A case study: The benefits of the EQIPD Quality System for a research lab

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1) Background

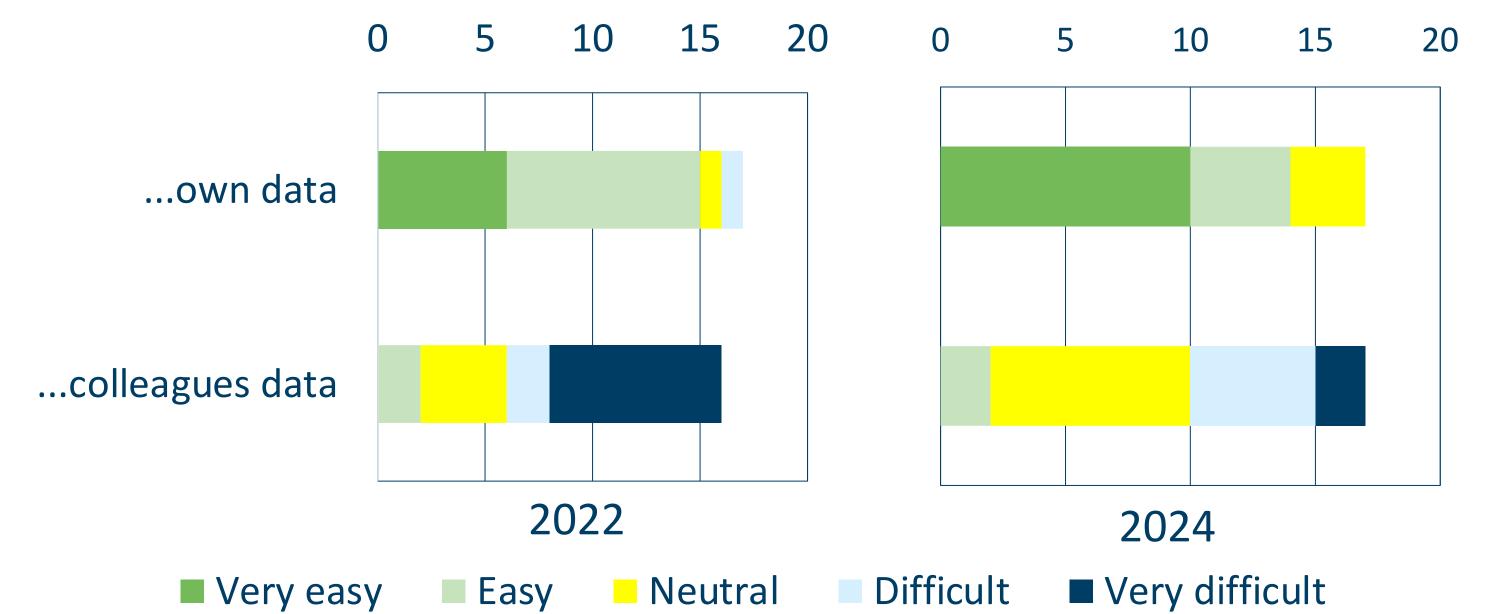
The EQIPD Quality System (QS)

- is an intervention to improve research quality directly in the laboratories¹
- consists of 18 Core Requirements which need to be addressed by the research lab
- The IoP at the CIMH implements the EQIPD QS
- with approx. 10% of the time by a dedicated person for two years
- with the goal to introduce a cultural shift and get certified

3b) Findability was improved: An Example

Results from two surveys:

How can you find...



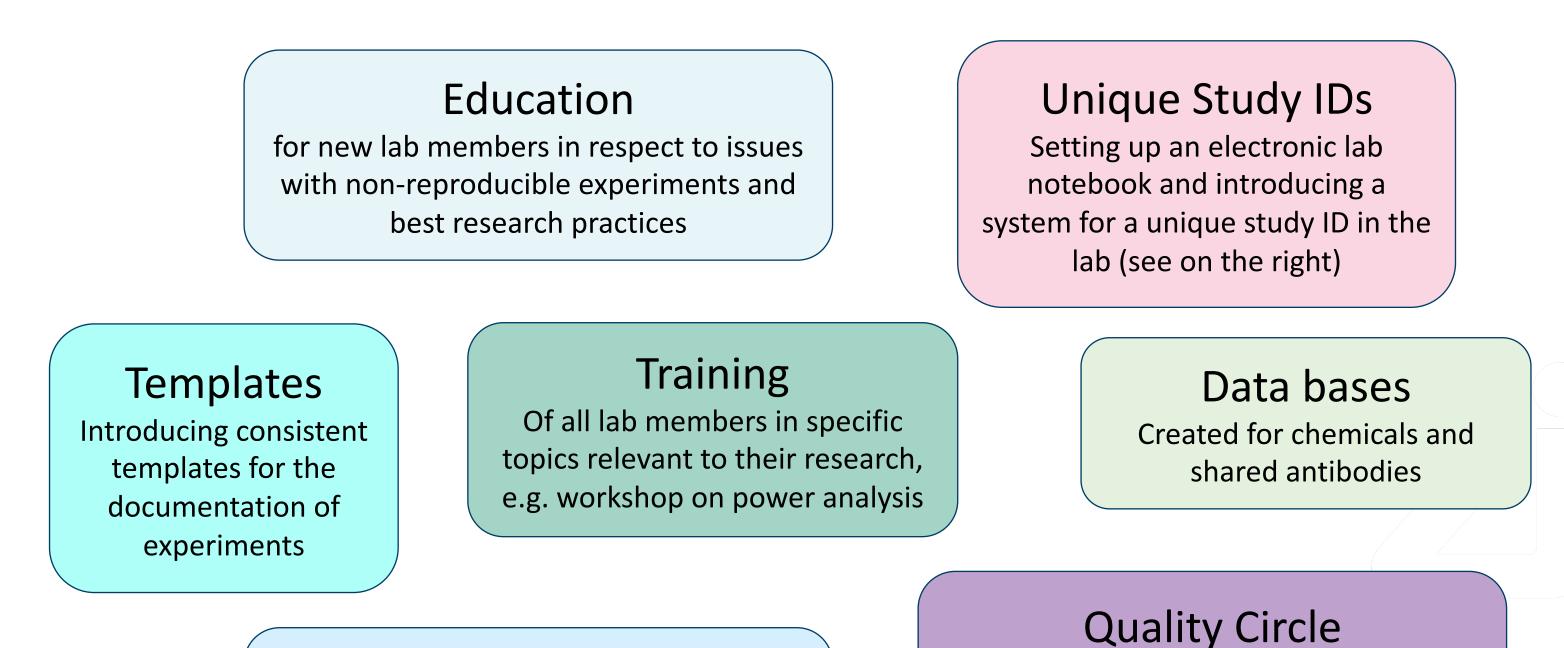
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2) Starting Points to Quality System implementation

First steps:

- 1. Conducting an informal survey about practices by lab members
- 2. Completing the self-assessment form offered by EQIPD

These two instruments revealed areas to be improved and were followed up by several activities. This included, e.g.:



There is a shift towards increased findability of research data

How was the shift achieved?

Using the unique study identifier and electronic lab notebook

A unique identifier was created which is used by every experimenter and for every new study.

It consists of a short abbreviation of the project or name (green) followed by the year (blue) and an up-counting number for the experiment (red) and a title for the study (viola):

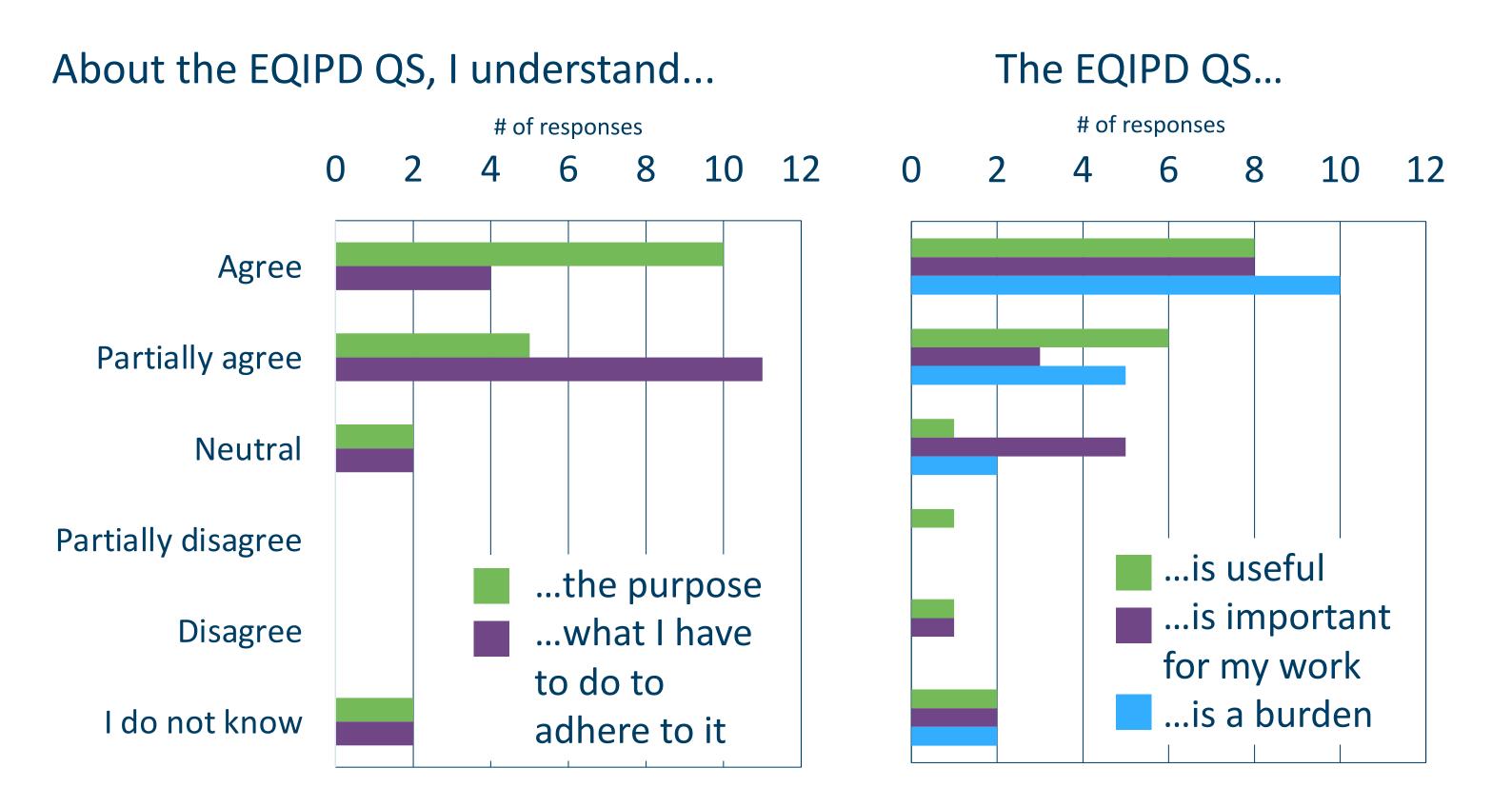
IneliaStructure: project_yearnumber_description of the studyExample: test_2204_Alcohol Depreviation in Lumbricus

Lab meetings Were restructured, to have a higher focus on the experimental design and general lab infrastructure A group of engaged lab members who meet monthly on a voluntary basis to share issues and ideas to improve the lab

The effect of the EQIPD QS can be described based on personal experiences and a second conducted surveys among members of the research lab after two years. The surveys included questions of qualitative and quantitative nature.

3a) Perception of the EQIPD QS by lab members

It is of high interest to understand how a quality system is perceived by lab members. This was also checked with the survey:



Unique study IDs can be used on different levels for traceability of data and materials:

eLabNotebook

Experiments are created

- Templates & study ID used
- Experiment planned & linked to ressources

4) Discussion

Folders

- Dokumente
 Benutzerdefinierte Office-Vorlagen
 - Downloads
 - Miscellaneous
 Experiments
- ✓ Expensive
 ✓ BjGe
 - BjGe_2201_Stimulation of bee cells with honey
 BjGe_2202_qRNA analysis of drones
- bj0e_zzoz_qnnA anal
 test
 - test_2201_Catwalk with leopards
 - test_2202_Open field with Grizzlys
 - test_2203_Immunhisto of Sharkskin
- test_2204_Alcohol Depreviation in Lumbricus

test_2205_making coffee

The implementation of the EQIPD QS in our research group highlights both the challenges and successes in promoting best research practices in a preclinical research lab. The most immediate and impactful improvement triggered by the QS concerns research data integrity. Our case study also underlines the importance of gradual adoption of quality practices and cultural shifts in a research lab. Communication and close exchange about best practices is mandatory for success.

Laboratories



The researchers report an understanding of the purpose, and the majority at least partially agrees that they know what to do to adhere to the systematic approach (left graph).

They also find the approach useful, at the same time, they see it as a burden (right graph).

5) Take home message

- QS introduces helpful improvement mechanisms
- Positive impact on data integrity reported
- Cultural change is observed

6) Literature

[1] Bespalov et al. (2021) eLife 10:e63294

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