Can world prize competitions foster more equitable drug research and development?

Challenging researchers through international prize competitions to come up with innovative medicines and ideas for improving global health can help break existing profit-driven patterns that produce mostly drugs for the rich, according to world experts attending a landmark meeting devoted to the topic.

More than 50 experts assembled in Maastricht Jan. 28-29 focused on how best to use prize competitions to stimulate medical and pharmaceutical R&D.

Organized by Knowledge Ecology International (KEI) and UNU-MERIT - a joint research and training centre of United Nations University (UNU) and Maastricht University in the Netherlands, the meeting attracted participants from a broad range of disciplines and stakeholder groups, including research institutes, government, UN organizations, NGOs, industry, patent organizations and funding agencies.

The workshop was opened by UN Under-Secretary-General Konrad Osterwalder, Rector of UNU.

William Fisher, Harvard Law School, outlined several benefits of prize-driven competitions and important factors influencing the design of a prize system. He says prizes are a promising way to stimulate research into medical products to address neglected diseases.

Among the most compelling arguments in favour of medical research prizes is that they help eliminate economic and social costs imposed on society as a whole by the overpricing of drugs by patent holders with monopoly rights. Proponents argue that if the incentive for innovation can be divorced from the product's consumer price, knowledge can be placed in the public domain immediately, allowing competition to drive down prices and ensure greater access to new medical inventions.

Prizes can also help eliminate entrenched biases in patterns of research in the current system such as the over-concentration of research and development resources on drugs to combat "diseases of the rich" -- and a tendency to produce "me-too" drugs that demonstrate little incremental health benefits over existing, and cheaper, alternative products.

In the US, the proposed Medical Innovation Prize Fund Act of 2007, introduced by Senator Sanders calls for an annual fund of $80 billion to support medical innovation through the use of prizes instead of patent-based monopolies.
As the success of the Ansari X-Prize to stimulate commercial space travel has shown, a well designed prize can also leverage significant additional private funding for public research. The Prize succeeded in generating $100 million in investment by groups competing for the $10 million prize.

Workshop participants pointed out a number of potential problems as well, including drawing an unwieldy number of teams into a competition, insufficient incentives to ensure the commercialization of innovations, and political unpalatability in countries where vested commercial interests are at stake.

While prizes have been used across a range of scientific fields in the past, it is noteworthy that the only major attempts in medical-related areas so far have been in the former Soviet Union and China. This could change if the US passes the Sanders Bill.

Designing Prizes

The workshop explored a number of important prize design questions that need to be taken into account, including targeting, prize magnitude, and when to award a prize -- at the point of discovery, or following successful commercialization, for instance.

Other issues included how to deal with further innovation following the first breakthrough, and the relationship between prizes and the patent system.

A crucial question in the design of a prize is credibility: How to assure researchers that the winner will receive the promised prize and that the selection process will be transparent” Of concern as well is the question of the winner's participation in commercialization of an innovation.

Some participants noted that the board of an organization that awards a prize may become a target of lobbying and perhaps even lawsuits (though others argued that the same is true for the current patent-driven system, and is therefore not a problem specific to prizes).

Through a series of panel discussions, the workshop participants related thoughts on how prizes can be designed creatively to by-pass some problems presented by a monopoly-based system. Issues addressed included how to deal with sequential (follow-on) inventions and how to manage a fixed-fund prize fund; how to encourage incremental research by rewarding product development in stages; using Global prizes as an incentive for licensing to a pool, by requiring that the products be placed in the public domain; and prizes for solutions that cannot be patented.

Several case studies were highlighted, including:

- Innocentive, an open platform described as the ‘eBay for prizes’ that uses privately sponsored prizes to match research (seekers) to solutions (solvers) (see www.innocentive.com);
- Prize4Life, set up to accelerate research into ALS/motor neuron disease (see www.prize4life.org);
- A proposed Medecins Sans Frontieres prize for developing a low-cost point of care rapid diagnostic test for TB;
- Proposals for sustainable financing of neglected diseases including including global financing mechanisms such as UNITAID, an international drug purchase facility (see www.unitaid.eu) and
- The Drugs for Neglected Diseases initiative (www.dndi.org).

Mixed views

The backgrounds of the participants varied widely; so too did their opinions on what constitutes a workable prize model.

Some of the participating economists differed, for example, on how replacing patents with prizes would affect innovation and effectiveness of state funding.
Participants were in agreement, however, that the workshop was a seminal event and identified several required next steps:

- agreement on a common terminology to facilitate discussions;
- more awareness raising on prizes in both developed and developing countries;
- access to data on prices and markets, for instance the relative share of generic vs. brand name drugs, and R&D capacity in developing countries;
- concrete recommendations on optimum prize amounts to incentivize useful innovation;
- better understanding of the links between national priorities/programmes and international processes;
- more work on governance models for prizes;
- research into the real cost of monopolies on drug prices;
- dialogue with public research bodies and industry, including WIPO.

There was also a sense that action to stimulate medical research needs to be taken sooner, rather than later.

"There are no neglected diseases, just neglected people. We have been talking for over 10 years. It is now time to act," concluded Kenyan health official Ahmed Ogwell.

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UNU-MERIT is organizing a follow up panel discussion at UN Headquarters in New York in March.

The Medical Prizes workshop programme, presentations and background papers are online at: [http://ccg.merit.unu.edu/prizefund/](http://ccg.merit.unu.edu/prizefund/)

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UNU-MERIT is the United Nations University - Maastricht Economic and social Research and training Centre on Innovation and Technology.

Located in Maastricht, The Netherlands, UNU-MERIT is a joint research and training centre of United Nations University (based in Tokyo, Japan) and Maastricht University. UNU-MERIT provides insights into the social, political and economic contexts within which innovation and technological change is created, adapted, selected, diffused, and improved upon. The Institute's research and training programmes address a broad range of relevant policy questions dealing with the national and international governance of innovation, intellectual property protection, and knowledge creation and diffusion.

The Collaborative Creativity Group at UNU-MERIT is a leading research group on open source software, open content and collaborative creativity and innovation.