UCSF Core Facilities: Problems and Challenges

Report from the CTSI Core Leadership Retreat
November 6th 2007

The CTSI Translational Technology Resources Program brought together UCSF campus core leaders at an off site one day retreat on November 6, 2007. Following that retreat, a Core Managers steering committee met to summarize issues being faced by campus cores.

This report summarizes problems and challenges faced by UCSF core facilities across all campus sites. Common problems were identified from 3 sources: 1) The TTR survey conducted in the fall 2007; 2) The TTR Core Leadership Retreat steering committee identified issues common to the 5 cores represented by the committee; and 3) A round table discussion at the Core Leadership Retreat which asked participants to identify 3 problem issues for their cores. In order to identify how widespread each problem area was, and to gather more details about these problems, questions relating to each area were formulated and participants at the retreat were asked to respond to questions in real time. Retreat participants were also asked to suggest solutions to these same problems. Details of the real time survey can be viewed at http://ctsi.ucsf.edu/ttr/resources.php (Sinclair and Liegler - Core Problems and Issues).

Problems were identified in 8 areas:

- Equipment
- Data Management
- Recharge
- Infrastructure
- Staffing
- Customer Satisfaction/Service
- Space
- Business/Financial Management

As shown in Figure 1 equipment, data management, recharge and infrastructure are problem areas for most cores. More detailed questions were asked for each area.

![General Problem Areas](image)

Figure 1 Percent of core leaders that answered, “yes, this issue is a problem for my core” (n= 33 to 45)
**Detailed Questions**

**Equipment.** 92% of Core Leaders had equipment problems. The high cost of service contracts (76%) was the most commonly reported problem. Lack of funding for state-of-the-art (64%) and basic (42%) equipment as well as replacement of broken equipment (61%) were also widespread problems.

Suggestions for solutions to these problems included performing an inventory of all core facility equipment to allow UCSF to negotiate service contract reductions in bulk versus on a per instrument basis, and leveraging internal resources to service equipment across cores campus wide. More funds for shared instrumentation grants, and grants for basic, not just state-of-the-art equipment, are needed.

**Data Management.** All of the data management issues mentioned below were identified as problems by the majority of core leaders. When asked to identify which single issue was most pressing, core leaders responded:

- 30% affordable IT
- 27% data management personnel
- 25% software for analysis
- 19% hardware for storage

Solutions – Work with CTSI BREAD to determine if cores have common data management needs, and if a global solution could be provided for no or low cost. Provide a centralized server farm for data archiving, backup and retrieval as a more economical approach than each core purchasing a new server every 5 years to keep up with their data storage needs. Implement a UCSF wide web-based data management through access controlled databases and campus-wide authentication.

**Recharge.** 89% of Core Leaders operated a recharge; of these recharges, 81% were frequently or chronically in deficit. Reasons for recharge deficits were:

- lack of ability to recover overhead costs (52%)
- core users that are unable to pay the true costs (47%)
- difficulty in estimating true costs (47%)
- insufficient use of core services (38%)
- lack of financial management (31%)

Many core leaders also expressed difficulty with the recharge application procedure (57%).

Solutions - Overhaul the recharge administrative process to streamline application approvals and adjustments, in order to make it responsive to real world demands. Provide training in the recharge system and develop a handbook specific for core leaders. Offer training in core budget management, and provide centralized administrative support for budget management.

**Other Business/Financial Management** The financial issues common to most core leaders were:

- lack of policies supportive of core facilities (42%)
- complexity of administrative procedures (42%)
• lack of administrative support was identified as a problem (30%)
• unfair competition (26%)

Solutions – Education in core management, and in financial management. Evaluation of setting up centralized administrative support for core facilities. Review to understand the campus-wide impact of newly proposed cores, especially commercial centers (e.g., Nikon, GE), on existing core operations for duplication of effort, long term benefit, etc. Review of processes and procedures governing the ability of cores to work with outside academic collaborators (e.g. affiliation agreements, indirect cost rates).

Infrastructure
45% of core leaders lacked support for basic infrastructure (e.g. rent, utilities, building maintenance, communications). Some cores reported they do not receive departmental support for infrastructure costs provided to research laboratories.
52% lacked support for laboratory infrastructure (e.g. basic instrument maintenance, laboratory maintenance and basic supplies).
47% reported accumulation of old records, data, specimens, equipment was a problem.
45% reported lack of catastrophe planning.

Solutions - Evaluate the feasibility, cost and benefits of providing supplemental funding to cores for common infrastructure needs that are difficult to recover (e.g. rent, utilities, deferred maintenance, unanticipated repairs).

Staffing Recruiting and Retention
68% of Core Leaders reported that their facilities were frequently short staffed and 42% had difficulty hiring new staff.
Lack of funding was identified as the major factor restricting the hiring of qualified job applicants by 91% of core leaders.
Lack of qualified applicants (37%) and space for staff to work (31%) were also factors in recruiting staff.
The most prevalent problem reported for retaining staff was the lack of a pathway for career development (78%).
Lack of funds (59%) and time (50%) for training and development, as well as low job satisfaction or burnout (52%) were also identified as problems.

Solutions – Establish clear criteria for promotion of core facility staff (SRA guidelines do not recognize specialization) and for core leaders. Cross-training staff across cores to broaden staff experience, helps solve under- and over-staffing issues and increase inter-core cooperation.

Level of Service/Customer Service
66% of Core Leaders reported that they were unable to offer the level of service they would like. Problems related to service included:
• insufficient use of core services (44%)
• lack of funding for assay development (44%)
• lack of funding for validation of SOPs (38%)
• insufficient quality control (38%)
• core users that were inexperienced (42%).
Solutions – Form a working group to discuss quality control and to recommend standards of quality control for cores at UCSF to adopt. Provide education to core users, so they understand how to get the most out of cores and to increase core use. Funding for validation of SOPs – CTSI has one such funding opportunity but is more likely to fund new and exciting assays, there is also a need to fund validation of assays that are not novel, but still important.

Space  This was an issue for 60% of core leaders. Specifically, this affected:
- storage (64%)
- office (55%)
- laboratory (53%).
A need for space customized for core specific usage (42%), dedicated for core laboratory use (37%) and a need to remodel old space (37%) were also identified.

Solutions – Use of off site storage space and sharing storage space with other cores. A centralized freezer farm for long term storage of specimens would be a valuable resource for UCSF investigators.

Working with Outside Customers  48% of core leaders had experienced problems in setting up agreements with outside users. This was broken down as:
- length of time it takes to get an agreement in place (63%)
- Objections of customers to UCSF regulations (42%)
- lack of knowledge about the process (30%).

Solutions – Develop a simple standard contract that cores can use to negotiate straightforward fee-for-service work. Provide education to core leaders to equip them to identify services suitable for outside users, recognize intellectual property and conflict of interest issues, and guidelines for establishing pricing for outside users.

Summary of Core Needs

There are a great number of opportunities to improve core facilities at UCSF. The improvements will be most effective if they are made with the joint participation of core leaders, the university and the CTSI TTR.

Opportunities for CTSI – Translational Technology Resources for Core Improvement

1. Provide education in: financial management; data management and quality control; management of shared instrumentation; marketing; management of internal and external collaborations – TTR is actively working on creating this program will begin March 2008.
2. Facilitate communication between cores. TTR has created listservs, for communication between cores, released February 2008.
3. Work with UCSF to create a standard contract that cores can use to negotiate straightforward fee-for-service work with outside users and, establish processes, procedures and policies that facilitate working with external academic collaborators.

4. Create an inventory of all core facility equipment in order to allow university to negotiate university wide service contracts.

5. Encourage/facilitate cores with similar instrumentation to leverage internal resources to maintain equipment internally across cores.

6. Establish a cross core training program to broaden staff experience, help solve understaffing and overstaffing issues and increase inter-core cooperation.

7. Form a working group to discuss quality control and to recommend standards of quality control for cores at UCSF to adopt.

8. Provide education to core users, so they understand how to get the most out of cores and to increase core use.

9. Encourage cores to consolidate their storage by sharing storage space with other cores.

10. Survey cores to determine which tools and databases are currently being used and what kind of IT services are required. Work with BREAD to see if there are services that could be made available to all cores for a reduced cost services commonly needed between cores.

11. Review of conflicting federal, state and university financial regulations that effect core facilities.

Opportunities for University Involvement in Core Improvement:

1. Provide support for basic infrastructure costs (e.g. rent, utilities, administration)

2. Consider centralized core administration, for example cancer center “core admin”.

3. Negotiate service contracts for all core equipment, consider insurance rather than direct service contract approach.

4. Increase funding for shared instrumentation grants for replacement or upgrading of essential basic (not state-of-the-art) equipment.

5. Provide a mechanism to support setting up new assays, optimization, validation and establishment of SOP (not state-of-art, but new to UCSF) that are important for translational research.

6. Establish career path for core staff with clear criteria for promotion as an alternative to the SRA pathway.

7. Provide funding for a cross-core training program for core facility staff.

8. Establish a career pathway for core manager and leaders.

9. Provide off site storage space

10. Provide a centralized freezer farm for long term storage of specimens that are valuable but not likely to be used in short term – a place to send specimens once studies have ended.

11. Provide a database for the above centralized freezer farm so that specimens can be accessed by other investigators

12. Overhaul the recharge administrative process to streamline recharge approval and adjustments in order to make it responsive to real world demands.

13. Provide a centralized server farm that could be used to archive data.
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