam Village	Vietnamese	$	Durant Food Court
Yogurt Park	Frozen Yogurt	$	2433A Durant Avenue (below Telegraph)
IB Hoagies	Cheesesteaks	$	2513 Durant Avenue (Next to the Durant Food Court)
Smart Alec's	Burgers and salads	$	2355 Telegraph Ave (At Telegraph and Durant)
Tako Sushi	Japanese	$	2379 Telegraph Avenue (between Channing Way & Durant Ave)
Naan N Curry	Indian/Pakistani	$	2366 Telegraph Ave (between Channing Way & Durant Ave)
Raleighs	American	$	2438 Telegraph Ave (between Channing Way & Haste St)
Intermezzo	Salad/Sandwiches	$	2442 Telegraph Ave (between Channing Way & Haste St)
Slurp	Noodles	$	2426 Telegraph Ave (between Channing Way & Haste St)
Blakes	American	$$	2367 Telegraph Ave (between Channing Way & Durant Ave)
Rynos	Tart Yogurt	$	2380 Telegraph Ave (between Channing Way & Durant Ave)
Papamingo	Tart Yogurt	$	2510 Channing Way (between Bowditch St & Telegraph Ave)
Berkeley Thai House	Thai	$$	2511 Channing Way (between Bowditch St & Telegraph Ave)

Elmwood Area

If you walk down College Ave away from campus for about 15 to 20 minutes, or hop onto the 51 bus at Durant and College, you can easily get to the Elmwood Area. Restaurants here are pricier than the ones right near campus, but tasty.

Restaurant Name	Type of Food	Price	Address/Location
La Mediterranee	Mediterranean	$$	2936 College Ave (between Ashby Ave & Russell St)
Filippo's	Italian	$$	2936 College Ave (between Ashby Ave & Russell St)
Ici	Gourmet ice cream	$	2948 College Ave (between Ashby Ave & Russell St)
Shen Hua	Chinese	$$	2914 College Avenue (between Ashby Ave & Russell St)
Manpuku	Japanese	$	2977 College Ave (between Ashby Ave & Webster St)
House of Curries	Indian/Pakistani	$	2984 College Ave (between Ashby Ave & Webster St)
Trattoria La Siciliana	Italian	$$	2993 College Ave (between Ashby Ave & Webster St)
Gordo Taqueria	Mexican	$	2989 College Avenue (between Ashby Ave & Webster St)
La Cascada	Mexican	$	2975 College Avenue (between Ashby Ave & Webster St)
Yak and Yeti	Himalayan/Nepalese	$$	2985 College Ave (between Ashby Ave & Webster St)
King Yen	Chinese	$$	2995 College Ave (between Ashby Ave & Webster St)
Holy Land Restaurant	Middle Eastern	$$	2965 College Ave (between Ashby Ave & Webster St)

Downtown Berkeley

A 15 minute walk west from campus (just head down Bancroft) will lead you to downtown Berkeley where you can find a large number of cheap eats. These restaurants may be convenient if you need to BART somewhere after. If you walk down University there are a lot of restaurants to choose from.

Restaurant Name	Type of Food	Price	Address/Location
Herbivore	Vegetarian	$$	2451 Shattuck Ave (between Dwight Way & Haste St)

Tuk Tuk Thai	Thai	$$	2468 Shattuck Ave (between Dwight Way & Haste St)
Anzu Restaurant	Japanese	$$	2433 Shattuck Ave (between Channing Way & Haste St)
Wiki Wiki Hawaiian	Hawaiian	$	2417 Shattuck Avenue (between Channing Way & Haste St)
Pho Hoa	Vietnamese	$	2272 Shattuck Ave (between Allston Way & Kittredge St)
Le Regal	Vietnamese	$$	2126 Center Street (between Oxford St & Shattuck Ave)
Alohana Hawaiian Grill	Hawaiian	$	2116 Shattuck Ave (between Addison and Center)
Biryani House	Indian	$	2011 Shattuck Ave (at University)
India Palace Restaurant	Indian	$	2160 University Avenue (between Oxford St & Shattuck Ave)
Ryowa	Japanese	$	2068 University Ave (between Milvia St & Shattuck Ave)
Plearn Thai Cuisine No 2	Thai	$$	2050 University Avenue (between Milvia St & Shattuck Ave)
Café Tibet	Nepalese	$$	2020 University Ave (between Milvia St & Shattuck Ave)

Gourmet Ghetto/ North Shattuck

According to Wikipedia, the Gourmet Ghetto received its nickname due to the high concentration of fine eating establishments in the area, including Chez Panisse and the Cheese Board Collective, as well as the first Peet's Coffee. If you do not have a car it may be a bit inconvenient to get there, but you can walk or bus down to Shattuck and transfer buses up to the Gourmet Ghetto.

Restaurant Name	**Type of Food**	**Price**	**Address/Location**
Cha-Ya Vegetarian Japanese Restaurant	Japanese	$$	1686 Shattuck Ave (between Lincoln St & Virginia St)
Cafe De La Paz	Latin American	$$	1600 Shattuck Avenue (between Cedar St & Lincoln St)
Cheeseboard Pizza Collective	Pizza	$	1512 Shattuck Ave (at Vine) A Berkeley classic
Taste of the Himalayas	Nepalese	$$	1700 Shattuck Avenue (between Francisco St & Virginia St)
Cafe Gratitude	Vegetarian	$$	1730 Shattuck Ave (between Francisco St & Virginia St)
Mint Leaf	Indian	$$	1513 Shattuck Ave (between Vine and Cedar)

Kirala 2	Japanese	$$	1511 Shattuck Ave Ste D (between Cedar St & Vine St)
Cesar	Tapas	$$	1515 Shattuck Avenue (between Cedar St & Vine St)
Dara Thai Lao Cuisine	Lao	$$	1549 Shattuck Avenue (between Cedar St & Vine St)
Cha Am	Thai	$$	1543 Shattuck Ave (between Cedar St & Vine St)
Gregoire	French	$$	2109 Cedar St (between Shattuck Ave & Walnut St)
Da Lian	Chinese	$$	1674 Shattuck Avenue (between Lincoln St & Virginia St)
Thai Delight Cuisine	Thai	$$	1700 Shattuck Ave (between Francisco St & Virginia St)
Lococo's Restaurant & Pizzeria	Italian	$$	1400 Shattuck Avenue (at Rose St)

FRIDAY

All events Friday will be held at Boalt Hall School of Law, room 105 (corner of Bancroft and Piedmont)

5:00 **Registration Opens**

6:00 **Welcome**
- UC Berkeley Host Committee

6:15 **Keeping UAEM Real: From the Campus to the Field**
- Rachel Kiddell-Monroe, Chair of the UAEM Board of Directors

7:00 **Crisis in the Field: The Fight for Access to Essential Medicines**
- Dr. Buddhi Lokuge, U.S Manager, Campaign for Access to Essential Medicines, Doctors Without Borders/MSF

8:30 **Dinner on Your Own**
UAEM project groups dine together

SATURDAY

8:00 **Registration opens and breakfast** [Boalt 105]

8:00-9:00 **Chapter Leaders Welcome Breakfast**
- Gloria Tavera, University of Florida and Taylor Gilliland, University of California, San Diego

9:00-9:15 **Welcome** [Boalt 105]
1. Overview of Weekend
2. Introduction of Chapters
3. Introduction of Coordinating Committee and Board of Directors

9:20-10:00 **State of the UAEM** [Boalt 105]
- Ethan Guillen, UAEM Executive Director

10:15-11:00 **Getting to know the issues**

Introductory Track Part 1: **The Problem: An Introduction to the Innovation and Access Gaps** [Boalt 105]

- Amy Kapczynski, Assistant Professor, University of California, Berkeley School of Law

Advanced Track (Concurrent)

(A) The Ask: Beyond the EAL, What is a Global Access License?
- Dave Chokshi, University of Pennsylvania Medical School, UAEM Board of Directors
- Michael Steffen, Yale Law School, UAEM Board of Directors

(B) Implementing Access Metrics
- Bucky Fazen and Jessica Berwick

11:15–12:00 **Getting to know the issues II**

Introductory Track Part 2: **Intellectual Property Made Ridiculously Simple** [Boalt 105]

- Michael Steffen

Advanced Track (Concurrent)

(A) Addressing Neglected Diseases
- Patricia Kretz, Medical Resident, University of British Columbia Medical School
- Sunny Kishore, M.D./PhD Candidate, Cornell Medical School

(B) Patent Pools and UNITAID
- Judit Rius Sanjuan, Knowledge Ecology International
- Sam Houshower, J.D. Candidate, University of California, Berkeley, Boalt Hall School of Law

12:15–1:15 **Regional lunch** [Steinhart Courtyard]
- Gloria Tavera and Taylor Gilliland

1:30–2:20 **Panel: Campus campaign presentations** [Boalt 105]
- University of Florida: Gloria Tavera

- Harvard University: Neha Gupta
- University of British Columbia: Andrew Gray and Mike Gretes
- University of California Berkeley: Eleanor Blume

2:30–5:15 **AID: Activism trainings (Concurrent)** [Boalt 105]
Part 1: Goal visioning, Power mapping, Escalation Strategies
Part 2: Break into geographic and individual school groups to plan campaigns [Boalt 121, 122, 123, 124]
Part 3: Come back together to share plans

- Sam Schabacker, Americans for Informed Democracy
- Gloria Tavera, University of Florida
- Laura Helmkamp, University of Florida
- Taylor Gilliland, University of California, San Diego, School of Biomedical Sciences

5:30 – 6:30 **Chapter Poster Session** [Boalt Hallway]

- Kaye Phillips, University of Toronto introducing the session

6:30–9:00 **Dinner on your own**
Coordinating Committee and Board Dinner

9:30–1:00 **Peter Maybarduk playing live at Berkeley hot spot**

SUNDAY

8:00–9:45 **Coordinating Committee Breakfast Meeting**

9:30 **Breakfast** [Boalt 105]

10:00 – 11:00 **Panel: Implementing Global Access in University Technology Transfer** [Boalt 105]

- **Carol Mimura** (Director, Office of Technology Licensing, UC Berkeley) – Dr. Mimura helped draft the Berkeley Nine Points (detail to follow) and has been a key advocate for global access within the UC system.
- **Jill Sorensen** (Independent Tech Transfer Consultant, former Director of the Office of Licensing and Technology Development at The Johns Hopkins University) – Dr. Sorensen has been a key advisor to UAEM–Hopkins, and is presently working as an independent consultant in tech transfer and global health.

11:10–11:50 **Panels (Concurrent)**

International University Patenting, Bayh-Dole and Current Trends
- David Winickoff, Assistant Professor of Bioethics and Society, University of California, Berkeley
- Eleanor Blume, J.D. Candidate, University of California, Berkeley, Boalt Hall School of Law

TRIPS, Thailand and current political status
- Peter Maybarduk, Essential Action
- Kaye Phillips, University of Toronto

Global Happenings: R&D Treaty and IGWG
- Judit Rius Sanjuan, Knowledge Ecology International
- Sara Crager, MD/PhD Candidate, Yale Medical School

12:15 **Keynote: Stephen Lewis** [GPB 100]
- Introduction by Rachel Kiddell-Monroe, President and Chair of the UAEM Board of Directors

1:15–1:30 **Closing remarks** [GPB 100]

Stephen Lewis began his career in Canadian politics with his election to the Ontario Legislative Assembly at the age of 25, and went on to become leader of the Ontario New Democratic Party from 1970 to 1978. In 1984 he was appointed Canadian Ambassador to the UN, the first of his several senior United Nations roles spanning two decades. Among those, he chaired the Committee that drafted the first UN Programme on African Economic Recovery and the first International Conference on Climate Change, coordinated an international study on the "Consequences of Armed Conflict on Children" and was appointed by the Organization of African Unity to its "Panel of Eminent Personalities to Investigate the Genocide in Rwanda". From 1995 to 1999, Stephen was Deputy Executive Director of UNICEF and in 2001, UN Secretary-General Kofi Annan named him the first Special Envoy for HIV/AIDS in Africa, a position he held through 2006.

Along with co-directing AIDS-Free World, Stephen is also currently a Professor in Global Health at McMaster University and the chair of the board of the Stephen Lewis Foundation in Canada. He was a co-chair of the Leadership Programme Committee at the International AIDS Conference in Mexico City in August 2008, and serves on the Board of Directors for the International AIDS Vaccine Initiative. His best-selling book, Race Against Time won the Canadian Booksellers Association's Libris Award for non-fiction book of the year and he was named CBA's Author of the Year for 2005.

Among many honours and distinguished awards, Stephen has been named a Companion of the Order of Canada, the country's highest honour for lifetime achievement, and awarded 28 honorary degrees from Canadian universities. In 2005, TIME Magazine listed him among the World's 100 Most Influential People, and in 2007, the Kingdom of Lesotho invested Stephen with that southern African country's highest honour, Knight Commander of the Most Dignified Order of Moshoeshoe.

Dr. Buddhima Lokuge is the U.S Manager of the Campaign for Access to Essential Medicines at the international medical humanitarian organization, Doctors Without Borders/ Médecins Sans Frontières (MSF).

Buddhima is a medical practitioner who was working as a clinician in Australia until his appointment with MSF NY in 2007, and has worked for MSF in Afghanistan in the late 1990's. He also has several years of health policy experience as an analyst in Indigenous Health with the Australian Government and as a consultant with an Australian based economics and government relations consultancy.

In 2003, Buddhima coordinated public health research and advocacy activities in Australia on TRIPS plus provisions in the US-Australia Free Trade Agreement, specifically related to the impact of the FTA on access to essential medicines. These efforts contributed to the introduction of legislative amendments designed to minimize the impact of patent evergreening provisions in the FTA.

Buddhima has a medical degree from the University of Sydney and a Masters of Public Health from Harvard. In 2005 was awarded a research fellowship to study the impact of trade agreements on access to medicines at the Australian National University.

Rachel Kiddell-Monroe, member of the United Kingdom Law Society since 1991, has worked in the humanitarian field for over 15 years. After starting up an advocacy organisation in London as a result of witnessing the injustices faced by indigenous peoples during her 3 years in Asia, she began working with Médecins sans Frontières/Doctors Without Borders (MSF) in 1992. Rachel headed emergency humanitarian missions in Djibouti and Rwanda and Democratic Republic of Congo at the time of the genocide and ensuing civil wars. She also advised projects in other African countries and in Uzbekistan. Rachel went on to open a regional advocacy office for MSF in Latin America where she worked for 4 years.

Rachel now lives in Montreal, Canada with her husband and 3 sons. In 2003, she was appointed to head MSF's Access to Medicines Campaign in Canada. She became well-known and respected for her access work in Canada, in particular her groundbreaking work on the Canadian initiative to allow the export of generic versions of brand name drugs to developing countries under the TRIPS waiver.

Rachel was appointed President of UAEM's Board of Directors in August 2007.

A Student-Led Campaign to Help Tackle Neglected Tropical Diseases

Sandeep P. Kishore *, Prabhjot S. Dhadialla

The neglected tropical diseases (NTDs) are a group of chronic infections that are often considered together because they primarily affect one billion of the world's poorest people and attract little attention from the global medical community [1]. The United Nations Millennium Development Goals (http://www.un.org/millenniumgoals/) call for increased funding for HIV/AIDS, malaria, and "other diseases" (including the NTDs), but this call has yet to yield significant support for NTD control [2].

Universities are uniquely positioned to provide biomedical and clinical expertise, and they boast core missions that seek to promote the public welfare. The university motto of the Rockefeller University, for instance, is: *"pro bono humani generis,"* or "science for the benefit of humanity" (http://www.rockefeller.edu/). In this article, we propose that innovative student-led campaigns to address NTDs can and do make a practical difference. We discuss these efforts at our universities.

Our Student-Led Movement Generates Momentum

In coming to medical school, several of us had like-minded interests in global health and were committed to making a practical difference. We formed a small caucus of medical and graduate students at the Weill Cornell Medical College, Rockefeller University, and Sloan-Kettering Cancer Institute Tri-Institutional (Tri-I) campus in New York to explore the issue. We partnered with a growing student-led movement across universities, called Universities Allied for Essential Medicines [3]. This movement recently catalyzed the creation of the Philadelphia Consensus Statement (http://www.essentialmedicine.org/cs/) to promote equal access to university discoveries in the developing world and to promote university research on global health concerns. We brought the movement to our local campuses to find how our homegrown resources could be best leveraged.

As student interest was mounting, we saw an opportunity to engage the biomedical community when one of our universities (Cornell University) issued a letter in November 2006 calling for innovative proposals to help promote development efforts in sub-Saharan Africa. Since much of the burden of the NTDs is in Africa, we used this call for proposals to organize student, faculty, and institutional support.

We planned a comprehensive one-day forum on neglected diseases to open a local dialogue on the issue. We weren't expecting very much interest, and so we were stunned by the community response. Nearly overnight, we had found that our student-led forum itself had caught the eye of the leading Tri-I research faculty, clinicians, philanthropists, and locally based collaborators, such as Médecins Sans Frontières, the Earth Institute at Columbia University, and the New York Academy of Sciences. Furthermore, our forum provided the nucleus of a community for students and faculty with similar interests.

The forum placed NTDs squarely in the limelight and asked how universities could help to tackle these

Box 1. Student-Driven Opportunities to Address NTDs

After the forum, students created opportunities with local collaborators for experiences in sub-Saharan Africa. One such partnership was with the Millennium Cities Initiative (http://www.cpii.columbia.edu/projects/; see Figure 1) and the Earth Institute of Columbia (http://www.earth.columbia.edu/).

The Millennium Cities Initiative advises seven mid-sized cities across sub-Saharan Africa on how to achieve the Millennium Development Goals, providing research and policy analysis. Tri-I medical students will assist this initiative by developing and carrying out needs assessments in areas of public health (including goals such as reducing child mortality by two-thirds and maternal mortality by three-quarters, and reversing the spread of HIV/AIDS and malaria). With the information gleaned during these assessments, students will publish a report with the United Nations and/or the Earth Institute on their work. It is hoped that these reports will help policy makers in each African Millennium City to decide for themselves what to focus on in the short, medium, and long term. The reports may also help national governments and the donor community to estimate the resources that will be required for these cities to reach the Millennium Development Goals.

The Student Forum is for medical students to give their perspective on any topic related to health or medicine

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Competing Interests: The authors have declared that no competing interests exist.

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Abbreviations: NTD, neglected tropical disease; Tri-I, Tri-Institutional

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diseases of the developing world. A distinguished panel of speakers provided updates and commentaries on their work, including Peter Hotez of the Global Network for Neglected Tropical Disease Control (http://gnntdc.sabin.org/) and Editor-in-Chief of *PLoS Neglected Tropical Diseases* (http://www.plosntds.org/), Nobel laureate and Public Library of Science co-founder Harold Varmus, Ellis Rubinstein, the President of the New York Academy of Sciences, Joanna Rubinstein, Chief of Staff at the Earth Institute, and global health pioneers Carl Nathan and Warren Johnson. Video podcasts of their talks are freely available at http://collections.plos.org/plosntds/uaem.php. The Cornell administration and dean took a special interest in our movement, quickly grasping the essence of our call to arms. Now the question became: how exactly can universities help?

Research

As highlighted in Peter Hotez's keynote address, it is clear that universities are uniquely positioned to promote scientific research on the neglected diseases of poverty. Unfortunately, among the over 1,200 chemical entities commercialized from 1975 to 1997, only 13 (1%) were specifically for tropical diseases [4]. At Tri-I, for instance, there are less than five basic scientists who work on an NTD, compared with dozens of researchers working on other infectious diseases such as HIV/AIDS. Universities could therefore play an important role in tackling NTDs by expanding their research base to develop a new set of control tools for NTDs. For example, universities could earmark monies derived from capital campaigns to support specific global health or NTD research initiatives. Of the over 50 universities with endowments of at least $1 billion (http://chronicle.com/indepth/endowments/), only a handful have such initiatives.

Students and members of the Tri-I community support Harold Varmus' suggestion to implement one-year exchange fellowships between the United States and foreign scientists. This program, the Global Science Corps (http://www.globalsciencecorps.org/) and others like it are tied to pre-existing institutional infrastructures [5]. Such "twinning" with international research partners provides unique exposure to different systems of science for American and overseas students.

Clinical Training

Weill Cornell already provides support for the 40% of its medical students who wish to spend part of their clinical electives abroad. Reciprocally, clinical exchange programs exist at all stages of training, such as an exchange between African and South American students, residents, and fellows in the medicine department. As a result of partnerships forged at the Tri-I forum, we are adding to these exchange programs by developing an innovative health-based partnership with the Millennium Cities Initiative (Box 1), where students will work with local public health experts to complete needs assessment surveys of the cities.

Our forum highlighted international opportunities that may not have had strong public exposure. For instance, a 45-year-old collaboration between Weill Cornell and the Federal University of Bahia in Salvador, Brazil, focusing on the NTD leishmaniasis, has yielded over 250 peer-reviewed publications and a $32 million Gates Foundation grant for a leishmaniasis vaccine. And a long-standing clinical site in Port-au-Prince, Haiti that traditionally focuses on HIV/AIDS presents an excellent opportunity for students to also address NTD control efforts. In these partnerships, clinical and research studies and services are jointly designed and executed by all participants.

With the support of philanthropic partners such as the TOUCH Foundation (http://www.touchfoundation.org/), Weill Cornell has co-developed a medical school program in Mwanza, Tanzania with an existing medical institution, the Bugando University Medical Center. This year, the first Cornell students will arrive in Tanzania to spend clinical and research time on NTDs, mentored by Cornell physicians. This process will be reciprocally strengthened by existing NTD expertise at the Bugando University Medical Center. By highlighting these opportunities for NTD-specific experiences abroad, students will be able to more effectively target their interests in this direction, and (more importantly) to establish mutually productive, sustainable partnerships with health workers abroad.

Education

We have developed an academic-themed community on NTDs for Tri-I. Within this structure, we have already implemented a journal club that assesses the science related to NTDs and developed a clinical seminar for medical students that addresses gaps in the medical curriculum related to

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Figure 1. The Millennium Villages Project
Photo: Yoshi Shimizu/International Federation of Red Cross and Red Crescent Societies

Box 2. Student-Created NTD Short Course: Global Challenges of Managing Neglected Diseases

In order to inform students about the clinical and global health dimensions of managing NTDs, we have designed a series of six lectures targeted at medical students in their pre-clinical years. Traditional medical curricula de-emphasize NTDs, and curricula that do cover NTDs rarely address non-clinical and research aspects. Our course will not only cover clinical pathogenesis of selected NTDs, but aims to contextualize the challenges of managing these diseases in a complex political, economic, and logistical landscape. We have drawn upon broad expertise and personal experiences to introduce these NTDs in the context of real case studies. The lecture series will actively engage pre-clinical students by asking all participants to collectively produce a document that explores ways our universities can apply their resources to provide concrete solutions to tractable problems related to specific NTDs.

global health and NTDs (Box 2). Our journal club will begin annotating studies on NTDs published in *PLoS ONE* (http://www.plosone.org/), and will also annotate papers in *PLoS Neglected Tropical Diseases* once it has launched.

To sustain students' interest we have developed a seminar series on NTDs, which has featured a diverse array of speakers, such as Jeffrey Sachs, Special Advisor to the United Nations Secretary-General, and Rashmi Barbhaiya, chief executive officer of Advinus, an Indian-based pharmaceutical firm interested in NTDs. Peter Hotez has commented that given all the available resources and expertise at our institutions, we could go a step further towards developing a formal educational program—a new biomedically based, interdisciplinary masters degree in global health or parasitology, for example.

Conclusion

University students are by no means passive players in the efforts to increase biomedical attention to the developing world. In the case of NTDs, our efforts are now catalyzing commitment from all university levels. In the long term, we aim to develop a Tri-I Initiative for Diseases of the Developing World, with increased commitment at the bench, bedside, and all stages in between. We now look forward to developing our movement with others across the globe. !

References

1. Molyneux DH, Hotez PJ, Fenwick A (2005) "Rapid-impact interventions": How a policy of integrated control for Africa's neglected tropical diseases could benefit the poor. PLoS Med 2: e336. doi:10.1371/journal.pmed.0020336
2. Sachs J, Hotez PJ (2006). Fighting tropical diseases. Science 311: 1521.
3. Chokshi DA (2006) Improving access to medicines in poor countries: The role of universities. PLoS Med 3: e136. doi:10.1371/journal.pmed.0030136
4. Pecoul B, Chirac P, Trouiller P, Pinel J (1999) Access to essential drugs in poor countries: A lost battle? JAMA 281: 361-367.
5. Varmus H (2002) Building a global culture of science. Lancet 360 (Suppl): s1-s4.

Leveraging University Research to Advance Global Health

Dave A. Chokshi, MSc
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THE WORLD'S DESTITUTE SICK FACE A PERILOUS DISADvantage in accessing essential medicines. The crisis stems from 2 related problems. First, for the billion people affected by neglected diseases such as trypanosomiasis and cholera, few safe and effective treatment options exist. Because these neglected diseases predominantly affect the poor, they attract little research and development funding, leading to a paucity of therapies. [1] Second, for other diseases, several interlinked factors impede access to medicines that do exist: high prices, underfunded and uncoordinated health care systems, and drug formulations ill-suited to resource-poor settings.

Generic competition has lowered the price of antiretroviral therapy for human immunodeficiency virus (HIV) from more than $15 000 per patient-year 6 years ago to $99 today.[2] Concomitant with this decrease in prices has been an increase in funding and political will to address the HIV/AIDS pandemic. This has shifted the debate from whether antiretroviral therapy is possible in resource-poor settings to how to strengthen health infrastructure to provide comprehensive care.[3]

Despite the progress demonstrated for antiretroviral therapy in poor countries, there is, as yet, neither a comprehensive nor a lasting solution to ensure that patients in poor countries pay less for medicines than patients in rich countries. Even antiretrovirals, generally heralded as a success story for differential pricing, show the evanescence of any progress that has been made. Implementing new first-line HIV treatment guidelines from the World Health Organization would cost 5 times more per patient-year than the older, first-line treatment regimen; second-line therapies are even more expensive. [2] Meanwhile, major generic-producing countries like India must now enforce product patents to comply with the World Trade Organization's Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement. [4] The US government is pushing further still for expanded intellectual property protection by systematically negotiating so-called TRIPS-plus provisions into bilateral free-trade agreements. [5] Taken together, these developments threaten to undermine gains for the health of the underserved that have been made by reforms to the international intellectual property system.

The Role of Universities

Research universities have an opportunity to intervene in the access-to-medicines crisis in poor countries. By virtue of their upstream contribution to the drug development pipeline—estimated at $19.6 billion in 2002 for the United States alone—universities have considerable untapped influence.[6] Both the number of patents held and the number of license agreements executed by universities more than doubled between 1991 and 2005. [7] The case for university action becomes more tangible when considering actual medicines. For instance, the patent rights contributing to several currently marketed HIV drugs are held by universities: stavudine (Yale University), abacavir (University of Minnesota), lamivudine (Emory University), emtricitabine (Emory University), and enfuvirtide (Duke University). Overall, university patents are associated with 10 of the 30 HIV drugs approved by the US Food and Drug Administration between 1987 and 2007.[8]

Several institutions—both private and public—have demonstrated that it is possible to leverage ownership of intellectual property to improve access to medicines. For example, in 2001, Yale University negotiated price concessions from Bristol-Myers Squibb for stavudine in South Africa. [9] Similarly, the Bill and Melinda Gates Foundation, through its Grand Challenges in Global Health initiative, requires grantees to ensure that any health products created with Grand Challenges funds will be available at affordable prices in poor countries. [10] The grants call for principal investigators to outline *ex ante* intellectual property ownership issues, licensing strategies, and potential commercial partners. The US National Institutes of Health (NIH) has also pioneered proactive management of its intellectual property to benefit the developing world. For technologies with a worldwide market (such as new antiretrovirals), the NIH has adopted license terms that require companies in North America or Europe to provide a marketing plan for making products available in developing countries.[11]

Public-sector research and licensing practices have implications extending beyond HIV medicines. Of the 35 million deaths from chronic disease that occurred in 2005, 80% occurred in low- and middle-income countries. [12] Expanding access to primary care treatments for chronic illnesses like diabetes and cardiovascular disease could have an immediate effect, both for patients and for the structure of limited or unstable health care systems. Vaccine-preventable diseases also exemplify the magnitude of the opportunity. Human papillomavirus vaccine was originally developed at the Univer-

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sity of Rochester, Georgetown University, Queensland University, and the US National Cancer Institute. Research on rotavirusvaccinewasoriginallyconductedattheWistarInstituteandtheChildren'sHospitalofPhiladelphia.Bothofthese vaccines were recently licensed for use in the industrialized world without a clear strategy for access to the vaccines in poor countries, where the vast majority of deaths due to cervical cancer and diarrhea occur.

Ensuring access to university-derived medicines in poor countries would have a demonstrable effect on global health only if pro-access policies are adopted collectively by major research universities. An important step toward consensus was taken recently when the Association of American Medical Colleges (AAMC) and 18 research institutions called for ensuring access to university innovations in the developing world.[13] The AAMC and collaborating universities joined committees of the World Health Organization[14] and the American Association of Arts and Sciences [15] that previously espoused this same principle. What follows are policy recommendations for operationalizing that principle.

Promoting Equal Access to Research

Whenuniversity-ownedintellectualpropertyisnecessaryfor thedevelopmentofapotentialhealth-relatedproductsuchas adrug,avaccine,oradiagnostictest,universitiescouldeither require the inclusion of licensing terms in exclusive technologytransferagreementsthatensurelow-costaccesstohealth-relatedinnovationsinthedevelopingworld;ordevelopatransparent, case-by-case global access strategy to ensure access when licensing provisions will not serve access objectives.

Thelicensingtransactionbetweenauniversity,and,forexample,abiotechnologycompanyrepresentsanimportantpoint ofleverageforaccessconsiderations.Acriticallessonlearned fromthefirstroundofpricereductionsforantiretroviralagents wasthatgenericcompetitionisthemosteffectivemechanism for lowering prices. [4] An effective licensing policy would engendersuchgenericcompetition.Oneexampleofthistypeof policyistheequitableaccesslicense(EAL),developedbyUniversities Allied for Essential Medicines. The EAL is a nonexclusive,openlicensingarrangementthatprovidesameansto capture any downstream licensee improvements for the purpose of supplying developing-country markets.[16,17] The EAL appliestocountriesclassifiedaslow-ormiddle-incomebythe WorldBankandpermitsmultipleproducerstocompeteinthese countries simply by notifying the university and its licensee.

An advantage of the EAL is that, by relying on the market for generic production, the administrative burden on the universityisminimized.However,thisparsimonymaynotbewellsuited to certain situations. For example, biologics (eg, vaccinesandmacromoleculessuchasmonoclonalantibodies)and medical devices are subject to different scientific and technical constraints than are synthetic small molecules (eg, antiretrovirals such as stavudine) and may require different methods to ensure access. Universities ought to implement open licensing solutions like the EAL where possible but could pursue alternative global access strategies for predefined situations in which open licensing may not be the best solution. Whileintellectualpropertyownershipisanimportantandtangible point of influence, it is not the only leverage available to public institutions such as universities.

The term "global access strategy" derives directly from the GatesFoundation'sguidanceonintellectualpropertymanagementfortheGrandChallengesinGlobalHealth. [10] Amongother provisions,theguidancerequiresthatthegrantee'sintellectual property revert to the Gates Foundation if the patented innovation is found to be inaccessible in poor countries. The purpose of the global access strategy, however, is to prevent this situationfromarisinginthefirstplacebynegotiatinginadvance a feasible plan to ensure access to innovations where they are neededmost.Potentialcomponentsofaglobalaccessstrategy include:(1)stipulationsforvoluntarylicensestogenericmanufacturers and mandatory sublicensing requirements to alternativemanufacturerswhenaccessobjectivesarenotbeingmet; (2)clausesrequiringthelicenseetomakeproductsdeveloped from a university innovation available at a reduced cost in developing countries; (3) actively seeking third-party organizations to participate in development and distribution for the developing-worldmarket;and(4)participatinginpatentpools (ie,joiningwithotherinstitutionsandcompaniestocross-license patents) that are organized in the interest of public health.[15]

Promoting Research and Development for Neglected Diseases

Neglected diseases are those for which treatment options are inadequate or do not exist and for which drug-market potential is insufficient to attract a private-sector response. To promote research and development in treatments for neglected diseases, universities could adopt needs-based medical research policies, such as promoting in-house neglected-disease research; engaging with nontraditional partners to create new opportunities for neglected-disease drug development; and carving out a neglected-disease research exemption for any patents held or licenses executed.

Internally, university decision makers setting the research agendacouldpurposefullyincludeworkonneglecteddiseases in their deliberations. While funding sources and faculty interests govern the research agenda to some degree, steps can betakentocultivateneglected-diseaseresearch.Capitalinvestmentsbyuniversitiessuchasthe$30millioncommittedtofound theDukeGlobalHealthInstitute—aninterdisciplinaryinitiativecombiningeducation,research,andservicemissions—are toofewandfarbetween. [18] Evensimplestructuralchanges,such asthecreationofaCenterforNeglectedDiseases,andmarketing of neglected-disease research capacity can help attract talented researchers and new sources of funding, as seen in the casesoftheGeorgeWashingtonUniversityandtheUniversity ofCaliforniaatBerkeley.[19,20] Onewaythatalluniversitiescould start is by formalizing annual review practices aimed at identifying new or currently shelved technologies with promising potential for application to neglected diseases.

University policy makers might also take note of the external developments that have changed the landscape of neglected-disease drug development. Product-development partnerships like the Medicines for Malaria Venture and the Drugs for Neglected Diseases Initiative have attracted hundreds of millions of dollars in funding, the majority of which is contributed by the Gates Foundation. [21] Universities could actively seek privately funded but targeted partnerships—as well as partnerships with developing-country companies and research institutions—to develop technologies applicable to neglected diseases.

In addition, when patented innovations have not yet been licensed for further development, universities could allow, as a matter of policy, other nonprofit institutions to use them in research for neglected diseases. One way to operationalize this research freedom could be to contribute to a comprehensive molecular screening library for neglected diseases. [22] When innovations have been externally licensed, universities could include an exemption for neglected-disease research in their licensing agreements. These agreements can be structured as a "dual-market" opportunity, permitting the universities to partner with companies for markets in industrialized countries while a nonprofit entity retains the rights to develop the compounds for patients in developing countries.[23]

Measuring Research Success According to Effect on Global Public Health

University technology transfer operations are usually evaluated using simple, quantifiable criteria such as patents applied for and received, licenses granted, and licensing revenue generated. The focus on these types of statistics may partly explain why technology transfer objectives are often misaligned with the broader public mission of universities. [24] Yet perhaps surprisingly, licensing revenue from academic research is, in the majority of cases, not a lucrative investment. For example, among US institutions, the ratio of licensing income to sponsored research funding was reported to be 5% or less in 2005. [25] Thus, the positive social effect of university innovations—particularly in poor countries—would go largely unnoticed if the success of technology transfer were measured in dollars alone. To rectify this situation, universities could collect and report data on university intellectual property practices related to global health access. Furthermore, universities could collaborate to develop more robust technology transfer metrics that better gauge access to public health goods and innovation in neglected-disease research.

Even though perfectly sound technology transfer metrics may not yet exist, universities can make the nonmonetary benefits of technologies for global health more transparent. For example, universities could disclose all health care-related products in which they hold intellectual property rights. Universities could also publish information on patents applied for or granted in all developing countries, the number and nature of licensing agreements that include access-minded provisions, and reports of nontraditional partnerships for neglected-disease research and development.

University mission statements typically include the noble idea of creating and disseminating knowledge in the public interest. Holding universities to these standards is a critical means to fulfilling an even loftier principle, codified in the Universal Declaration of Human Rights: providing access to medical care and treatment as a basic human right.

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REFERENCES

1. Chirac P, Torreele E. Global framework on essential health R&D. *Lancet*. 2006; 367(9522):1560-1561.
2. Medecins Sans Frontieres. *Untangling the Web of Price Reductions: A Pricing Guide for Developing Countries*. 10th ed. Geneva, Switzerland: Medecins Sans Frontieres Campaign for Access to Essential Medicines; 2007.
3. Kim JY, Farmer P. AIDS in 2006-moving toward one world, one hope? *N Engl J Med*. 2006;355(7):645-647.
4. Wainberg MA. Generic HIV drugs-enlightened policy for global health. *N Engl J Med*. 2005;352(8):747-750.
5. Westerhaus M, Castro A. How do intellectual property law and international trade agreements affect access to antiretroviral therapy? *PLoS Med*. 2006;3(8):e332.
6. Moses H III, Dorsey ER, Matheson DH, Thier SO. Financial anatomy of biomedical research. *JAMA*. 2005;294(11):1333-1342.
7. Association of University Technology Managers. *AUTM Licensing Survey: FY2005*. Northbrook, IL: Association of University Technology Managers; 2007.
8. US Food and Drug Administration Web site. Drugs used in the treatment of HIV infection. http://www.fda.gov/oashi/aids/virals.html. Accessed September 16, 2007.
9. Kapczynski A, Crone ET, Merson M. Global health and university patents. *Science*. 2003;301(5640):1629.
10. Chen I. Thinking big about global health. *Cell*. 2006;124(4):661-663.
11. Salicrup LA, Fedorkova L. Challenges and opportunities for enhancing biotechnology and technology transfer in developing countries. *Biotechnol Adv*. 2006; 24(1):69-79.
12. World Health Organization. *Preventing Chronic Diseases: A Vital Investment*. Geneva, Switzerland: World Health Organization; 2005.
13. Stanford University Web site. In the public interest: nine points to consider in licensing university technology, March 6. http://news-service.stanford.edu/news/2007/march7/gifs/whitepaper.pdf. Accessed September 16, 2007.
14. Commission on Innovation; Intellectual Property Rights, and Public Health of the World Health Organization. *Public Health, Innovation and Intellectual Property Rights*. Geneva, Switzerland: World Health Organization; 2006.
15. Brewster A, Chapman A. Facilitating humanitarian access to pharmaceutical and agricultural innovation. *Innovation Strategy Today*. 2005;1(3):14.
16. Kapczynski A, Chaifetz S, Katz Z, Benkler Y. Addressing global health inequities: an open licensing approach for university innovations. *Berkeley Technol Law J*. 2005; 20(2):1031-1114.
17. Chaifetz S, Chokshi DA, Rajkumar R, Scales D, Benkler Y. Closing the access gap for health innovations. *Global Health*. 2007;3:1.
18. Haynes B. Global health and reducing disparities: the role of the university. Presented at: Institute of Medicine Regional Meeting; Durham, NC; May 4, 2005.
19. Hotez P. *The George Washington University Neglected Tropical Diseases Initiative*. Washington, DC: George Washington University Center for Neglected Diseases; 2005.
20. Coloma J, Harris E. Open-access science. *PLoS Pathog*. 2005;1(2):e21.
21. Moran M, Ropars A, Guzman J, Diaz J, Garrison C. *The New Landscape of Neglected Disease Drug Development*. London, England: Wellcome Trust; 2005.
22. Chong CR, Sullivan DJ Jr. New uses for old drugs. *Nature*. 2007;448(7154): 645-646.
23. Technology Managers for Global Health. *Academic Licensing to Global Health Product Development Partnerships*. Iowa City, IA: Technology Managers for Global Health; 2006.
24. Freire MC. Technology transfer's next frontier: global health as a new bottom line. *J Assoc University Technol Managers*. 2002;14:1-5.
25. Sobolski GK, Barton JH, Emanuel EJ. Technology licensing. *JAMA*. 2005;294 (24):3137-3140.

PHILADELPHIA CONSENSUS STATEMENT

On University Policies for Health-Related Innovations

According to the World Health Organization, ten million people—most of them in developing countries—die needlessly every year because they do not have access to existing medicines and vaccines. Countless others suffer from neglected tropical diseases such as sleeping sickness, lymphatic filariasis, and blinding trachoma. Because these neglected diseases predominantly affect the poor, they attract very little research and development funding, leading directly to a paucity of safe and effective treatment options.

We believe that access to medical care and treatment is a basic human right.1 Lack of access to medical treatment in developing countries stems from several factors, including high prices for medicines, underfunded health care systems, and a global biomedical research agenda poorly matched to the health needs of the world's destitute sick. Comprehensive solutions are thus needed to increase both access to existing medicines and research on neglected diseases.

We believe that universities have an opportunity and a responsibility to take part in these solutions. University scientists are major contributors in the drug development pipeline. At the same time, universities are committed to the creation and dissemination of knowledge in the public interest. Global public health is a vital component of the public interest. Therefore, universities best realize their objectives when they promote both innovation and access to health-related technologies.

To this end, we, the signatories of this Statement, urge universities to adopt the following recommendations.

As owners of intellectual property, universities have the ability to promote widespread availability of their technologies in the developing world. When university-owned intellectual property is necessary for the development of a health-related end product— including but not limited to drugs, vaccines, diagnostics, monitoring tools, know-how and technical expertise—universities should:

PROMOTE EQUAL ACCESS TO UNIVERSITY RESEARCH

1. Require the inclusion of licensing terms in exclusive technology transfer agreements that ensure low-cost access to health-related innovations in the developing world. The Equitable Access License (EAL)2 is one example of a model license promoting access to university intellectual property in which all qualified entities3 are permitted to supply the product to public and private sector markets in low- and middle-income (LMI) countries.4

2. Develop a transparent, case-by-case global access strategy to ensure access to health-related technologies where licensing provisions like the EAL will not serve the access objectives defined above. For example, biologicals (e.g., complex macromolecules and vaccines) and healthcare devices (e.g., diagnostic tests) are subject to different scientific and technical constraints than synthetic small molecules and may require different methods to ensure access. Components of a global access strategy could include (a) forgoing the university's share of royalties to incentivize the licensee to facilitate access by offering discounts in developing countries; (b) actively seeking a third-party organization to participate in research, development, and distribution to facilitate access in developing countries; and (c) incorporating licensing provisions, such as non-patenting requirements, that guarantee access to data and materials necessary to
promote generic production or adaptations for developing countries.

1 See Article 25, Universal Declaration of Human Rights.
2 See http://www.essentialmedicine.org/EAL.pdf.
3 Qualified entities include, but are not limited to, public or private generic manufacturers registered in the country of production.
4 We use the categories of low- and middle-income countries as defined by the World Bank at http://www.worldbank.org/data/countryclass/classgroups.htm.

Neglected diseases are those for which treatment options are inadequate or do not exist and for which drugmarket potential is insufficient to attract a private-sector response. In order to advance the development of therapies for neglected diseases (ND), universities should:

PROMOTE RESEARCH AND DEVELOPMENT FOR NEGLECTED DISEASES

1. Adopt policies promoting in-house ND research. Universities should (a) adopt a classification system defining and prioritizing neglected diseases5; (b) support existing researchers engaged in ND work; (c) recruit talented ND researchers by establishing proper incentives and marketing their ND research programs; and (d) formalize annual review practices aimed at identifying new or currently shelved technologies with promising potential for application to ND end product development.

2. Engage with nontraditional partners to create new opportunities for ND drug development. Universities should actively seek out nontraditional partners (e.g., public-private partnerships, grantmaking organizations, nonprofits, and developing-world companies or research institutions) to facilitate development of technologies applicable to neglected diseases. Example interactions include: patent donation, dual-market licensing, and straightforward exclusive/non-exclusive licensing. In order to access novel funding sources for neglected diseases, universities should remove any barriers, such as intellectual property restrictions, to accepting research grants from nontraditional funders.

3. Carve out an ND research exemption for any patents held or licenses executed. Licensing terms should allow other non-profit institutions to conduct research for neglected diseases using the university's patented innovation.6 Similarly, for any out-licensed technologies, universities should retain the right to nonexclusively license use of its intellectual property for neglected disease research and for distribution of any resulting products in developing countries.

Given their avowed commitment to the public good, universities should measure success in technology transfer by impact on global human welfare rather than simply by financial return. The positive social impact from university innovations—particularly in poor countries—would go largely unnoticed if technology transfer were to be measured in dollars alone. In order to develop transparent criteria measuring access to health technologies and innovation in neglected-disease research, universities should:

MEASURE RESEARCH SUCCESS ACCORDING TO IMPACT ON HUMAN WELFARE

1. Collect and make public statistics on university intellectual property practices related to global health access. To further elucidate how university patenting and licensing strategies affect access to the end products of academic research in developing countries, universities should disclose all healthcare-related end products in which it holds any intellectual property. Data should also be published on patents applied for or granted in all low- and middle-income countries. Conversely, universities should make known the number of licensing agreements that include access-minded provisions7 as well as details of nontraditional partnerships for ND research and development.

2. Collaborate with other universities and consortia to develop more robust technology transfer metrics that better gauge access to public health goods and innovation in neglected-disease research.

5 For example, the United States Orphan Drug Act could provide a legal basis for defining a set of neglected diseases.

6 See http://www.essentialmedicine.org/EAL.pdf.

7 Access-minded provisions include, but are not limited to: (1) facilitation of generic competition, (2) mandatory sublicensing clauses for LMI markets, (3) specific access milestones, and (4) agreements that reduce royalty payments from the licensee to the university in exchange for fair pricing in LMI markets on the part of the licensee.