FOR RICHER FOR POORER

Five years ago, the world's biggest publishing houses committed themselves to letting researchers in developing countries have free access to the content of their journals.

Beset by technical problems and language difficulties, is HINARI succeeding in what it set out to do?

Hannah Brown reports

It is not often that publishers of scientific material get a good press. Their main customers—the funders of research, scientists, and librarians—have long resented the unfairness of a system that sees their library coffers squeezed dry to purchase reports about their own science, resulting in a fractious, if co-dependent, relationship. But away from the animosity of rich countries' labs and libraries, the world's biggest publishers have been challenging their heartless image.

Since 2000, when the World Health Organization (WHO) first broached the idea of increasing access to scientific information in the developing world by supplying

electronic content free of charge (phase 1) or at low cost (phase 2), publishers have been falling over themselves to take part. Last month, more than 100 of the world's largest publishing companies further extended their commitment to this philanthropic project by pledging to support WHO's "health internet-network access to research initiative" (HINARI) to at least 2015.¹

Some observers question whether the industry's motives are purely altruistic. It is conceivable that pitifully poor countries in 2007 may later follow China along the path to rampant consumerism, making HINARI a useful mechanism for pre-emptive brand recognition. Nevertheless, the commitment

Institutions registered with HINARI

of publishers—and the rapid success they have helped HINARI achieve—has provided a valuable opportunity for scientists in developing countries to engage in the global scientific conversation.

"Developing country researchers who don't have access to the internet will put together a proposal and then get it immediately turned down by a funder, who says the proposal is out of date," explains Barbara Aronson, HINARI's project manager and one of only two full time staff working on the project based at WHO, "but when you allow these researchers access to current journals they can contribute and be involved in the biomedical research community."

Access restrictions

This opportunity, HINARI's first proponents confidently predicted, would not only improve research in developing countries but would lead to knock-on effects that boosted health outcomes and much more besides. But, five years on, HINARI has become bogged down by some of the technical challenges of delivering electronic content. Many users have internet connection speeds so slow that downloading a single article can absorb an entire afternoon.

TRYGVE BOLSTAD/PANOS

Uganda is just one of 113 countries to have benefited from HINARI

Source: World Health Organization

In institutions that register for the content, librarians often control or restrict access so researchers cannot use the system as freely as they need. So are developing countries' scientists and healthcare workers really getting a good deal?

HINARI was conceived as a way of helping WHO better meet the information needs of researchers. "We got several people together for a workshop, after a questionnaire had been sent out and researchers were unanimous that the one thing they needed was access to journals. So we set about doing something about that," explains Aronson. HINARI offers a simple user interface over the web serving as a gateway to full-text journal articles at publishers' websites that can be accessed directly from PubMed.²

As the only surviving element of Kofi Annan's internet commitment in the UN millennium declaration—which pledged to "ensure that the benefits of new technologies, especially information and communication technologies are available to all"—the scale of HINARI's success took even its organisers by surprise. The scheme now gives its registered users, spread among 113 countries and 2500 institutions, access to almost 80% of the published literature indexed in Medline since 2000, and the number of available articles is now climbing towards 6200000. Aronson

believes that this growth is explained by the fortuitous timing of the launch, which capitalised on both the growing importance of the internet as an information resource and the changing nature of the publishing industry—from one which delivered printed products to readers to a much broader information distribution business.

Maurice Long, former head of development at the BMJ Publishing Group and now publisher coordinator for HINARI and its sister projects AGORA (for agricultural literature) and OARE (environmental material), says there was an opportunity in 2000 where one had not previously existed: "In the mid-1990s, we calculated that it would cost £80 to send a free copy of the *BMJ* to an institution in a developing country." But with the internet that cost was suddenly gone.

An editorial published simultaneously by the editors of the *Lancet* (Richard Horton), *BMJ* (Richard Smith), and *BioMedCentral* (Fiona Godlee) in September 2000,³ calling for publishers to provide free health information to resource-poor countries, spelt out the part industry should play in taking the advantages of this new technology to the developing world. For WHO, this was all the

encouragement that was needed. Aronson recalls: "I rang up Richard Smith [after the editorial was published] and said 'We want to do this. Can we talk?'" She asked Smith to chair a meeting of the chief executive officers of top publishing companies. "He said he was the worst person to do it because he was a loose cannon, but instead suggested Maurice Long—and that's how he became involved."

Getting the publishers to agree

The HINARI team predicted that their biggest challenge would be getting publishers to agree to the idea of providing free content. However, even during initial negotiations in 2000, when Aronson and her team first set about approaching big publishers, the enthusiasm that would later drive HINARI's success was clear. The fact that HINARI came along at a time when the publishing industry was just starting to view the open-access movement as a commercial concern may have played a part. By mid-March, Long had managed to charm the six biggest publishers to New York for a remarkable meeting. "In the first 10 minutes of the meeting we had consensus," he recalls. What they decided on was a non-binding agreement—"There are no contracts in HINARI," says Aronson—between publishers and WHO to provide their content free to developing countries.

Yale University stepped in to design an appropriate web based system for authentication and registration of HINARI's users, and in January 2002 the programme's launch was announced. After little more than a year in gestation, HINARI's birth was so quick that it led Sheldon Kotzin, executive editor of Medline, to joke about the team's tactics. Aronson reports: "He said 'How the hell did you get this done so quickly? You must have told the publishers that WHO was going to organise it, and they thought it would never get done and said yes,'" she laughs.

One issue of administrative concern was how to identify countries that should receive free access. The decision made by the HINARI team in 2000 was to delineate eligible countries according to their ranking on the World Bank development list. Those

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with a yearly per capita gross national product (GNP) of less than US\$1000 (£500:€730) were to get free access to HINARI's content, while countries with a yearly per capita GNP of \$1000-\$3000 were asked to pay a \$1000 fee—a sum that, according to Long, would buy “about two and a bit journals”—with that money being reinvested in training.

The aim was, and is, to get HINARI's content to as many people involved in medicine and biomedical science as possible. “We want HINARI to reach people where teaching is done, where research is done, and where policy is being made,” explains Aronson. This definition includes all sorts of government offices, teaching hospitals, professional schools outside universities, national medical libraries, and occasionally non-governmental organisations. “In special cases—for example, a country like Afghanistan, where the country has contracted out the provision of health care to NGOs in whole provinces—we accept that they are the people who are providing the health care,” Aronson says. “The people we don't want to have access are the local offices of Glaxo,” adds Long.

More than research

HINARI provides researchers with access to scientific literature, but that is not all it does by any means. According to Aronson, the initiative has proved a spur for widening internet access in general in developing countries, thanks to the fact that anyone can register to get access for their institution or organisation. “The internet has arrived. It is just a question of giving the institutions and the ministries or organisations that fund them the incentive to get it,” she explains. “[Institutions] can now say to their funders, ‘We have access to HINARI. How about giving us a few computers?’ That seems to work.”

The “HINARI effect” has seen improvements in poor network connections, inadequate electricity supply, equipment shortages, and even poor English skills among staff. “From anecdotal evidence what we have seen is that, once they have HINARI, they have a reason to fix some of those problems,” says Aronson. She adds that some research done by the WHO-sponsored Special Programme for Research and Training in Tropical Diseases suggested HINARI was advancing capacity building programmes,

such as training in ethics and techniques for research, by 10 years.

The training that HINARI's decentralised network provides—which is essential for many first-time users who may have used the internet only for email—is also helping to improve internet literacy in developing countries. Training courses lasting four or five days familiarise institutional representatives with different publishers' web interfaces, searching, categorisation, and downloading, along with general internet concepts such as browsing, evaluating health information, and useful sources such as WHO and PubMed. “Everywhere we do training there is a burst in use,” says Aronson.

However, recent surveys of users of HINARI in five African countries, done by Helen Smith and colleagues from the Liverpool School of Tropical Medicine, suggest that there are bottlenecks within institutions that prevent researchers taking full advantage of the free content.⁴ Part of the problem, according to Smith, is that obtaining HINARI access requires institutions to register with WHO and obtain a password, which must subsequently be disseminated to researchers. The password often does not work when users attempt to download articles that should be free, and some librarians discourage users from requesting full-text access. “Our research suggests that librarians control access by keeping the HINARI password and insisting users go through them for access,” explains Smith. The HINARI team at WHO counters that they encourage dissemination of the passwords as widely as possible, but when Smith and colleagues questioned several potential users about their awareness of online services and internet use, they found that librarians are often not publicising the fact that the content is available—a particular problem for researchers who use internet cafes as their main source of internet access—and uncovered numerous examples of passwords not providing the access they should.

Does HINARI advance health?

A broader issue of concern is whether HINARI's efforts to disseminate medical science to researchers in developing countries is actually

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Translating the research: nurses using computers in a Kenyan hospital

improving health and health care. According to Neil Pakenham-Walsh, coordinator of the Global Healthcare Information Network and a long-time observer of HINARI, although it is incredibly important for the health system at all levels to be managed by people that are fully informed (as HINARI allows), if health workers don't have access to the information they need at the point of care then the direct health benefits are limited.

Smith and colleagues' study of electronic access to health knowledge confirms that, when it comes to treating the sick, journal articles are not the sort of information that health workers refer to during their day to day work: generic formularies or textbooks are more likely to guide clinical decision making.⁴ They explain this finding indicates that clinical competence in developing countries does not necessarily involve applying the most recent research findings to practice. Pakenham-Walsh believes it also exposes an information gap: “The whole issue of availability of health information is much broader than what HINARI is doing. They are setting an important foundation for a future when every person worldwide will have health information necessary to improve health. But researchers and academics are a very small proportion of those who need information.”

SVEN TORENN/PANOS

There are other problems with the system. Most of the journal literature available via HINARI is in English, which means that many health workers and researchers in developing countries cannot benefit from the literature simply because they can't speak the right language. Content remains available only in registered institutions, so, explains Pakenham-Walsh, "even if you are in an HINARI eligible country that doesn't mean you have access. It means that somewhere in your country there are a couple of institutions where you can go and log on." Several critics point out that middle income countries such as India, China, South Africa, and Pakistan are not included within the list of eligible countries, thus depriving thousands of needy researchers from the service. And one consistent complaint from users is the slowness of responses to user queries, if they are acknowledged at all, by WHO headquarters.

Improving resources

Pakenham-Walsh suggests that the system would be improved if more resources were directed at the WHO Geneva office to help the currently tiny team give a better service to users. He believes that HINARI's users would also benefit from better access to electronic textbooks and other non-journal resources. There should be some way to rank the content according to relevance to users, he adds. "One of the issues with HINARI is that it has so many different journals that there is a lot of noise," he explains. "Because most journals

are published in developed countries, the content is high tech. It might be good to separate out the developing country-relevant stuff."

Helen Smith adds that more needs to be done to ensure that people who currently should have access to literature via HINARI, those in registered institutions, are reaping the full benefits.

The technology problem

There remains a limiting factor to HINARI's influence—poor internet connectivity in much of the developing world. WHO gives informal advice to institutions about ways to lobby for improving their connections or funding, but this remains a serious problem. Furthermore, WHO itself has been struggling with the technology challenge of HINARI. One of the deals that WHO made with publishers initially was that WHO would guarantee to identify who qualified for HINARI access. Aronson explains: "We said we would do the authentication. We first used a system done by Yale, who had off-site users, but it didn't work for any of our institutions. It required something that you can do in the US but you can't in developing countries. We went for a system that worked quite well for two years, but, starting in the summer of 2005, the system was overloaded. By March 2006, it was a catastrophe."

Two external reviews of HINARI's operations funded by the UK Department for International Development pinpointed the problem. "The biggest issue was this prob-

lem of authentication, that meant very often a significant number of times users in Africa couldn't get through to the original article," explains Aronson. Luckily, just as HINARI's technical infrastructure was collapsing under the strain, a volunteer from Microsoft walked into WHO in May 2006 looking for ways to collaborate with UN agencies. "They said they would be interested in collaborating. We said we have a technological problem and they said they would solve it. And they did," recalls Aronson.

As of July this year, Microsoft became an official HINARI partner, and the project's technological infrastructure is now functioning well. This outcome, according to Aronson, demonstrates one of the less well known aspects of HINARI's success—it inspires people. "People get very involved and committed. They become champions within their companies and put in huge amounts of personal time," she says.

But is a scheme so dependent on the goodwill of individuals a sustainable one? Long and Aronson believe so. "What we are really pleased about is that we have developed this diffuse network of people in different institutions that form a collaborative framework," Aronson enthuses. "If we have people at WHO doing all the work, that might be unsustainable. But in a network like that you have great commitment to the programme, and that gives a very stable model." However, she believes the most important stabilising influence of HINARI is the change in attitude it has brought about. "The big thing is we have brought in developing countries like any other users. Now, even if HINARI were to disappear after 2015—which we don't anticipate it will—the notion that developing countries have researchers who need information will not."

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Competing interests: None declared.

Provenance and peer review: Commissioned and externally peer reviewed.

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