



Doc-in-a-Box: a conceptual framework by the Global Health Program

Approximately 40 million people around the world are living with HIV. Somewhere between 4–10 million of them have AIDS and face imminent death if they do not receive life-sparing cocktails of daily anti-HIV drugs.

Meanwhile, an estimated 1.7 million people will die this year of tuberculosis, despite the availability of cheap, curative drugs. Half a billion people will be sickened by malaria; it will kill 1 million of them, despite the existence of protective anti-mosquito bed-nets for children, prophylactic drugs, and treatments. More than 4 million children will die of basic diseases, like measles and tetanus, for which we have vaccines, but lack an infrastructure that can assure their proper delivery.

Compounding these infectious disease pressures is a dire deficiency in health care workers. The World Health Organization estimates that the world is currently short 4.3 million doctors, nurses, and lab technicians—a deficit that is growing at an alarming pace as the wealthy world ages and its nursing requirements escalate.

We face an ever-expanding cycle of dependency, putting the poor world in the position of holding outstretched hands to the United States and the rest of the wealthy world. Every year this ghastly begging, which puts most of the world in a supplicant position to a paternalistic world of privilege, will become

worse if nothing changes. The needs will become greater with time, and the number of dollars requested will escalate.

This is not sustainable

For two years the Global Health Program of the Council on Foreign Relations has been exploring how financial support from the wealthy world is being used to address the health needs of the poor world. We have tried to identify ways to bolster local health care worker capacity, create sustainable local businesses, and tighten the distressing life expectancy gap between the wealthy world (longest lived, Japan, 82 years) and the poor world (shortest lived, Sierra Leone, 29 years).

Doc-in-a-Box: Imagine

Every day, thousands of companies use standardized steel and aluminum containers to ship everything from cantaloupes to cars around the world. And every day, these containers are stacking up empty at port cities across America, Canada, Western Europe, Africa, and Latin America. It is cheaper to leave an empty, indestructible 8' x 20' container at the Newark, New Jersey port than to send it back vacant to Japan for another load of Toyotas. The numbers are substantial: 1.4 million steel containers pass through South African ports alone, every year.

The Doc-in-a-Box proposal taps into the unrealized potential of these nearly universally deliverable containers.

Welcome to an instant primary care outpatient clinic, staffed daily by one or two paramedics drawn from the local community and trained to conduct mucous or saliva-based tests for TB, HIV, hepatitis, and malaria; dispense drugs for these diseases; administer childhood vaccines; distribute condoms; hand out sterile syringes to IV drug users (where appropriate to regional epidemiology); offer basic information about prevention on a finite list of infectious diseases; and refer patients with other illnesses or trauma injuries to doctor-staffed clinics or hospitals.

Located anywhere, from a desperate urban slum to a sparsely populated remote rural village, these Doc-in-a-Boxes house a patient-intake room; two gender-specific examination rooms; a staff room with a small solar-powered refrigerator for vaccines and heat-sensitive medicines and diagnostics; storage; and a space for processing simple saliva-based tests. All child vaccines are administered exclusively with auto-destruct syringes, and the paramedics would never use other syringes or come in contact with blood for diagnosis or treatment.

The Doc-in-a-Box is for people who think they are well in addition to those who are experiencing symptoms. Every individual is photographed and a badge is made bearing the photo and a bar code. Every time the individual returns to this, or to any, Doc-in-a-Box, swiping



the bar code will reveal their medical information to the health care provider.

Everything the Doc-in-a-Box requires would arrive, already installed, in a fully outfitted container. This would include office furniture, electrical wiring (using the container's solar power or other types of available power), plumbing (hooked up either to local supply, a rainwater catchment system, or other local sources to be determined), and modest lab facilities.

Because the Doc-in-a-Box is made of completely standardized modules, the contents and medicines can also be standardized and bulk purchased. This standardization will both bring down costs and offer research and development incentives to profit-based industry for the development of still better diagnostic and treatment tools. As noted above, it is imperative that such local clinics shun diagnostics based on blood, as nosocomial transmission of blood borne disease has proven a predictable constant in resource-scarce settings. Simple “toothbrush tests”—diagnostics based on saliva, mouth scrapings, or genital swabs—should be the norm for all screenings in Doc-in-a-Boxes.

Widespread distribution of Doc-in-a-Boxes would constitute the largest basic health database ever assembled in developing countries, would take the guesswork out of regional epidemiology (for HIV, malaria, TB, and STDs), and could

offer real-time warnings of the emergence of resistant microbes in the form of trends in clinical failures. In addition to its epidemiological value (including, for the first time, offering accurate estimates of HIV, TB, and malaria contagion community-by-community), the Doc-in-a-Box system could provide the means for comparing various treatment protocols, trying new therapies, and testing vaccines. In a very real sense, the Doc-in-a-Box plan integrates treatment, prevention, and basic research.

Building the Box

Because of the standardization of the Doc-in-a-Box modules and their ease of transport, the clinics could be retrofitted on a high thru-put mass scale in a port city, preferably in a developing country. Because hundreds of thousands of containers languish in ports around the world, it seems reasonable to assume necessary units could be obtained—even delivered to a retrofitting center—for free. A combination of tax incentives and political pressure from such organizations as the Global Business Coalition on AIDS, the Global Fund to fight HIV, Tuberculosis and Malaria, and the World Bank might well induce the shipping industry to donate not only empty containers, but also their transport to a designated production port.

There are many companies in the world that already carry out container retrofitting and others that might be interest-

ed in such a project. History shows that production on a large scale is best executed by a for-profit industry. Given that the containers could probably be had either for free, or for less than \$600 apiece, completely retrofitting units ought to be feasible for less than \$2,000 per container, particularly if made in a developing country. If a company charged \$6,000 per module, including delivery, it would realize a serious profit in this theoretical model.

Simplicity is elegance: only a finite range of perhaps a dozen modular options would be manufactured, offering potential purchasers (Ministries of Health, NGOs, etc.) a finite menu from which to select options for their Doc-in-a-Box needs.

The Next Step

This conceptual balloon has been floated. If you have specific critiques, suggestions, or ideas to offer—and we hope that you do—please contact Scott Rosenstein (srosenstein@cfr.org) at the Council on Foreign Relations.

