



Biobanking collaboration with Africa:
BBMRI-ERIC's contribution to health research capacity
building in Africa, Wednesday, 5 April 2017
COMECE - Square de Meeûs, 19, B-1050 Brussels,
Belgium

Examples of best practices for capacity building in
Africa

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Best Practice for capacity building for Biobanking in Africa

- IARC
- BCNet
- Proposed WAHO ECOWAS Regional Biobank



IARC

- ✓ UN science and research organisation with global focus
- ✓ Provide breach with international organisations
- ✓ Strong collaboration with Africa in cancer research in the field of epidemiology, genetics, environmental studies, laboratory science
- ✓ Evaluate best practices through programs and projects
- ✓ Provide evidence for cancer prevention and control programs e.g Globocan, Monographs
- ✓ Education and Training program

IARC's Experience in Working in Africa: Ethics and Legal Framework

- ✓ Many institutions now have advanced ethics and legal frameworks and provide advice to international researchers.
- ✓ They need to be recognised, and work with IRB committees in HICs for mutual understanding of the ethical perspectives in different settings.
- ✓ Limitations for sample/data export out of some countries
- ✓ Need for South-south collaborations to encourage capacity building and exchanges on the continent

Laboratory Facilities

- ✓ Diversity in the level of development across Africa
- ✓ Some areas of improvement include:
 - Facilities need systems to maximise their utility
 - LIMS to match the large investment in lab facilities.
 - Co-investment into hospital laboratories and pathology sections, that provide specimen for diagnosis and/or research laboratories
 - Quality from the grass-roots level upwards fundamental to improving health research outcomes.
 - A good balance between advanced biobanking facilities for health research and low cost setting-/ppropriate methods for larger scale studies
 - Well equipped biobanking in a few tertiary hospitals, where the patient population may not be representative
 - Address issues such as Quality, Training, Standardized Protocols.

Biobank Network for LMICs (BCNet)

IARC established a biobank network (BCNet) in 2013 to work with Low and Middle Income Countries to address the underrepresentation of quality biological material for research



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BCNet Membership

Non-African members:
2- South East Asia
3- Europe
2- South America



21 institutions
from 14
African
countries

- Institutional membership
- Members agree to share resources, expertise and develop common standard protocols
- When appropriate, will host other training and participate in technology transfer
- Conduct collaborative projects in areas of common scientific and research interest

Examples of BCNet Member's Profile:



Breast Care International, Ghana



The Medical Research Council Unit The Gambia



Public/Private entity
Hospital, field & BB



<1000 Clinical & leftover samples from diagnostic procedures, collections from specific research projects



Manual Data Collection;
In-house data mgt system;
Excel sheets, Word documents



Members & collaborators participate in BCNet and B3Africa E&T program.

Public entity, a well-developed research centre, Has LN2 facility

90,000 Samples

Clinical samples from clinical trials and specific research projects.

Commercial LIMS; In-house data mgt system; Ongoing bioinformatics training for a dedicated staff member; Poor internet coverage

Members & collaborators participate in BCNet and B3Africa E&T program.

Situational Analysis of 22 African Biobanks: Data Sharing Ability



ELSI : Type of Consent Procedure Varies in Africa

Countries that have provisions to govern
broad consent (BCNet member's countries)

Specific

Tanzania
Zambia

No provisions either way

Cameroon Egypt
Ghana Kenya

Broad

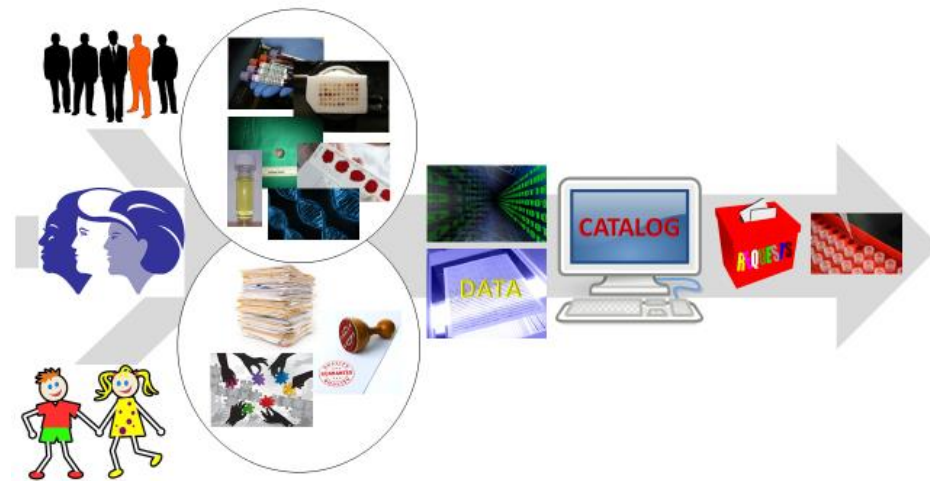
Uganda Gambia
Sudan South Africa
Nigeria

Countries with published information

BCNet Catalogue

Objective:

- Promote the collection of high quality samples and associated data
- Increase visibility and promote collaboration between researchers and institutions



- ✓ Register bio-resources and data available in members' institutions for collaborative research
- ✓ Contact details of PIs and institutions
- ✓ Searchable online

Biobanks in Cameroon, The Gambia, Ghana, Sudan, Uganda, Zimbabwe, Egypt, registered so far

Ethics and Governance Framework For Best Practice In Genomic Research And Biobanking In Africa

- ✓ Framework developed by stakeholders, networks, researchers; H3Africa, BCNet, B3Africa, GET
- ✓ To provide a principled and practical approach to promote best practice for genomic research and Biobanking in Africa.
- ✓ Standards and principles may need to be adapted to the local context
- ✓ Primary goals are to recommend broad consent for research
- ✓ To guide the development of national regulation for genomic research and Biobanking in African countries

Partnership: Regional Biobank for ECOWAS Member States

Initiative lead by the department of Disease and Epidemic Control (DDEC) and West African Health Organisation (WAHO)

- Members of the regional network of laboratories proposed the establishment of a Regional Biobank for biological collections (samples and data)
- Workshop: Abidjan, 9-11 March 2017 representatives from the ECOWAS countries discussed and review the terms of reference and governance structure for operating the biobank
- International organisations invited as experts to advise on the process: IARC BCNet, WHO, MSF, IP, GET

Purpose of the ECOWAS RBB

- ✓ To strengthen the preservation of biological resources (samples/data), enhance scientific cooperation between reference laboratories and wider community
- ✓ Support biomedical research on major endemic diseases; diagnosis, prevention and control
- ✓ Facilitate the visibility of biological resources available in the ECOWAS region.
- ✓ Facilitate the promotion of one-health concept in Africa

Location of the Proposed WAHO-ECOWAS Regional Biobank

- ✓ Pasteur Institute Ivory Coast for the storage of bioresources: human, animal, plant and environmental samples
- ✓ Stores over 35,000 biological samples in freezers
- ✓ Recently acquired liquid nitrogen facility for capacity of 3.5 million samples
- ✓ BCNet Member
- ✓ Advisory role in the setting up of the PIIC BB governance structure



Advantages of the RBB Partnership

- ✓ Goodwill of 15 WA countries, WAHO and the international community to collectively address health issues of concern
- ✓ Storage of human, animal, plant and environmental specimen to support the one health concept
- ✓ High level of high level stakeholders collaborate to conduct research of relevance to Africa
- ✓ Conduct research on NCDs, infectious diseases, environmental exposures and emerging pathogens to develop prevention and treatment programs
- ✓ Training opportunities for future African researchers
- ✓ Better preparedness to deal with outbreaks and emerging pathogens

Challenges

- ✓ Data and sample sharing regulations
- ✓ Harmonised protocols and procedures
- ✓ Institutional and regional support
- ✓ Sustainability: funding, staff and training
- ✓ Quality and relevance of resources for scientific research
- ✓ Adequate storage capacity for data, bio-informatics and LIMS

Recommendations

- ✓ Consolidate results of various funded projects set up to develop infrastructure for biobanking and biomedical research
- ✓ Benchmark existing initiatives
- ✓ High level endorsement and collaboration to promote the adoption of the Legal and Governance Framework
- ✓ Include operational and financial component in sustainability programs (including grass-root biobanks and laboratories)
- ✓ Promote local capacity building; south-south collaboration

Thank you

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