Bedarfsanalyse von verteilten Probensammlungen zur Risikominimierung

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Considerations in the NaKo to reach optimal sample quality

- Fast processing of biomaterials (fast separation of cells from plasma/serum, fast freezing,…)
- Adherence to stringent SOPs
- Barcode control of every procedure
- Automation of all steps in preparation (pipetting robots), storage and retrieval (ultra low temperature freezers)
- Many „small“ aliquots (avoidance of freeze thaw)
- Storage temperature as low as possible (liquid nitrogen)
- Regular quality tests of materials
- Diverse range of sample types
- **Backup storage**

Possible causes for loss of all or a part of samples in biobanks

- Electric power failure for hours or days (Energiewende)
  - liquid nitrogen tanks in comparison to -80°C freezers
- Fire (difficult to intervene)
- Flooding (evacuation of samples eventually possible)
- Not so probable in Germany by:
  - Earthquakes
  - Airplanes
  - Terroristic attacks by co-workers or foreign activists

Back-ups can be mandatory

- Flooding of the “Danish Diet, Cancer and Health Biobank”, July 2011
- Blood, urine samples and fat tissue biopsies from 57,053 Danes kept for more than 20 years
- Nightmare for every biobanker, involved scientist, organisation and the whole research community

Disaster management vs. Back-up

- Disaster management: save samples shortly before disaster happens
- Disaster management often not possible
  - Fire, acute flooding, …
- Difficult when electric power is lost
  - Where to bring? How to bring? Next presentation!

Back-up solution preferable

Solution back-up of part of samples at distant places

- German National Cohort (2/3 central stored in Munich; 1/3 locally for local projects but also for back-up and security reasons)

- UK Biobank

Biobanking guidelines concerning back-up solutions

- “Biobank facilities must have back-up equipment, such as an alternative power source that is automatically activated when needed”

- “Biobank systems should also establish back-up storage of rare and particularly valuable samples, and have procedures in place to respond to equipment failure, weather emergencies and other critical situations”

Biagioni KW, Best practices in Biobanking, DDW, 2014, 2: 1-5

Back-up at distant places

Although important, back-up solutions at distant places are an exception

Examples for ongoing sample back-up initiatives in Germany

- **Norddeutsche Biobanken Allianz (NBA)**

(Borstel, Greifswald, Hannover, Kiel, Lübeck)

- Working meetings discussing simple challenges in biobanking like
  - IT (BIMS)
  - Sample quality and security, project management
  - Presentation of Prof. Nauck concerning 2D barcode tube call for tender in the NaKo (60 minutes)
  - Certification

Future back-up planned:

Start: exchange of 2D-barcode tubes to check interoperability

Planned back-up between Biobank Hannover (HUB) and Biobank Göttingen

- Lower Saxony medical universities or faculties
- Traditionally close contact
- Complementary assistance in various biobanking topics (IT, sample processing, infrastructure, storage)
- Sample exchange planned between Biobank Göttingen and HUB Hannover (next lecture Sara Nussbeck to the IT-requirements)

Samples exchange for mutual back-up is extremely complex

- Which samples shall be back-upped?
- Kind of tubes, 2-D barcodes, scanning of tubes possible?
- Is storage infrastructure comparable (alarm systems, temperature, …)?
- Associated data also transferred?

Samples exchange for mutual back-up is extremely complex

- Legal regulations
- What happens, if partner samples will get lost?
- How will storage be invoiced?
- Contract ist necessary
- **Is confidence enough to pass samples for back-up?**

Starting an initiative to solve mutual back-up problems together

- Workshop planned in Hannover 2016 combined with HUB visit
- Tasks, responsibilities to harmonize process in Germany
- Interested biobanks (mutual back-up)
- Dr. Norman Klopp; klopp.norman@mh-hannover.de