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ORAL PRESENTATIONS

Abstracts

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Time to First Use of Biobank Samples: A Retrospective Analysis of Collection Types and Sample Materials in a Hospital-Based Biobank

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Introduction: Biobanks collect biological material prospectively without detailed knowledge of future research needs. The relationship between collection strategy and actual utilization remains poorly documented, yet understanding usage patterns is critical for resource allocation and planning.

Material & Methods: Retrospective analysis of metadata for all submissions (patient sample set per timepoint) deposited in pre-pandemic 2019 (n=13,666 from 56 collections) at BBMRI.at partner MedUni Wien Biobank. Time from storage to first request, stratified by sample type (serum, citrate plasma, lithium heparin plasma, EDTA whole blood, DNA/whole blood, urine, faeces, CSF, PAXgene, punctate) and collection type (prospective collections/cohorts vs. dedicated studies), were analyzed. Utilization rates were calculated as percentage of deposited submissions accessed per collection.

Results: Of 56 collections, 31 (55%) supported research projects with 3,466 submissions accessed. Among utilized collections, 21/35 were prospective cohorts and 9/21 were dedicated studies. Utilization rates varied substantially (median 54.2%, Q1-Q3: 25.2-93.1%, range 1.2-100%). Median time to first use was 926 days (Q1-Q3: 438-1,5730, range: 2-2,514). Faeces showed fastest utilization (132 days median). Aliquot requests per submission varied by material: for all materials except for citrate (median 2 aliquots) and lithium heparin plasma (5), a median of one aliquot per sample was distributed. Serum was most frequently requested (24/31 projects). Six material types showed no demand: buffy coat, ccfDNA, double-centrifuged citrate plasma, and saliva.

Discussion and Conclusion: Within 6-7 years, 55% of collections were accessed with a median submission utilization of 54.2%. Material-specific patterns in timing and aliquot requirements provide evidence-based guidance for optimizing collection protocols and resource allocation.