

## Drug companies accused of stalling tailored therapies

Therapies tailored for people's distinct genetic makeup have for years been touted as the next big thing in drug development. But if those drugs have yet to materialize, it may be because drug companies don't want them to.

A July report based on dozens of pharmaceutical company documents and filings with the Securities and Exchange Commission says companies often abandon drugs that would benefit only a genetic subset of people, and even obstruct research on genes that would predict drug response.

"There's lots of hand waving about how big companies are going to develop pharmacogenetic drugs," says Adam Hedgecoe, coauthor of the report, published by the UK Pharmacogenetics Study Group.

"But companies are using pharmacogenomics to weed out drugs at an early stage," he says. "[They] don't develop a drug that's only going to work for 20% of the population."

In one example, a leading drug company refused to provide its product to academic researchers for a clinical trial assessing genetic and lifestyle factors that predict response to a drug for Alzheimer disease. The company only

agreed after the researchers threatened to sue. Companies have also prevented scientists from publishing data that stratified drug responses by genetic factors, he says.

But drug makers maintain that they are trying to identify genetic factors that affect their products' effectiveness. "Critical generalizations are unfounded," says Stephen Lederer, senior director of media relations for Pfizer. "When we have robust data, this is shared, as appropriate, with regulators and the scientific community."

In March 2005 the FDA amended its guidelines to have companies voluntarily submit genetic data with new drug applications. Under these guidelines, companies can apply to broadly market a drug despite what the data might suggest. But if a drug is not approved, the FDA can deny companies that hold back genetic data the chance to reapply and include the data.

Since the guidelines have been introduced, companies have been more willing to disclose data linking certain genes to drug response, says Judes Poirier, director of the McGill Centre for Studies in Aging, who has for years worked closely with industry. The success of the tailored cancer therapies Herceptin and Gleevec has

also shown industry that such drugs can earn significant profits, he adds.

In the absence of tests that can single out people who would most benefit from a drug, however, most drugs continue to be prescribed indiscriminately. Some biotechnology companies such as Third Wave Technologies in Wisconsin and Massachusetts-based Genzyme Genetics are trying to develop tests that can be marketed along with drugs.

Research has already shown that customizing drugs to genetic makeup can benefit public health. For instance, British researchers have shown that individuals with type 1 diabetes who have certain mutations in two genes respond poorly to insulin and fare better on sulfonylurea drugs (*N. Engl. J. Med.* 355, 467–477; 2006). Prompted by those results, the UK government has begun training a national network of nurses to implement genetic testing for diabetics.

"If policymakers are serious about applying the science to public health," Hedgecoe says, "they need to engage with what is actually happening rather than what people hope companies are doing."

*Gunjan Sinha, Berlin*

## Text messages dig up pure water for Bangladesh's poor

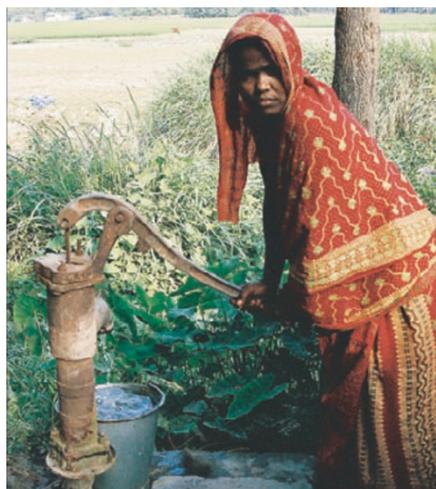
The teenage craze of text messaging will soon enable Bangladeshi villagers to tap into safe water supplies. A new program developed by Columbia University scientists uses cell phones to help villagers digging wells avoid water contaminated with arsenic.

About half of Bangladesh's estimated 7 million private wells draw groundwater laden with naturally occurring arsenic. That puts nearly 35 million Bangladeshis at risk of being poisoned by arsenic in their drinking water, according to the World Health Organization.

"People still don't know how to find safe water," says lead researcher Alexander van Geen, a geochemist at Columbia University's Lamont-Doherty Earth Observatory. "We want to provide information at the village level so people can dig safe wells."

The Welltracker database tracks the concentrations of arsenic in 300,000 wells in 17 of Bangladesh's 520 districts. The team last year completed a pilot project and plans to incorporate 5 million more wells into the system for a nationwide launch in 2007.

Bangladesh began installing wells in the 1970s as an alternative supply of drinking water because surface water in most places teemed with bacteria. The move helped cut diarrheal diseases in half, but in the 1990s researchers



Amy Schoenfeld

**Not a drop to drink:** Water in Bangladeshi wells is laced with naturally occurring arsenic.

discovered arsenic in the groundwater.

Because other drinking water sources are scarce, however, villagers continue to install wells despite the threat of skin lesions, cancers, cardiovascular disease and respiratory problems. The water is untainted—or, at least, contains less than 50 parts per billion of arsenic—below a certain depth, but finding that level is tricky.

"The level of arsenic varies a lot by location,

it isn't as though there's a beautiful bell-shaped curve," says Andrew Gelman, a statistics expert at Columbia University who helped develop the database. The water may be untainted at 100 feet in one well, for instance, and at more than 300 feet in a neighboring village.

With Welltracker, villagers can use text messaging—increasingly popular in the country—to find out how deep to dig and the odds that the water will be safe at that depth. Beginning in October, people in Indonesia also plan to use text messaging to rapidly relay information about bird flu.

"It's certainly the most straightforward way to make the information easily available to anyone," says Charles Harvey, a hydrologist at the Massachusetts Institute of Technology, who is not involved with either project.

Installing wells can cost about \$1 for every foot villagers dig. By helping find safe water at shallower levels, the database will cut the cost of digging new wells, the researchers say.

Before the project can be expanded, the World Bank must first release data from a study it funded on arsenic concentrations in 5 million wells across the country. The researchers hope to obtain that information later this year.

*Alisa Opar, New York*