Infrastructure Needs for a Cancer Research Centre

Biobank Infrastructure for Research

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IARC 50 for 50 : Empowering Future Cancer Research Leaders
Biobank Definition

- A collection of biological materials and the associated data, stored in an organized system, for a population or a large subset of a population (OECD)

- A safe house for tissue samples, tumour cells, DNA and blood and data

March 2009
Biobank Types

Disease-based biobanks - hospital embedded
- Key role is to support diagnosis and ongoing care
- Important research platform for personalized/precision medicine

Population-based biobank: to support population cohorts
- Collection of samples and data (medical history and lifestyle)
- Target age group and mostly without disease
- Followed-up for disease occurrence
Biobank Key Components

Sharing/access
Informed consent
Governance/Policy Management

Training Expertise

Research
Ethics, Legal and social issues (ELSI)
IT Economics

Technical
Sample collection
Pre-analytical processing
Annotation

Infrastructure

Storage facilities
Equipment
Data/sample security

Associated data
Clinical/Research Epidemiology Documentation Monitoring Record keeping
Organisation

PIs, Steering committees

Ethics Committee

Biobank Steering Committee

Projects

Biospecimens Data

Sample Management database

Active use

Short-term

Long-term/archive

MTA DTA

Distribution/sharing

Sample storage

International collaboration
Technical infrastructure

- Freezers
- Liquid nitrogen tanks
- Back-up generators
- Computing: Software and database
- Physical infrastructure
  - Location
  - Building
  - Laboratory
- Protocols
What about the Samples?

- Type of samples: tissues, blood, cells, saliva, etc..
- Storage format depending on size and volume
- Identification, labelling
- Pre-analytical processing
  - Cold and warm ischemic duration
  - Stabilizer, fixative used, duration
  - Centrifugation/separation (blood)
  - Histology examination
  - Temporary storage condition and temperature
- Quality control and quality assurance
Robust IT System to Manage Biobank Data

- Diagnosis
- Medical
- Treatment
- Survival data
- Lifestyle data
- Individual data
- Biological data
- Biological sample
- Research protocols
- Research
- Research results
- Biospecimen
Ethics Legal and Social Issues (ELSI) in Biobanking

- National and International regulations
- Well established Consent procedures
- Broad Consent recommended for prospective sampling
- Sharing procedures and policies SHOULD be consistent with patient and public trust
- Involve stakeholders from the onset to build trust
Transparent Governance Structure

1. Biobank steering committee
   - Should include relevant stakeholders
   - Biobank, laboratory managers, researchers, PIs,

2. Sample/data access committee
   - To review technical component of access request

3. Close collaboration with Ethics committee

4. Fair and honest Informed Consent procedure

5. Material/data transfer agreements
Biobank Sustainability requires..

- Core activities embedded within clinical and research landscape
- Regular budget allocation
- INSTITUTIONAL SUPPORT
- Effective cost recovery program
- Supplementary funding from grants, and research support
- Membership of Biobank networks to provide visibility
- Promotion of quality in all aspects of biobanking
Standards, Guidelines and Protocols

NF S96-900 (France) Septembre 2011 Qualité des centre de ressources biologiques (CRB) - Système de management d'un CRB et qualité des ressources biologiques
BCNet

Biobank network established by IARC to address the underrepresentation of quality biological material for research in Low and Middle Income Countries (LMIC)

- Situational analysis
- Needs assessment survey
- NCI-CGH major partner

Planning and discussion with stakeholders

Establishment of network
- IARC-Co ordination
- Member
- Partners
- Advisory Committee
- 4 working Groups

On going projects
- BCNet Catalogue
- Education & Training program
- Participation in EU-H2020 development Grants (B3Africa)


Membership to BCNet is open to LMIC Biobanks. Visit our website: bcnet.iarc.fr or contact mendym@iacr.fr for more details

Training, IARC, Lyon, 3-5 Nov