

# OLD DRUGS, NEW TRICKS

Could taking a second look at existing drugs hold the key to fighting emerging diseases?

THE BUZZ HAD barely died down by the time Curtis Chong set foot in Zambia last summer. He and two senior colleagues here had published findings that an old and neglected drug could knock out a particular form of malaria. It was an exciting development, of course, but needed a larger human study. Broad use in the world's malaria hotspots might still be years away.

But amid his summer visit to a pharmacy in rural Zambia, Chong stumbled onto a delightful surprise: His team's celebrated antimalarial agent, astemizole, lay packaged on the shelves in generic form, priced at 10 cents per pill. The pharmacist reported the drug was a popular antihistamine, widely available throughout the African continent. Since its conversion to a generic form in 1999, an Indian manufacturer now produced the pills in vast quantities and at low cost.

Distributing astemizole in remote locations was not going to be an obstacle, Chong recalls. "We can't wait to get this into clinical trials," he says.

Yet the Zambia find only amplifies a potentially much bigger story. Chong and his colleagues—David Sullivan of the Bloomberg School's Malaria Research Institute and Jun Liu with Medicine's pharmacology program—found the old drug's new promise while screening a database of existing drugs. The team has launched an ambitious effort to build a library of nearly all of the existing 9,000 known drugs, with an eye toward testing them for new uses.

The move stems from a long-standing frustration: New drugs take too long to approve and cost too much for wide distribution to poor populations. In fact, according to a study conducted by the team, it now takes about 15 years and \$1 billion to bring a single drug to mar-

ket—not the most attractive system for fighting rapidly emerging diseases.

Taking a second look at the older drugs poses an enormous savings of time, money, and human lives. Some of the most costly stages in the development of new compounds include animal and human safety trials. Since the older drugs have already passed muster, researchers can cut to the chase when trying them for new conditions. Phase two trials alone typically take two years and cost \$17 million, Chong notes.

Already, scientists here are investigating potential new uses for existing drugs through experiments involving HIV, cancer cells, tuberculosis, and new blood vessel formation.

Armed with a growing conviction that the vast stores of existing medicines are an underplayed resource, Chong and Sullivan published a clarion call in an August 2007 issue of the journal *Nature*. "We challenge the scientific community," they wrote, "to create a comprehensive clinical drug library to screen every neglected disease by 2011." They've even offered their database here as a starting point. The Johns Hopkins Clinical Compound Library, says Chong, has 1,500 available compounds, the world's largest publicly accessible collection of existing drugs.

Labs have begun responding, says Chong. Larger collaborations will soon be in the pipeline. RF



> Sullivan, Chong, Liu

PHOTO BY WILL KIRK

## OVERHEARD

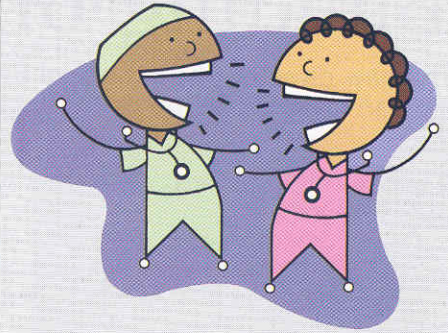


ILLUSTRATION BY SHERRILL COOPER

Spend enough time on patient rounds here and certain phrases begin cropping up that can't be found in medical textbooks. They are the shorthand terms of harried young physicians, describing patients and procedures that recur with shopworn frequency. Some are particular to Hopkins, others universal. Some evoke gallows humor. Some are in bad taste. Herewith, our first modest sampling of terms (in no particular order) heard around the Hopkins dome ...

- **Acute Lead Poisoning.** Slang for gunshot wound.
- **Retrospectoscope.** The proverbial device through which physicians look back at a case and revise their diagnostic conclusions.
- **Rock.** Term applied to a patient who stays on the wards for lengthy periods.
- **Rock Garden.** A group of patient rocks, disproportionately assigned to the same ward. Usage example, when one intern has too many of them: "I'm growing a rock garden."
- **Full Metal Jacket.** Term applied to a patient's cardiac artery with many metal stents to prop it open.
- **Celestial Discharge.** Slang for "my patient died."
- **Doughnut of Truth.** Term for the giant ring of a CT scanner, which confirms or rules out a physician's diagnosis.
- **Win the Game.** Phrase applied to interns who successfully discharge all of their patients before they are assigned new ones.

To submit your own nominations for Overheard, send emails to [rflynn@jhmi.edu](mailto:rflynn@jhmi.edu)