The GBN quality program put to the test

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German Biobank Node
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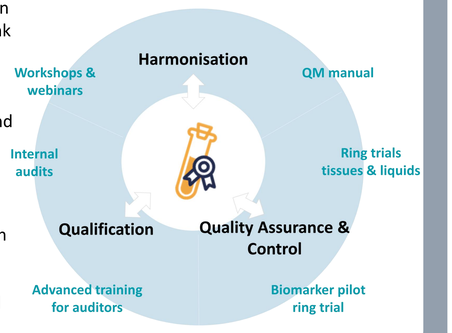
Background

Under the coordination of the German Biobank Node (GBN), 20 biobanks from eleven German university hospitals and two IT development centers have joined forces in the German Biobank Alliance (GBA) since 2017. The GBN offers the German biobank community a central cooperation platform and represents them in the Biobanking and Biomolecular Resources Research Infrastructure – European Research Infrastructure Consortium (BBMRI-ERIC). The quality of biosamples and their associated data is of utmost importance to achieve reliable and reproducible scientific results. Sustainable quality assurance is a basic requirement for every biobank and must be ensured by an implemented quality management system. GBN and the alliance partners involved since 2017 are funded by the Federal Ministry of Education and Research for strengthening of German biobank locations, for connection to BBMRI-ERIC, Promotion of harmonization, interoperability and interconnection, coordinated activities in an international context and active participation in international standardization projects. We cooperate in establishing quality standards based on international norms and thus make our biosamples available throughout Europe. An independent committee of leading international scientists and experts accompanies our activities and supports us in strategic questions.



Aims and Methods

The **aim** of the evaluation of the GBN's QM work program was **to reflect and optimize strategies, processes and resources**, especially with regard to the verification of the benefit for the achievement of objectives.
Established evaluation models supported the practical structuring of the project, provided the framework for the identification of the main question and described the necessary steps and instruments to achieve the desired results.

- Evaluation of the quality development process of GBN biobanks in the current funding period (2017 - 2020)
- Evaluation of the benefits/impacts of GBN-QM instruments on the development processes of biobanks

In addition to the ongoing internal data collection and evaluation of quality and performance indicators, we have now launched a summary survey among the QMBs of the partner biobanks on the use of the GBN quality instruments and their contribution to the quality development process.
Based on the previously defined interest, a suitable questionnaire had to be designed that contained all desired dimensions and allowed for cross-sectional and longitudinal analyses to record the temporal development of the queried constants.

- Survey period from 30.07.2020 to 02.11.2020
- 21 addressed biobanks, 15 returned
- the data were collected in LamaPoll anonymously

Data and Results

The evaluation of the 80 questions revealed a high level of overall satisfaction among GBA partner biobanks, and in combination with the quality and performance indicators that were continuously collected, a clearly visible quality trend. In addition, the answers to the various QM tools developed by GBA provided us with valuable information on usability/applicability and usage patterns, which helps us to better understand the needs of our partners. In this way we can optimize our support services and actively assist our partners in their further development, as shown in detail here using the example of the GBA's interlaboratory test program. For both knowledge interests (GBN-QM instruments, quality development) results were achieved in relation to the 4 quality dimensions concept, structure, process and result.

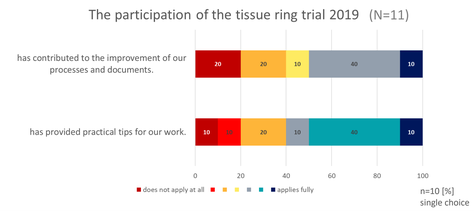
Assessment of the contribution to improvement through GBN Ring Trial (RT) Liquid & Tissue program
(Data refer to biobanks that responded to the survey)

- >20% received practical advice on how to improve their work or documentation
- 70% plan to continue participating in the RT program or would like to expand the program
- 66% (figure3) were pleased about collegial exchange of experiences in the RT feedback discussion

Proof of quality development by using the GBN RT program
(Data refer to biobanks that responded to the survey)

The results of the GBA RT enable an assessment of the suitability of the established processes or the accuracy of the results obtained. An inadequate interpretation of a result requires a review of the methodology used. GBN provides scientific advice in the form of feedback meetings. Furthermore, conclusions can be drawn regarding interoperability within the network.
The following results were achieved:

- Increase in total participation in the RT program
- stated process improvements, especially nucleic acid extraction, staining protocols
- Maintenance of devices (e.g. nanodrop for nucleic acid measurement)
- Improvement of interface processes
- Expansion of the range of services offered by the biobanks led to increased demand for expansion of RT



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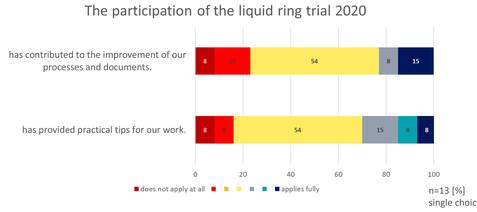

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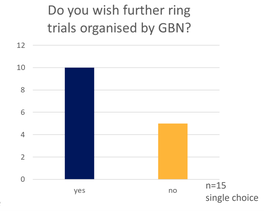

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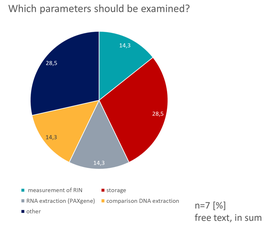

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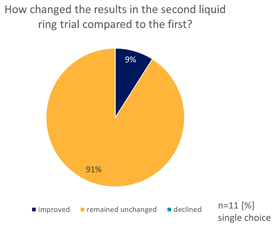

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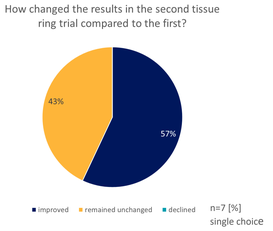

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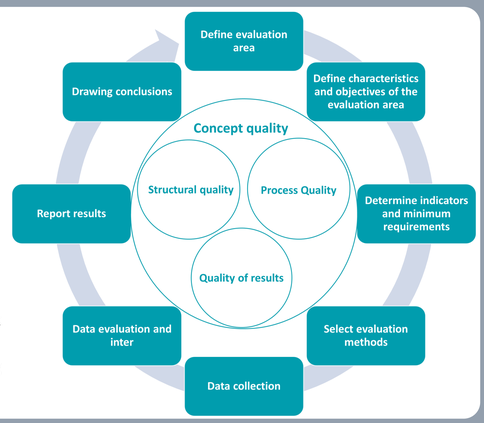
Conclusions - Only who knows the goal, will find the way

Evaluation is always a dynamic process. The ranking can be derived from the naming of challenges and wishes and a dynamic adaptation of the offer can be made. The GBN's focus on expanding the RT program and the strategic orientation of the GBN as a national partner for external quality assurance was confirmed. Last-but-not-least, the active involvement of the network partners and their interaction also contributes to strengthening the network

At European level, the GBN audit program and the English GBN QM manual already represent best practice approaches. All established QM instruments were examined analogously. The evaluation provided important information about the achieved quality level of German biobanks and supports the approach t to make the quality in the network comparable. At the same time it provided important methodological impulses for future quality assurance projects and opens up scope for action that will convince public funding organizations.



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