



Lost capacity:

Tuberculosis research, already underfunded, threatened by cuts



New dimensions:

H3-D promises to boost local innovation in African research



One for the team:

Michael Houghton on why he turned down the Gairdner prize

New tools automatically match patients with clinical trials

The majority of Americans—72%—say they would take part in a clinical trial recommended by their doctor, according to a survey released last month by the Alexandria, Virginia-based science advocacy group Research!America. Despite that enthusiasm, though, there's a shortage of enrollment. According to US government estimates, only about 3% of patients with advanced cancer enroll in phase 1 trials. Part of the problem, experts believe, comes down to a lack of awareness: the general public doesn't know about investigational trials, and few physicians discuss the option with their patients.

New tools unveiled this year that automatically prescreen patients for trials based on their electronic medical records and email matches to doctors could help solve the problem. "We've needed these kinds of tools for a long time," says Eric Topol, a cardiologist and director of the Scripps Translational Science Institute in La Jolla, California. "Physicians are really busy, and there are so many clinical trials that no human could track them all."

The US federal registry, ClinicalTrials.gov, currently lists more than 145,000 trials in all 50 states, as well as 184 foreign countries. Wading through those listings is a daunting task for individuals interested in signing up for a study, assuming that they know of the resource to begin with. Ultimately, problems with patient recruitment delay clinical trials by 4.6 months, on average, according to the Center for Information and Study on Clinical Trial Research Participation, a nonprofit organization in Boston. That holdup means it takes longer for treatments to reach the market.

To increase enrollment, some patient-advocacy groups have started playing matchmaker. A year ago, the Michael J. Fox Foundation for Parkinson's Research launched the Fox Trial Finder, a web portal designed to help pair people with Parkinson's with clinical studies (see *Nat. Med.* **18**, 837, 2012). The Alzheimer's Association's TrialMatch, meanwhile, has been up and running since 2010. Anyone can register online or by phone and see if he or she—or a patient or loved one—is a good fit for any of the 153

trials in 621 locations. To date, there have been 11,166 referrals, says Heather Snyder, the Chicago-based association's director of medical and scientific operations.



Linked in: Online recruitment has flourished.

In addition to the Fox Trial Finder and TrialMatch, for-profit companies have unveiled web portals to link people with studies. New York's EmergingMed helps connect individuals with cancer trials, and in late May, Michigan-based CureLauncher unveiled a clinical-trial-matching service for a range of disorders. But tools such as these rely on the gumption of individuals to wade through web listings. A new wave is emerging of fully automated tools that do away with the need for people to manually enter information.

On alerts

Earlier this year, the Virginia Commonwealth University's Massey Cancer Center in Richmond unveiled two new tools that work with its Clinical Trials Eligibility Database, which stores information about patients and clinical trials at the center. Since February, its MD Alert Notification System has automatically prescreened the list of scheduled patients each morning and emailed physicians when it finds that one of those individuals is eligible for one or more of 75 open trials at the center.

"If the patient is interested, one click by the physician refers them to the research nurse associated with that trial," says Lynne Penberthy, director of the Massey Cancer Center's informatics core who oversees the tracking and matching tools. Another new computer application there, the Automated

Matching Tool, has been available since January. It screens all patients in the system on a scheduled basis, not just those coming in for a visit.

An algorithm known as Trial Prospector offers even greater automation for clinical trial enrollment. In a pilot study presented at last month's American Society of Clinical Oncology meeting in Chicago, the program reached into the medical records of 60 people with gastrointestinal cancer who had scheduled appointments at the University Hospitals Seidman Cancer Center of the Case Comprehensive Cancer Center in Cleveland, Ohio. It pulled out 15 pieces of information—including age, diagnosis and blood count—that it compared to eligibility criteria of the 300-plus trials in Cases's database. It then emailed doctors lists of any matches, and it also shows the studies for which the patient didn't qualify and explains why; for example, some factors, such as low red blood cell count, might be easily fixed with a transfusion. The algorithm was 100% accurate, and 11% of the patients ended up enrolling in a trial suggested to the doctor by the algorithm.

"In theory this could be readily adapted anywhere, but we've still got a long way to go," says Neal Meropol, associate director for clinical research at the Case Comprehensive Cancer Center. His team plans to refine Trial Prospector over the next 6 to 12 months, expand it to other cancers, and test it in a community-practice setting, where physicians aren't highly specialized and may not have as much knowledge of open trials.

Penberthy similarly sees automated trial matching tools as a way to reach a more diverse set of participants. "We're hoping that this is going help increase the equity," she says. "It may help to increase minority patients enrolled in clinical trials," an underrepresented population.

Topol, who isn't involved with the programs, says that although automated matching programs are in their infancy, "eventually they could build something that's extraordinary."

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Corrected after print 29 July 2013.

Correction

In the July 2013 issue, the article entitled "New tools automatically match patients with clinical trials" (*Nat. Med.* **19**, 793, 2013) incorrectly referred to CureLauncher as a clinical trial matchmaking service requiring doctors and patients to search through web listings. Rather, the company offers free concierge-type services to facilitate this matchmaking that does not require users to search through listings. The error has been corrected in the HTML and PDF versions of the article.