

Drop by drop: improving African blood services

Lack of local research and evidence is impeding the development of African blood services. Alison Dunn and Imelda Bates report on an initiative to change this

'We need more local research in African blood services.' This has been the loud message from national blood services in Africa since 2008. Since then, an international group of researchers and blood service managers in Africa have been working together to make this happen. In 2011-2015, a four-year EU-funded project called 'T-REC: Building research capacity of blood services in Africa' operated in Ghana and Zimbabwe. International academics, experienced in designing and conducting research, worked closely with African blood service staff and managers who have in-depth knowledge of their services. The project strengthened the capacity of local researchers at PhD and graduate levels and increased the research skills of staff in national blood services through workplace projects. T-REC also provided small bursaries to graduate students, to conduct research into blood transfusion issues.

Safe blood saves lives

In sub-Saharan Africa, safe blood saves lives, especially those of young children and pregnant women. Each year, many deaths would be preventable if national blood services and hospitals had adequate supplies of safe blood. But blood services face difficult challenges. It is hard to find blood donors, especially donors who will give repeat donations. Many donors are family members responding to an emergency or are of secondary school age, taking part in a blood donor drive. Relying on school children means there are often shortages when schools are closed for the holidays. Added to this, many blood donors are rejected because they are too anaemic or test positive for infections that can be transmitted through blood. Blood services also face funding difficulties and may depend on external funding, which is unsustainable and may make it hard for them to act independently and be innovative. The recent Ebola outbreak in West Africa has further highlighted the fragility of blood service systems, and the need to respond more quickly to demands for blood.

'Blood services are essential, and research is fundamental to change and improvement. One problem is that research in this field is undervalued,' said Imelda Bates, who led the T-REC programme. Another problem, as Justina Ansah, Director of the National Blood Service Ghana, points out is that, 'The use of blood in Africa is different from the Western world. It is important that we have an evidence base in Africa'. Evidence about blood transfusion practices taken for granted in high-income countries may not be appropriate in Africa. For

Alison Dunn is a communication consultant in global health, and Professor Imelda Bates is at the Liverpool School of Tropical Medicine.



Blood recruitment drive in Zimbabwe

example, how unsafe is it to accept blood from malaria-positive donors in malaria endemic areas when, in some countries, such a policy could reduce available blood by 30-50%?

What did T-REC do?

T-REC was a research capacity building project in Ghana and Zimbabwe. It supported individuals to do research:

- 4 African researchers undertook PhDs.
- 44 African blood service staff undertook training and conducted workplace research, as part of the Diploma in Project Design and Management.
- 46 African graduate students undertook small research projects on blood services.

Four PhD students from Zimbabwe and Ghana were selected through open competition and jointly supervised by researchers from their local university and a European university. Their projects cover donor motivation, rationalising syphilis screening, changing HIV patterns and economics of infection screening. Lucy Asamoah-Akuoko of the National Blood Service Ghana said, 'The opportunity to pursue a PhD degree through the T-REC project has helped me to develop the self-motivation, discipline, confidence and requisite skills to undertake in-depth scientific work independently. This is invaluable for my new role as the head of the newly established Research and Development of the National Blood Service Ghana, with responsibilities to establish the department to international standards'.

The Professional Diploma in Project Design and Management (DPDM) is a one-year, part-time course that introduces health professionals to research by 'learning-through-doing' in the workplace. In Ghana and Zimbabwe, 44 students took part in the DPDM, with projects ranging from looking at information management systems,

blood donor motivation and testing blood for safety. The DPDM course was successfully rolled out from Kumasi in Ghana to Accra and then to Harare in Zimbabwe. This involved recruiting and training new facilitators, markers and supervisors to run the courses. Feedback has indicated that DPDM graduates are making a greater contribution to their workplace as a result of completing the course. 'I feel I want to perform more than before, and now I am very confident that I can do better. I wish that all my colleagues be included or involved in such programmes, so that we can help together to uplift the issues of research in the national blood service Zimbabwe,' said Stella Rupi, clinical nurse at the National Blood Service Zimbabwe, and DPDM graduate.

Forty-six undergraduate and graduate students in Ghana and Zimbabwe received bursary funding to conduct research projects within their degrees related to blood transfusion. This resulted in new links between the blood transfusion services and Universities within the countries, and the potential for research outputs from the bursaries to influence policy and practice.

Impact on individuals

In general, people who participated in T-REC reported that:

- PhD students gained skills, knowledge and are embedded in international networks, and will contribute to the future of African blood services.
- Blood service staff learnt new research skills, and gained confidence and greater motivation to seek practical evidence-based ways to improve their blood services. They are making greater contributions to their workplaces.
- Graduate students have an increased awareness of blood transfusion as a potential career.
- The health workforce is ultimately stronger with individuals equipped with new skills, knowledge and motivation.

People responded to these opportunities to do research with great enthusiasm, showing the urgent demand for local knowledge and evidence in blood services. The impact on individuals inevitably spreads to the institution. As a result of T-REC, research carried out by the PhD, diploma and bursary students will provide evidence that can be used to modify current blood service policy. Getting research into policy and practice can take a long time, and for most of the research it is still too early to demonstrate clear links to policy change. However, the number of individuals now researching blood transfusion topics has increased significantly and in the long term this will enhance the ability of blood services and policy makers to support and use locally-generated research.

Institutional change

What difference did T-REC make to the National Blood Services in Ghana and Zimbabwe?

- Research generated by the PhD, diploma and bursary students is providing evidence that can be used by national blood services to modify their current policies and practice.
- National blood services and policy makers are more engaged with locally-generated research and are

better able to support and use findings.

- Staff members at blood services are more motivated and engaged to improve their work, as a result of taking part in a workplace research diploma.
- In both Ghana and Zimbabwe, universities and higher education institutions have stronger links and relationships with national blood services, increasing the likelihood of further local research on blood services.
- The blood service institutions are increasingly embedded in international networks to promote and support research in blood services.

Ultimately this will have an impact on the health of populations, particularly women and children in sub-Saharan Africa, through a more effective and safer supply of blood to those who need it.

New research agenda

In 2014, international and African researchers and African blood service staff met in Pretoria, South Africa to identify new and emerging challenges in research. They agreed that blood services in sub-Saharan countries face many similar problems.

1. There is an urgent need to investigate pragmatic and culturally-sensitive approaches to blood donor recruitment.
2. There is a persistent lack of good evidence on the costs and effectiveness of different blood service models.
3. There is a critical need for appropriate IT systems to manage and optimize blood stocks and blood donor recruitment and tracking.
4. There is much to be gained by sharing information and tools and by collaborating with each other to share successes and avoid duplication of effort.

What next?

Strengthening local research capacity in national blood services reaps rewards for both individuals and institutions. This is a clear lesson to emerge from T-REC, and efforts will continue because African blood services are highly motivated to continue with more locally-driven research. African blood service researchers need funding and academic support to carry out locally-generated research to influence policy and practice. African policy makers and regulators need to be involved in all stages of the research, to encourage the up-take of findings into policy and practice. Blood services in sub-Saharan Africa need effective mechanisms for collaboration, so that they can share evidence, practice and lessons learnt.

T-REC as an initiative is ongoing and when future funding is secured, it is hoped that the model of strengthening research capacity in national blood services across Africa can be replicated and adapted appropriately.

For more information about T-REC please visit the T-REC website www.t-rec.eu

Here are some policy briefs: <http://www.t-rec.eu/highlights/documents/T-RECImpact-IndividualsJune2015.pdf>

http://www.t-rec.eu/highlights/documents/T_REC-Impact-InstitutionsJune2015.pdf

The new research agenda: <http://www.t-rec.eu/highlights/documents/T-RECResearchBriefJune2015.pdf>

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