

Animal System Implementation - submission for Larry L. Sautter Award

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Project Title: Animal Management, Health and IACUC Protocol System Implementation

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Project leader(s) and team members:

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A simple short statement (even just one sentence) summarizing what the project does

This project advances the research enterprise by harmonizing animal use approvals (IACUC), ordering, billing, housing and veterinary care with an integrated, web-based solution.

Project Narrative

From start to finish this project spans 6 years from 2013 thru 2019. To follow along and revisit our journey, the project is divided into 4 main phases.

- Phase 0 - Project initiation and vendor selection
- Phase 1 - Animal Protocols
- Phase 2 - Animal Requests / Orders / Delivery / Identification / Census / Billing
- Phase 3 - Animal Health Reports

Phase 0 - Project Initiation and Vendor Selection

Improve Operational Efficiency: The overall improvements from an integrated, web-based vendor software solution are primarily driven by a need to increase compliance, process efficiency, and campus effectiveness in conducting animal research administration. They were also driven by an AALAC accreditation which recommended implementation of improvements with animal outreach and researcher/staff training.

Who Benefits: The improvements directly benefit University Laboratory Animal Resources (ULAR) and Research Protections staff who are responsible for ensuring compliance and for conducting many of the related activities. They will also benefit the broader campus community of researcher and their staff who work with animals on their projects by streamlining and expanding administrative-related information resources.

Demonstrate Collaboration: This implementation project required a combined effort from ULAR, OR Research Protections and OIT staff since it represents a scope of requirements where IACUC and animal management policies and guidelines intersect with technology infrastructure. While animal management is a direct responsibility for ULAR (in close collaboration with researchers), IACUC responsibilities cross more campus organizational domains and the OR Research Protections unit has primary responsibility for administrative support to the IACUC committee.

While evaluating and selecting the product, we collaborated with other UC campuses. UCI had phone calls with both UCLA and UCD while evaluating options. Our collaboration continued after product selection. Over the course of the project we have since been in contact with UCD and UCB to discuss aspects of the project.

- Vendor selected & pre-implementation meeting milestone in Oct 2014.

Phase 1 - Animal Protocols - June, 2016

Improve operational efficiency: An integrated, web-based system is an improvement in efficiency. Prior to the new system, researchers entered their animal protocol application into a Word document template. After sending the document via email (and potentially back and forth with edits), a research admin staff then entered the same data into our legacy system. Double data entry is wasteful and error prone.

Be shareable: Our users can reach out to other institutions for support and inspiration. A recent discussion topic about "PIs submitting annual reviews early" drew comments from Iowa State, UC Irvine and Columbia university. When our users face issues, they can reach out to the vendor or other users and UCI benefits from the large pool of experience.

Animal Protocols - By the Numbers:

368 protocols transferred from legacy system

377 active protocols today in new system

335 protocols created in new systems

Phase 2 - Animal Requests / Orders / Delivery / Identification / Census / Billing - Jan 2017

Measure for Success: Phase 2 transition involved moving the entire campus inventory of animal cages, orders. This also represented a major change in the way staff order and receive animals. While operations continued, we knew the transition was successful. We selected the beginning of the month for the transition to align with monthly billing periods. Animal orders were paused for a few days to reduce the number of in-transit orders between the old and new systems.

Innovation: Barcodes have long been used to manage the cage census, but an innovative process improvement was part of Phase 2. The integrated web-based system generates barcodes for each cage. On a regular basis staff scan a code on the building door which includes the building code and room code, then staff walk around the room scanning each cage. A handheld scanner collects all codes into a text file that is uploaded to the website and tracks census. A new smaller handheld scanner with less configuration makes the process even easier for staff.

Broad Positive Change and Interoperability: One of the biggest process improvements and efficiencies the project realized was online animal ordering. Animal ordering was a paper and fax process with the old system (i.e. no system). Now ordering is integrated with your animal use (IACUC) approval and lab / account details. Lab staff order online and they can check on delivery. User feedback indicates its as easy as Amazon!

The order process is integrated with our campus accounting and billing system (KFS). The integrated solution confirms your approval to use animals, integrates with the accounting system to ensure the order is charged to an active account, sends a requisition and receives a purchase order. Everything is integrated within the system until ULAR staff manually calls the suppliers with all the details. Delivery and receiving is also integrated in the system.

Animal Mgmt By the Numbers:

13839 cages transferred from legacy system

16906 active cages

5097 orders processed through new system

141 external Transfers Into UCI

Phase 3 - Animal Health Reports - Nov. 2018

Operational Efficiency: Animal care is a critical service provided by ULAR. With our legacy system, husbandry staff would report an issue by writing it on paper and entering it in the system later in the day. The legacy system did not allow for mobile data entry. The new web-based system has a mobile friendly interface which allows the use of tablets. The husbandry staff enter health reports immediately as they walk around and see an issue. Once the report is in the system, a more timely email notification is sent to either the PI, lab contact or Vet staff depending on the type of animal health report.

Innovation: Once the staff had tablets, new and innovative uses became possible. Historically animal health reports were text only - a description of the issue and a location to find the cage and animal. All the tablets have cameras and staff can take photos of the issue which makes for a richer description and can more fully communicate the issue. This can lead to better diagnosis and outcomes when the Veterinary staff see the report.

Demonstrate collaboration: The network engineering and facilities team helped to build out wireless capacity in across animal laboratory locations. These areas historically have poor cell reception and poor wifi connectivity - they are mostly in basements. The wireless build out was crucial for mobile access for systems.

Animal Mgmt By the Numbers:

9925 Total animal health records in new system

30-60 avg. records per day