

# Monitoring of Biological Sample Cohorts: Keep an Eye on your Collections!

Mehdi Kara-Borni, Annemarie Marold, Veronika Perz, Gabriele Hartl, Karine Sargsyan, Christian Güllý  
**Biobank Graz**  
*Medical University of Graz, Austria*

## Introduction

Epidemiologically relevant cohorts are not always monitored in terms of patient number, incoming and outgoing samples as well as related costs and scientific output. To ensure effective and efficient biobanking, Biobank Graz undertook a comprehensive monitoring of the liquid sample cohorts.

## Methods

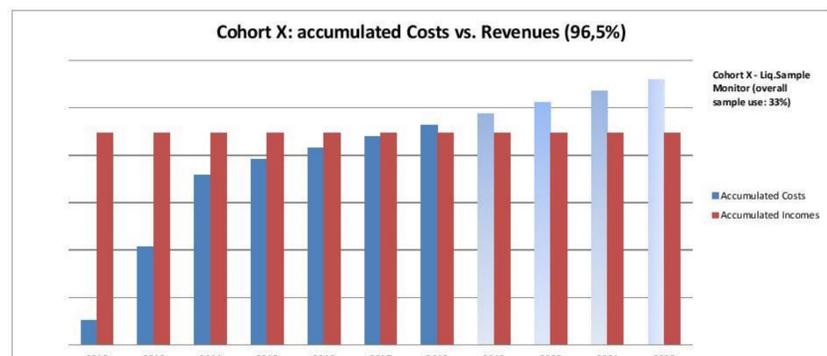
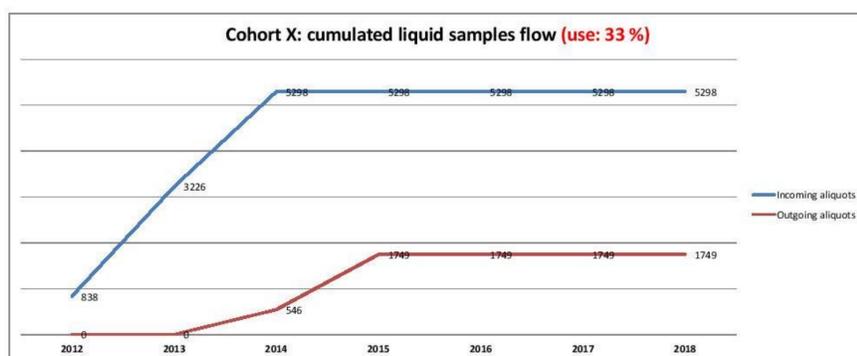
The “cohort monitoring” was initiated to determine and record the number of incoming and outgoing samples for each year as well as related costs for all biological sample cohorts managed by Biobank Graz. In addition, this initiative provides a prediction of the future costs.

## Results

In total, 27 liquid sample collections, representing more than 900 000 aliquots, undergo periodic monitoring. For each collection/cohort, the data has been extracted from liquid sample management database and transferred to Excel. The sample turn-over (incoming – outgoing samples) is updated per year as well as related costs and incomes. The graphical overview is used to discuss the sampling strategy including the determination of ultimate size of the collection with the respective principal investigator (PI). Besides, it is the basis of annual budgeting, transparent cost analysis and an accepted charging policy.

### Example of monitored cohort:

Cohort X											
Sample Incoming vs. Sample Outgoing (Nb. Aliquots)							Total	Overall sample use	Total Patients	Total Visits	
	2012	2013	2014	2015	2016	2017	2018				
Incoming aliquots	838	2388	2072	0	0	0	0	5298	33,0%	391	423
Outgoing aliquots	0	0	546	1203	0	0	0	1749			
<b>Cost Recovery</b>											96,5%
<b>cumulated incoming aliquots</b>	838	3226	5298	5298	5298	5298	5298				
<b>cumulated outgoing aliquots</b>	0	0	546	1749	1749	1749	1749				



## Conclusion

In discussions with the collection-specific PIs, the implementation of cohort monitoring has helped to transparently review and mutually adapt the collection strategy, relying on undeniable, objective figures documenting the development and performance of collections/cohorts. Several actions and consequences have subsequently been taken such as the update of the user-fee calculation, the renegotiation of the cooperation/collection agreement and the adaptation of collection target size. We are convinced that a transparent (decision-making) process relying on accepted key performance indicators is detrimental to ensure long-term sustainability and affordability of clinical biobanking in public interest.