



## Rats replace doctors in pioneering disease diagnosis

**Send in rats to prevent the spread of a deadly disease? The idea seems like a contradiction in terms, but a team of Johnson & Johnson executives and MBA participants took the Blue Ocean Strategy to a new dimension for their imaginative solution to reducing tuberculosis cases.**

Tanzania is a country where unmet needs, especially in the vast rural hinterlands, require innovative solutions, and few are needed with more pressing urgency than in the fight against an old but persistent adversary: tuberculosis.

When Loïc Sadoulet, Academic Director of the Africa Initiative, and Frank Welvaert, Managing Director, Johnson & Johnson Corporate Citizenship Trust, joined forces against this deadly disease in the African country, their solution combined unlikely business partners, proven pedagogical tools and executives committed to corporate social responsibility. “Tuberculosis had almost disappeared and suddenly you see tuberculosis is rampant, despite free drugs, despite money from the NGO sector, money from the government, money from the global funds,” says Sadoulet.

More than 430,000 people die from this disease in Africa each year, according to 2009 estimates from the World Health Organisation. The costs in Tanzania are borne by the healthcare system and donors, including corporations and non-governmental organisations. The problem has not been one of medicine or medical care, but detection. Traditional hospitals working with traditional laboratories simply couldn’t make diagnoses fast enough to make a dent in the spread

of the highly contagious disease.

Tanzania is a largely rural country where the diagnosis of tuberculosis can take as long as six months to confirm, during which time an infected person can transmit the contagious disease to as many as 15 different people, often family members. Furthermore, the number of tuberculosis sufferers is rising, largely because of the effects of malnutrition and spread of HIV/AIDS. Most cases of tuberculosis are found “passively”, whereby patients who have developed symptoms must first seek out diagnosis and treatment.

### Rats can smell the disease

After several iterations, the working group hit upon... rats. “The rats can identify tuberculosis,” says Sadoulet. “They can smell it on the sputum samples, they can smell it on the slides and they stop us when they smell tuberculosis and scratch, and therefore you can identify it.”

If rats sniff out a positive sample from a batch of negative microscopy results – they indicate this by scratching at the surface of the trays holding the samples – then the infected patient is asked to return to a hospital for curative treatment. The rats have improved detection rates in the centres where they

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are used by as much as 31 percent since their introduction.

“By using the rats as frontline detection rather than second-line validation, we can re-engineer the process and make everybody get to the objective faster... we can identify tuberculosis immediately rather than six months later, once people really get sick,” says Sadoulet.

The project team in Tanzania was led by managers of the global healthcare corporation Johnson & Johnson and INSEAD MBA participants. Under the leadership of Welvaert, 24 executives were selected from across Johnson & Johnson’s pharmaceutical, consumer and medical devices sectors. Enrolled in an INSEAD custom-designed executive education programme, the senior managers were joined by a select group of INSEAD MBAs who for this project received financial support and medical direction from the Johnson & Johnson Corporate Citizenship Trust.

Their mission was to study the experience cycle and unmet needs of “extreme non-customers” to become more sensitive to the opportunities and discontinuities in the health sector. “What does it do to a young person who comes into the company as a franchise manager and all of a sudden sits in front of real patients on the ground in a village in Tanzania? I can tell you for many it has been a very transformational experience,” says Welvaert.

Fortunately, the Johnson & Johnson team already had an insight into the role of rats in tuberculosis detection thanks to the creative imagination of APOPO, an NGO and one of Johnson & Johnson’s partners in Tanzania. Founded by Bart Weetjens, who kept rats as a kid, APOPO first started training Gambian pouched rats as landmine detectors in place of dogs in war-torn countries like Mozambique and Angola in the late 1990s.

### Johnson & Johnson forms new partnerships

Johnson & Johnson not only had to convince lab technicians, doctors and even healthcare ministers of the merits of the innovation, it also had to find new partners to implement the action plan. “One of the longer-term outcomes when you look at emerging markets and issues [such as] affordability or access of unmet needs is that you may not have the solution on your own. So ultimately, if you want to have impact and do something fundamental in terms of impacting people’s lives, you will have to work in partnership and that’s a new thing,” says Welvaert.

To accomplish the mission, Johnson & Johnson turned towards several unlikely partners whose services were necessary to make the project succeed. Pepsi-Cola, for example, operates a

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network of trucks delivering bottles to villages throughout the Tanzanian countryside. The team realised that it would be logistically possible for Pepsi drivers to collect sputum samples from villages and take the samples to the APOPO detection centres. “Pepsi-Cola suffered this legitimacy problem, saying why would a soft drink company go in the health field, and yet through Johnson & Johnson they were able to use their CSR budget to provide logistics for the sample collections and to roll out the solution,” says Sadoulet. In addition, Johnson & Johnson partnered with the mobile phone operator Vodacom in Tanzania to enable a speedier exchange of critical data between tuberculosis sufferers and detection centres.

### Sparking innovation

For Welvaert, a new business model has also emerged from this experience called “intrapreneurship”, a term first employed during a presentation he gave at the invitation of the European Union recently. With an integrated approach to solutions, talented people working for large global corporations such as Johnson & Johnson can build new ideas and concepts. “They put a sort of seed in entrepreneurship, but it is reverse,” says Welvaert. “You are not there to spin it out, you are spinning it back into the corporation and that sparks off creativity, it sparks the innovation process.”

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