REDS-III PARTNERSHIP WAS INSTRUMENTAL IN BUILDING RESEARCH CAPACITY IN SOUTH AFRICA

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BACKGROUND

• 1990 Commission on Health Research for Development stated: strengthening research capacity in Low & Middle Income Countries (LMIC) is “one of the most powerful, cost effective, and sustainable means of advancing health and development”.

• Start of a surge of investment to conduct health research and capacity building aimed at solving health problems in LMICs.

• Yet, challenges remain:

• Year 2000: LMICs accounted for 85% of the world’s population, 92% of the global disease burden, but only 10% of global funding for health research was devoted to addressing these persistent health challenges

NATURE OF THE PROBLEM

Challenges of Research Capacity building in LMIC’s

- Gains often not sustainable without ongoing foreign support
- Research agendas often set and led by High Income Country researchers
- Frequent lack of national involvement
- Lack of research output translated into local health policy
- Focus on technology improvements rather than saving lives by improving health service delivery
- LMIC’s leadership and authorship are low
INTRODUCTION


- The goal of this partnership was to perform cutting-edge research in Transfusion Medicine (TM) while at the same time making a concerted effort to build local research capacity.

- To achieve this goal four clinical / epidemiological REDS III projects provided opportunities for research output

How successful have we been?
Research studies:

• Development of a Donor/Donation Database

• Clinical Studies
  – Transfusion in Pregnancy (TIP)
  – Donor recruitment
  – HIV/HBV Case control
  – Monitoring and Acute Treatment of HIV Study (MATHS)

• Analysis & Manuscripts
METHODS

Research capacity-building initiatives included:

• Local Research-training courses
  – Basic research skills, human research ethics

• Longer-term research training in San Francisco:
  – for promising junior SA investigators under separate (non-REDS) programs
  – Application of research skills and development of a publication

• Ongoing mentorship and collaborative interactions with experienced researchers and scientists for junior researchers
METHODS

• REDS-III Symposium hosted at Kloofzicht Hotel near Johannesburg, 2016
  – REDS Trainees from Brazil, China and South Africa

• Supporting of research outputs directly and indirectly linked to REDS:
  – research-based qualifications attained
  – Number of SANBS staff trained
  – Number of articles published
  – Other research exposure and investment.
RESULTS

Over a 9-year period, the following Human Resource capacitation was achieved:

• Seven local young investigators were mentored to perform an active role within the REDS studies:
  – Expertize in database development and management
  – Specialized laboratory expertise
  – Project management skills for the grant funded study
• 34 SANBS Trainees benefited for local research training.
RESULTS

Four Medium-Term trainings in Manuscript Writing

- Discovery of “false Elite Controllers”: HIV antibody-positive RNA-negative blood donors found to be on antiretroviral treatment (W Sykes et al. JID 2019)
- Comparison of the performance of two new Nucleic Acid Amplification Technology (NAT) systems for detection of human immunodeficiency virus, hepatitis B and C virus (in progress; C Coleman)
- Is ABO associated with HIV seropositivity? (in progress, G Jacobs)
RESULTS

Three PHD’s are in development:

• The intersection of the HIV epidemic and blood donation in South Africa (Dr K vd Berg)
• The impact of Individual donation nucleic acid testing for HIV and HBV on blood safety in South Africa. (M Vermeulen)
• Patient blood management: The need for education for good clinical transfusion practices. (V Rambiritch)

Publications:

• A summary of publications highlights the relevance of topics and SA authors as lead publishers
RESULTS

Motivators and deterrents to blood donation among Black South Africans: a qualitative analysis of focus group data

U.S. Matheba,1 M.G. Olcanado,2 H. Perk,3 M. Mdu,1 V. Ruba,1 T. Mokome,1 V.M. Bloch,1 J.L. Murphy,1 K.R. Biggs1
1CCD strategy, South African National Blood Service, Johannesburg, South Africa; 2Response Research Division, Research Triangle Institute, Research Triangle Park, North Carolina, USA; 3Department of International Research and Training, Blood System Research Institute, and 4Department of Laboratory Medicine, University of California San Francisco, California, USA.

Received 2 December 2015, accepted for publication 4 June 2016.

EMERGING INFECTIOUS DISEASES

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Use of Blood Donor Screening to Monitor Prevalence of HIV and Hepatitis B and C Viruses, South Africa

Ronél Swanevelder,1 Ravi Reddy,1 Dhuly Chowdhury,2 Marie Olnsted,2 Don Brambilla,2 Ute Jentisch,1 Edward L. Murphy,1,4 for the REDS-III South Africa Investigators


Obstetric Transfusion Practices in the Eastern Cape Province of South Africa.


Van den Berg K, Bloch EM, Aku A, Mabenge M, Creel D, Hofmeyr GJ and Murphy EL for the

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<tr>
<th>Topic</th>
<th>Published</th>
<th>SA first author</th>
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<tr>
<td>Focus groups of motivators and deterents to donation in Black donors</td>
<td>Transfusion Medicine 2015</td>
<td>Yes: TN Muthivhi et al.</td>
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<tr>
<td>The impact of HIV infection on obstetric hemorrhage and blood transfusion in South Africa</td>
<td>Transfusion 2015</td>
<td>Yes: E Bloch et al.</td>
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<tr>
<td>Use of blood donor screening to monitor for HIV and Hepatitis B and C, South Africa</td>
<td>Emerging Infectious Diseases 2017</td>
<td>Yes, M Vermeulen et al.</td>
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<td>Risk factors for peripartum blood transfusion in South Africa: a case control study</td>
<td>Transfusion 2018</td>
<td>Yes: E Bloch et al.</td>
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<td>Using a motivator and deterrent questionnaire to predict actual donation return behaviors amongst first time African-origin blood donors</td>
<td>Transfusion 2019</td>
<td>Yes: R Swanevelder et al.</td>
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<td>2 publications form Mini-grant (international training): Implementation of a script for personation interviews: impact on HIV risk in South African blood donors. Discovery of “false Elite Controllers”: HIV antibody-positive RNA-negative blood donors found to be on antiretroviral treatment</td>
<td>Transfusion 2019</td>
<td>Yes: 2 SA authors J Mitchell, W Sykes</td>
</tr>
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<td>5 publications in progress</td>
<td></td>
<td>SA lead authors</td>
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RESULTS

Capacitation in networking and working collaboratively:

• All REDS-III collaborative SANBS staff have had exposure to international research collaboration, working group meetings, networking and practical grant management.
• Most SANBS REDS-III staff have had opportunities to attend or present at international conferences.

Laboratory capacity building:

• Proficiency training in specialized HIV diagnostic assays has resulted in performing of tests locally rather than shipping samples to international laboratories.
DISCUSSION

• Collaboration with UCSF /RTI / Vitalant researchers over 9 years has resulted in tangible research output at SANBS in South Africa.

• Highly experienced researchers collaborated, shared their knowledge, provided direct mentorship and training over an extended period.

• All research output is relevant to critical health questions in SA in relation to transfusion medicine and beyond.

• Local research output has effected improvements in donor management, laboratory testing and understanding the HIV epidemic in the blood service.

• SANBS staff have become renowned researchers who continue to mentor and grow the next generation of young investigators.
CONCLUSION

• Ongoing surveillance for research opportunities and applying for suitable research grants is required:
  – to ensure sustainability of SANBS research agenda and output
  – to remain recognized as a Centre of Excellence Blood Transfusion Institute with a strong research focus in South Africa and globally

• REDS research capacity building at SANBS provides the foundation of the envisaged Research Academy
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