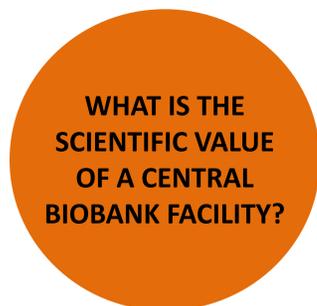


SCIENTIFIC VALUE OF THE RADBOUD BIOBANK

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BACKGROUND



- Sustainability in the context of biobanks remains challenging:
 - Growing demand for higher quality and quantity of biomaterial and data
 - Long-term storage of samples before achieving satisfactory utility for research purposes
 - Increasing privacy requirements
 - The complexity of legal and ethical regulations
 - Funders seeking performance metrics for their investments.
- Identifying the impact of a biobank is crucial for improving all three dimensions of sustainability (financial, operational, social). The concept of value is at the center of these three dimensions as it allows a biobank to live up to its full potential and become more sustainable.
- The Bioresource Research Impact Factor (BRIF) helps to quantify the use of bioresources in academic literature by relevant metrics.

METHODS AND RESULTS

- Radboud Biobank, a non-profit research facility in a medium sized university hospital in Nijmegen, the Netherlands.
- Period 2012-2019: 64 collections and 97 issuances of biomaterial from 27 collections.
- Standardized questionnaires to the representatives of the collections regarding a potential a design paper and regarding the issuances.
- The Journal Citation Reports 2020 was used to obtain the impact factor of the journals. Google Scholar was used for the total number of citations per publication.

Design paper

- Twenty-four of the 64 collections responded (38%).
- Seven collections had a design paper available (11%).
- The Radboud Biobank has a design paper available.

Issuances of biomaterial

- Forty-three of the issuances occurred during 2018-2019 (44%) compared to two (2%) during 2012-2013 (Figure 1).
- The contacted representatives have answered questionnaires for 48 of 97 issuances of biomaterial (50%; Table 1).
- Other results of issuances: participation in a conference (n=7), receiving funding (n=3), initiation of follow-up research (n=3).
- None of the publications referenced the Radboud Biobank design paper.

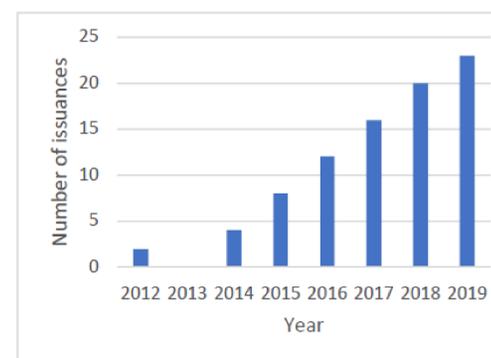


Figure 1: Distribution of issuances of biomaterial (2012-2019)

Response	48 out of 97 (50%)
Publication – n (%)	
Yes	19 (40%)
No	
- Research not finished	14 (29%)
- Delay because of COVID-19	8 (17%)
- Working on publication	6 (12%)
- No intention to publish	1 (2%)
Publication details (n=19)	
Impact factor – median (range)	8.94 (2.27-38.63)
Number of citations – median (range)	25 (0-337)
Mono/multicenter study – n (%)	
- Monocenter	12 (63%)
- Multicenter	7 (37%)
Reference of design paper – n (%)	
- Present	0 (-)
- Not present	19 (100%)
Radboudumc involvement – n (%)	
- Coordinator	13 (68%)
- Participant	6 (32%)

Table 1: Details with regard to publication of issuances of biomaterial

CONCLUSION

- Despite the limited response rate (50%; holiday season and COVID-19 pandemic), the issuances of biomaterial have significantly contributed to biomedical research (median impact factor: 8.94, range: 2.27-38.63).
- A key element for assessing the use and impact of bioresources is systematic citation in publications resulting from issuances of biomaterial. However, it remains difficult to determine the exact value of a central biobank facility like the Radboud Biobank. Which design paper should be referred to, the one of the collection, the one of the Radboud Biobank or both? Furthermore, the Radboud Biobank is not involved in the issuances of clinical data. This is the responsibility of the individual collections.
- The Radboud Biobank should actively monitor the issuances of biomaterial in order to gain a better insight into their impact. In this way, a more precise overview of the contribution can be obtained, which helps to substantiate the value of the Radboud Biobank.

