JOHNS HOPKINS
INSTITUTE for CLINICAL & TRANSLATIONAL RESEARCH

OpenSpecimen

ROLE OF OFFICE

OpenSpecimen is a biospecimen management tool which provides a scalable solution for biorepositories that meets the needs of a broad group of investigators and biobanks. The ICTR supports OpenSpecimen as an enterprise-wide biospecimen solution provided free of charge to Johns Hopkins research teams. OpenSpecimen performs all standard biospecimen management functions including specimen collection, processing, derivative and event tracking, distribution, specimen discovery, and specimen sharing. The ability to annotate both clinical and epidemiological data, eg. surgical pathology diagnoses, to specimens and its advanced query capability, and the creation of interfaces to both clinical and research systems, make OpenSpecimen a valuable tool for the study of disease processes, particularly for Precision Medicine initiatives.

Leadership Team:

Pamela Murray
Systems Development Manager
410-234-9845 | pmurray@jhmi.edu

Bob Lange
OpenSpecimen Development and Support
410-790-5276 | rlangea@jhmi.edu

James J. Potter
Assistant Professor
Faculty Lead on OpenSpecimen
410-614-0130 | jpotter@jhmi.edu

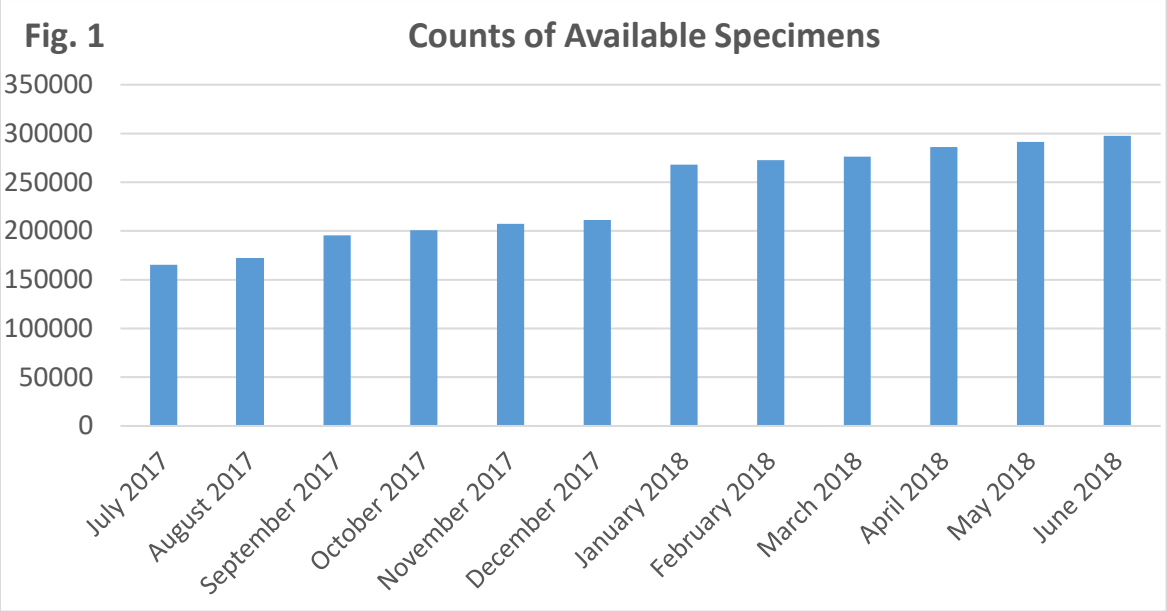
PERFORMANCE IN THE PAST YEAR

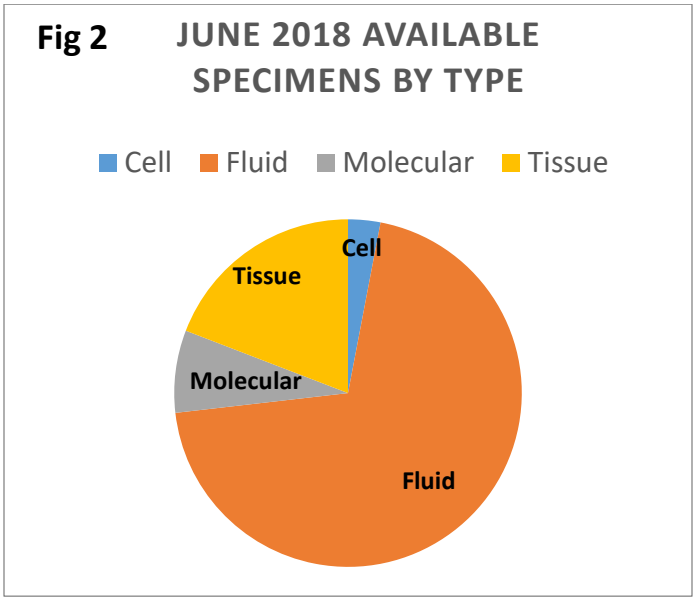
During the year from July 2017 to July 2018, there were **29** research teams using OpenSpecimen. Additionally, the Translational Research Enhancement Core (TREC) of the Hopkins-Conte Digestive Disease Center, which uses OpenSpecimen in its biorepository, provided services to another **22** users for 26 separate collection protocols. . In the last fiscal year, TREC investigators published 19 articles in studies using OpenSpecimen. In the 7 years since the TREC began using OpenSpecimen and building its biorepository, investigators have published 67 articles and received 10 peer-reviewed grants from NIH and Private Foundations.

Training Delivered: Walk-in clinics were instituted to minimize the need for individual training on OpenSpecimen and to more efficiently utilize staff. The first two clinics provided high-level overviews for beginners. The third clinic covered more advanced concepts including custom

fields and queries. The overall goal of the clinics is to make researchers independent, experienced users of OpenSpecimen. Three sessions were conducted this spring with a total of 29 people trained. Nineteen attended the Overview sessions and 10 the Queries and Custom Forms session. The advanced sessions are limited to 10 participants. Additional sessions will be scheduled in the next fiscal year. All new users also receive individual training if necessary.

The number of specimens inventoried in OpenSpecimen has increased in 2017to 297,558, an increase of 132,319 specimens (Fig. 1) from the start of the fiscal year. These numbers do not include the number of specimens distributed during the year. The specimens were donated by 30,367 participants. The breakdown of specimens collected by type is seen in Fig. 2.





Progress continues to be made towards enhancing OpenSpecimen capabilities (barcoding, Specimen Collection Dashboard) and in developing interfaces to clinical and research systems (REDCap, Epic). This is essential to achieve the goal for OpenSpecimen as the comprehensive, enterprise solution for biorepositories in biomedical research in the School of Medicine.

CHANGES IN THE PAST YEAR

- An IT staff member, Matt Marcetich, left this year and staff hours have been redistributed, resulting in a temporary reduction of 50% in IT staff support
- There is a backload of Pathology Tumor Bank specimens (~50k); waiting on Pathology input to move forward with ongoing loads
- Walk-In Clinic training
- 14 new collection protocols were created for new studies and are on the production server
- The Welch Center ProHealth staff are now fully trained and using OpenSpecimen in all research studies
- The Multiple Sclerosis PMCOE is now in Production
- The Pancreas PMCOE Collection Protocol is in development
- Shibboleth has been installed so users can sign in with their JHED credentials
- Integrated label printing with Bartender has been established
- Projects for Pathology are underway:
    - Formalin Fixed Paraffin Embedded (FFPE) tissues: clinical specimens whose derivatives are used for research purposes
        - OpenSpecimen will only know that a clinical specimen exists
        - OpenSpecimen will track the storage details, quantity, and type of derivatives created from the clinical specimen and have a placeholder for the clinical specimen
    - Pathology Tumor Bank specimen collection (~50k) are being back loaded into OpenSpecimen
        - An automated process to get participant/specimen information from Epic to OpenSpecimen is being developed
- A bi-directional flow of information between OpenSpecimen and REDCap is in development

NEW DEVELOPMENTS FOR THE UPCOMING YEAR

Opportunities:

There are several opportunities to greatly enhance the functionality and research capabilities of OpenSpecimen in the coming year as IT support becomes available:

- The integration of OpenSpecimen data with the new Precision Medicine Analytics Platform (PMAP)(high priority)

- Better integration of OpenSpecimen with Epic, necessitated by the new pathology functionality that will be going live in Epic

Combined, seizing these two opportunities will solidify OpenSpecimen as an essential tool for clinical research and will provide a model for biospecimen use and management for Precision Medicine initiatives.

New Developments:

- Videos of Walk- In Training Sessions will be created to reduce the need for in person training and to more efficiently use limited staff availability
- Re-prioritization of tasks to better align projects with the principle goals for OpenSpecimen development to most effectively utilize the limited staff
- Update of the OpenSpecimen webpage
- Quarterly User Group Meetings will be instituted to better serve and grow the number of research teams utilizing OpenSpecimen.
- All investigators using OpenSpecimen will be asked to cite the ICTR in their publications and grant applications and to provide information on publications and grants

INCORPORATION OF SERVICES INTO GRANT APPLICATION

The OpenSpecimen team encourages researchers to contact us at least a few weeks ahead of grant submission so that we may provide you with the information and instruction you will need for your application. We are developing a process for cost recovery from research teams that would allow us to accelerate bringing new features into production. We will work with any research teams to incorporate training and personnel costs for OpenSpecimen into new grant applications.

BEST WAY TO WORK WITH PROGRAM

To learn more about OpenSpecimen and how to request a consultation, please visit our webpage on the ICTR website: https://ictr.johnshopkins.edu/programs_resources/programs-resources/informatics/openspecimen-tracking/