

Achieving and Maintaining Sustainability in Biobanking Through Business Planning, Marketing, and Access

Marianne K. Henderson,¹ Kirstin Goldring,² and Daniel Simeon-Dubach³

BIOBANKS SUPPORTING CLINICAL and research communities are rapidly becoming the norm as essential organizational resources. Growth and centralization of biobanking services within organizations are pushing the need for strong, smart, and mature business planning to support sustainability for these expensive infrastructures. The scientific communities that base their activities on the accessibility of high-quality specimens, whether it is industry, academic, nonprofit, or government, are recognizing that the need to plan for sustainable resources to support long-term research and development is paramount.

Over the past 4 years, we have planned special symposia at the International Society for Biological and Environmental Repositories' Annual Meetings focused on the many aspects of biobank sustainability. The initial symposium focused on the challenges and opportunities of sustaining biobanking operations in areas often subject to natural disasters. The next symposium of the series focused on the introduction of the dimensions of sustainability and on the financial "health" of biobanks; this second symposium was focused on business planning, taking clues from the various sectors to inform the whole biobank community. The most recent symposium in May 2016 was focused on targeting utilization and marketing, as a key emphasis in biobank business planning.

To share out these discussions more widely, we have encouraged our speakers and presenters to publish their activities in sustainability. In three previous issues of *Biopreservation and Biobanking* (2013, Vol. 11, No. 4; 2014, Vol. 12, No. 5 and 6; and 2015, Vol. 13, No. 6),¹⁻³ we published editorials to accompany the written presentations from the symposia as well as including articles from other biobanks on these topics. We introduced the global challenge of disaster planning and recovery of biobanks; the "state" of financial sustainability in several biobanks and the challenges that they face achieving/maintaining that state. In 2016, we expanded on this focus by discussing how core business principles must be incorporated into sustainability planning, implementation, and maintenance of biobanks as they mature.

Sustainability may be defined within its three dimensions, those of financial, operational, and social aspects.⁴ A successful biobanking model(s) depends on a variety of factors, including well-defined goals, a solid business plan, and specimen collections that are developed according to strict quality and op-

erational controls. Examination of how these dimensions make up the full picture of an institutions' or infrastructure's sustainability has been described in several publications.⁵⁻¹⁶ It is very clear that modern, sustainable biobanking relies on quality samples that are fit for the purpose for their downstream use. Although early stage biobanks may focus on increasing their inventory, having well-documented, quality specimens that are able to support a research or clinical purpose is the key measure of success.¹⁷⁻¹⁹ To meet the goals of long-term sustainability, our mature biobanks must know and stay attuned to the specimen and data needs of their customers.

Utilization of a biobank is a key pillar to sustainability. A full, unused biobank is serving no scientific purpose and will not be fiscally nor socially sustainable, as it is expensive and it does not honor the donor's consented permissions.^{20,21} Planning for utilization includes identifying target customer(s) or business needs, identifying the infrastructures and services to serve the identified customer(s) and business needs, establishing proactive review of the biobank's ability to meet the needs, and a robust marketing plan to advertise the facilities and services, within and outside the organization. The business plan must include a governance framework that includes transparent access guidelines and processes to support utilization of the biobank collection(s). Having a clear plan for utilization of the specific collections is an important component to the biobank business plan.

Active review of the planned utilization targets will allow the biobank management to adjust services accordingly, as well as provide a key indication for needed modifications to existing marketing strategies to support increased utilization. Based on the model of the biobank, utilization targets may only be reached through targeted and more general marketing of the resources (stock and services) contained within the biobank. Measuring the actual utilization of collections and how they match or miss the targets in the business plan will help guide or support course correction of the marketing campaigns to increase awareness of the key biobank resources for research or clinical care.

In this context, it is essential to have a clearly stated definition of utilization and measurement plan. Also (under-)utilization may be temporal or may only be an issue if the divergence between samples collected/stored and samples distributed creates, or could create, a problem of sustainability. As the biobank matures, this continual monitoring and adjustment

¹National Cancer Institute, Bethesda, Maryland.

²Discovery Science, AstraZeneca, Cambridge, United Kingdom.

³Medservice, Walchwil, Switzerland.

of the components of the business plan will guide the infrastructure toward long-term sustainability and success.²²

To capture the information and thoughts from the 2016 ISBER symposium, held in Berlin Germany, that focused on utilization, marketing, and access as part of a sustainability plan, we encouraged authors of each of the presentations and selected posters to write articles for inclusion in this special issue on sustainability in *Biopreservation and Biobanking*. Several authors accepted the invitation to write individual articles and experts-speak contributions. We are joined in this issue by several additional contributions from the biobanking community on cost recovery modeling and building a business plan. The expert-speaks contribution focuses on the actions a few organizations are implementing to address utilization and marketing of their biobank collections internally and more widely.

Also, as part of the symposium, we conducted a survey among the meeting participants to gauge their awareness and their level of active business planning for their biobanks. A short report is included in this issue that describes the survey and the initial impressions from the analysis of the survey. Although the survey provides some insights, because of the limited participation, we look forward to engaging additional input as we plan to expand the survey in the future for a more inclusive look at awareness and status of true business planning across many more sectors of our biobanking community.

The examination of the components of biobank sustainability will continue into 2017 at the ISBER Annual Meeting in Toronto, Canada. The 2017 symposium, Spotlight on Innovation in Social Sustainability: developing evidence-driven best practices in biobanking, will focus on the social acceptability in biobanking and the role of the biobank's strategic and business planning in bringing value to the organization and supporting efficiency in scientific research. We hope that you will join us in this important and ongoing conversation.

Acknowledgments

The guest editors would like to acknowledge the annual contribution by/from the reviewers of the sustainability articles. The reviewers have graciously provided valuable critiques and input to the submissions. These acts of service are very much appreciated.

Author Disclosure Statement

No conflicting financial interests exist.

References

1. Henderson MK, Simeon-Dubach D, Albert M. Finding the path to biobank sustainability through sound business planning. *Biopreserv Biobank* 2015;13:385–386.
2. Henderson MK, Simeon-Dubach D, Zaayenga A. When bad things happen: Lessons learned from effective and not so effective disaster and recovery planning for biobanks. *Biopreserv Biobank* 2013;11:193.
3. Simeon-Dubach D, Henderson MK. Sustainability in biobanking. *Biopreserv Biobank* 2014;12:287–291.
4. Watson PH, Nussbeck SY, Carter C, et al. A framework for biobank sustainability. *Biopreserv Biobank* 2014;12:60–68.

5. Albert M, Bartlett J, Johnston RN, Schacter B, Watson P. Biobank bootstrapping: Is biobank sustainability possible through cost recovery? *Biopreserv Biobank* 2014;12:374–380.
6. Sargsyan K, Macheiner T, Story P, et al. Sustainability in biobanking: Model of biobank graz. *Biopreserv Biobank* 2015;13:410–420.
7. Bromley RL. Financial stability in biobanking: Unique challenges for disease-focused foundations and patient advocacy organizations. *Biopreserv Biobank* 2014;12:294–299.
8. Barnes RO, Schacter B, Kodeeswaran S, Watson PH. Funding sources for Canadian biorepositories: The role of user fees and strategies to help fill the gap. *Biopreserv Biobank* 2014;12:300–305.
9. Wilson GD, D'Angelo K, Pruetz BL, Geddes TJ, Larson DM, Akervall J. The challenge of sustaining a hospital-based biobank and core molecular laboratory: The Beaumont experience. *Biopreserv Biobank* 2014;12:306–311.
10. Matharoo-Ball B, Thomson BJ. Nottingham Health Science Biobank: A sustainable bioresource. *Biopreserv Biobank* 2014;12:312–316.
11. Seiler CY, Eschbacher J, Bowser R, LaBaer J. Sustainability in a hospital-based biobank and university-based DNA biorepository: Strategic roadmaps. *Biopreserv Biobank* 2015;13:401–409.
12. Odeh H, Miranda L, Rao A, et al. The Biobank Economic Modeling Tool (BEMT): Online financial planning to facilitate biobank sustainability. *Biopreserv Biobank* 2015;13:421–429.
13. Wiles KR, Washington MK. Implementation of an error-reporting module within a biorepository IT application to enhance operations. *Biopreserv Biobank* 2014;12:365–373.
14. Parry-Jones A. Assessing the financial, operational, and social sustainability of a biobank: The Wales Cancer Bank case study. *Biopreserv Biobank* 2014;12:381–388.
15. Carpenter JE, Clarke CL. Biobanking sustainability—Experiences of the Australian Breast Cancer Tissue Bank (ABCTB). *Biopreserv Biobank* 2014;12:395–401.
16. Warth R, Perren A. Construction of a business model to assure financial sustainability of biobanks. *Biopreserv Biobank* 2014;12:389–394.
17. Simeon-Dubach D, Watson P. Biobanking 3.0: Evidence based and customer focused biobanking. *Clin Biochem* 2014;47:300–308.
18. Moore HM, Kelly AB, Jewell SD, et al. Biospecimen reporting for improved study quality (BRISQ). *Biopreserv Biobank* 2011;9:57–70.
19. Benson EE, Betsou F, Amaral R, Santos LM, Harding K. Standard PREanalytical codes: A new paradigm for environmental biobanking sectors explored in algal culture collections. *Biopreserv Biobank* 2011;9:399–410.
20. Cadigan RJ, Juengst E, Davis A, Henderson G. Underutilization of specimens in biobanks: An ethical as well as a practical concern? *Genet Med* 2014;16:738–740.
21. Scudellari M. Biobank managers bemoan underuse of collected samples. *Nature Med* 2013;19:253.
22. Humphrey WS. *Managing the Software Process*. Boston, MA: Addison-Wesley Longman Publishing Co., Inc.; 1989: 494.

Address correspondence to:
Marianne K. Henderson, MS
National Cancer Institute
9609 Medical Center Drive, MSC 9777
Bethesda, MD 20892

E-mail: henderm@mail.nih.gov