

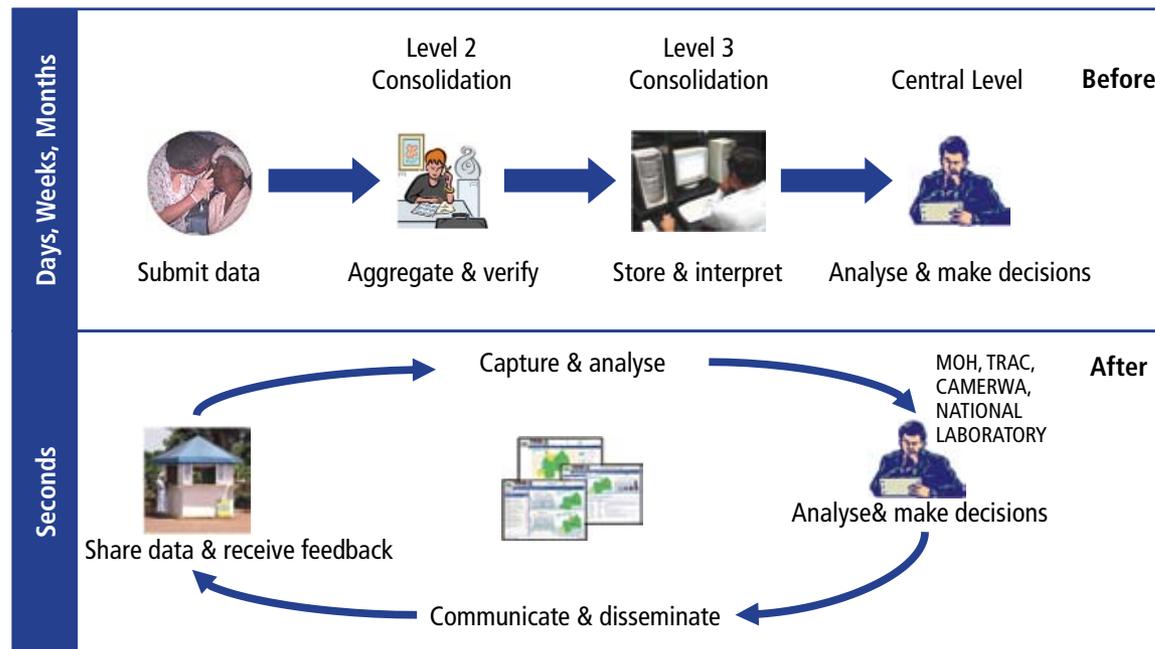
TRACNET, Rwanda: Fighting Pandemics through Information Technology



Africa is plagued with severe pandemics, such as HIV and malaria. To be contained, these diseases require strong public actions. The monitoring of population health and treatments is hence critical to ensure a timely response and to avoid the wider spread of the diseases. However, this monitoring is particularly difficult in countries where information does not circulate easily. As roads and communications infrastructure remain inadequate, many African countries are hampered in their struggle against HIV and malaria. When patients live far from the laboratories where diagnosis can be made precisely and from the main warehouses where drugs are stored, the treatment chain can be broken, immediately affecting those who suffer.

Broadening outreach and access to health systems through technology

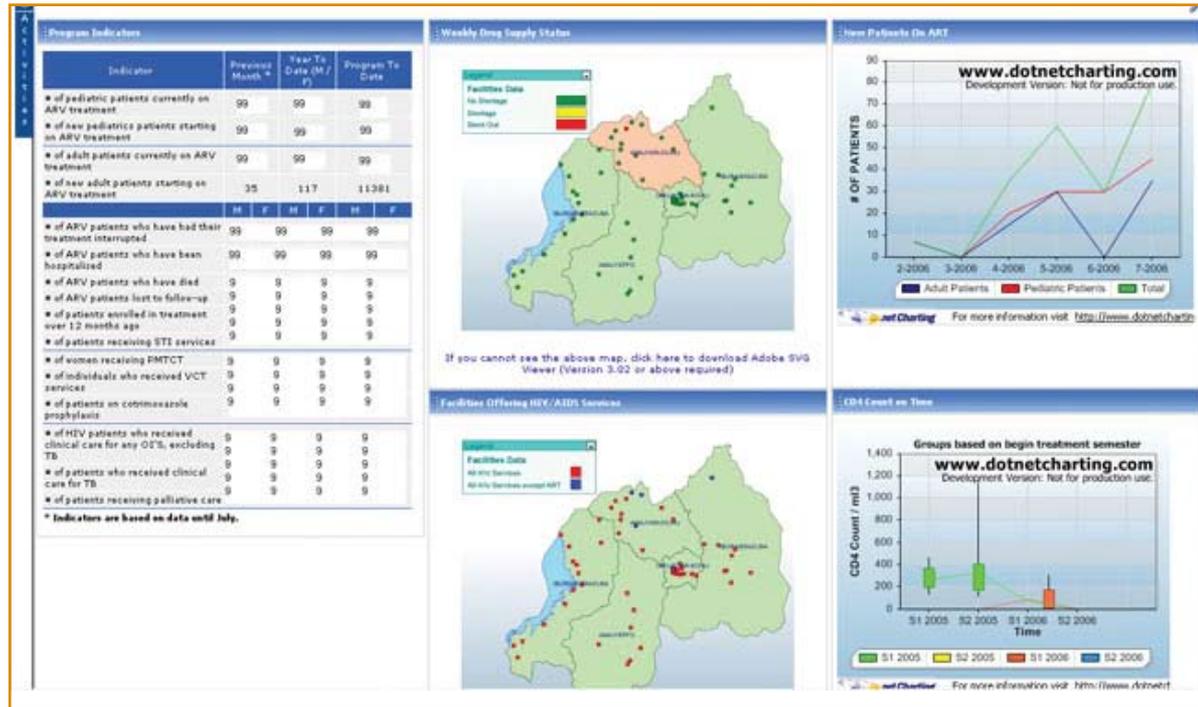
How to ensure that diagnosis and drugs are rapidly dispensed in areas where infrastructures are limited? In Rwanda, where it is estimated that 0.5 million persons are afflicted by HIV, an innovative solution has been found and successfully implemented. TRACnet was established and implemented by TRAC (Treatment and Research AIDS Centre), an institution of the Ministry of Health of Rwanda in 2005. It is a dynamic information technology system designed to collect, store, retrieve, display and disseminate critical program information, as well as to manage drug distribution and patient information related to the care and treatment of HIV/AIDS. This system enables practitioners involved in anti-retroviral (ARV) treatment programs to submit reports electronically and have timely access to vital information. By dialling 3456, a toll free number, or logging onto a bilingual website (English and French), health centre staffers can submit or receive programme results on HIV/AIDS patients as soon as they are processed. TRACnet uses solar energy chargeable mobile phones, which can be used in the most remote parts of the country.



TRACnet was planned in 2003 and has been gradually implemented since then. Rwanda Tel and MTN-Rwanda Cell both set up toll free numbers and donated free network time. Voxiva Inc, an American based company, provided ICT support to the project. The project has also been supported through the US-based Centres for Disease Control and Prevention (CDC). After 7 months of development and training, TRACnet became operational in December 2004. Initially, sites that started to use the electronic transmission had to keep the paper-based system (the type of forms and content were similar), which increased the burden on them. However, at the beginning of 2005, 21 sites were allowed to switch to TRACnet exclusively. The total cost of the project for the five years is US\$2.1 million.

The previous system was cumbersome, largely paper-based, with a one-way information flow which was time consuming. It usually took up to a month for HIV/AIDS patients and doctors in the countryside to have access to blood test results, as most laboratories are in Kigali.

TRACnet has enabled HIV/AIDS practitioners to monitor Anti-Retroviral (ARV) therapy drug stocks in real time, allowing local hospitals to send urgent requests to central managers to replenish stocks. Furthermore, it gives rapid and reliable access to CD4 molecule and viral blood test results in remote health facilities. Authorities get timely access to critical tracking indicators which permits a better public monitoring of HIV/AIDS patterns of transmission. Disease outbreaks at various levels can be better managed through national/regional/local tables, called "dashboards", which compile all sources of information related to HIV.



The National Reference Laboratory provides results of blood tests; CAMERWA, a pharmaceutical company keeps stock of the availability of ARV drugs; and TRAC monitors and supervises health facilities that provide ARV treatment in the country. TRAC also has a team of IT personnel, who train health care providers at the health facilities in how to use TRACnet, and who also monitor reporting into TRACnet and publish monthly reports.

Improving monitoring and logistics

The deployment of TRACnet has faced challenges. For instance, there is still a need for increased education on HIV/AIDS, to encourage patients willingly to come forth to be tested and counselled. The new system has had to cope with a soaring demand among the population. At the same time, the shortage of health workers has been an obstacle to scaling up the number of patients and coverage areas. CAMERWA has experienced problems with drug coordination and maintaining adequate levels of stock for meeting demand. Finally, financial needs were sometimes difficult to meet in the early stages of the TRACnet deployment.

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However, the results have been striking. At the end of 2007, the system covered the 168 health facilities offering ARV therapy in Rwanda accounting for 100 per cent of the 43,000 ARV patients in Rwanda. In the long run, 400 health facilities are to be part of the network. Four hundred TRACnet users in health facilities have been trained to send their monthly programme indicator reports and their weekly consumables reports. Most users (over 90 per cent) are able to access the system conveniently and cheaply via the toll free telephone interface with Interactive Voice Response (IVR) technology. Physicians are now able easily and quickly to discuss with highly qualified specialists details of difficult cases all over the country. This technology has been easily adopted, as most users are accustomed to text messaging from phones after 15-30 minutes of training. As a result of the TRACnet implementation and deployment, the number of days between obtaining a blood specimen for a CD4 analysis and physicians' receiving results has been significantly reduced.

TRACnet has introduced improved information exchange between health facilities and central actors, which has reinforced their respective levels of accountability. The flexible nature of the Voxiva platform offers an easily scalable solution. The country now plans to offer universal access to care and treatment to all those needing it. Some 60,000 people living with HIV and AIDS were targeted to be reached by end of 2007 as compared to 8,000 in December 2004. In light of the TRACnet success, the Ministry of Health plans to monitor all other healthcare indicators with the same tool in line with the country's development vision to 2020.



Rwandan health workers are trained on the TRACnet system, which uses cellphones in the field to gather data about AIDS patients and their drug treatments.