

Campus Planning and Physical Development Committee

REPORT ON LABORATORY MAINTENANCE ISSUES AT CUIMC

A. History

In the spring of 2018, the Campus Planning and Physical Development Committee (the Committee) became aware of problems with the quality of the laboratory space owned or leased by the Columbia University Irving Medical Center. In October of 2018, a detailed report (the Report) on laboratory conditions commissioned by the Research Officers Committee and the Columbia University Postdoctoral Society (CUPS) was presented to the Committee by Dr. Regina Martuscello, a researcher who was previously the University postdoc senator and just promoted to associate research scientist. The Report represented the aggregation of the observations of many CUIMC and Morningside research staff. In some circumstances valuable samples were lost, necessitating a request to the NIH for replacements. As a consequence, valuable time was lost in the conduct of investigators' research programs. In at least one case, the resulting delay necessitated a renegotiation of the terms of the corporate sponsor's contract with CUIMC. In another case a longstanding NIH contract to CUIMC will not be renewed.

The spaces in question are used principally by postdoctoral researchers, professional research officers, and the principal investigators under whom they work. Some of the problems identified in the Report were (1) water leakage into laboratory and office spaces that damaged expensive equipment and interrupted experiments, (2) electric disruptions that resulted in unstable voltage and electrical surges that damaged freezer compressors, incubators, and other highly sensitive equipment, which has caused freezer malfunction and loss of freezer contents, (3) extreme temperature variation in labs and equipment rooms which diminished the accuracy of experimental results, the efficiency of sophisticated equipment and the efficacy of room-temperature reagents, (4) construction-related noise and dust, which disturbed laboratory animals, most notably their ability to reproduce, and (5) the substantial time interval that often passed before the problems were addressed by maintenance staff. While recognizing that the relevant lab spaces are in old buildings (the largest one having been constructed in the late 1920s), the Committee concluded that structural change was needed in the way maintenance

services are organized. In a series of meetings, various Committee members brought these issues to the attention of the responsible individuals, including Dean Lee Goldman; Dr. Michael Shelanski, Director of Research, CUIMC; Amador Centeno, Senior Vice President, Facilities Management, Operations and Planning; Dr. Donna Lynne, Senior VP and Chief Operating Officer of CUIMC and CEO of Columbia Doctors; Brian Karolewski, Director, Institute of Comparative Medicine; and others. All had received copies of the Report noted above. The participation of these individuals encourages us to believe that the issues detailed in the Report were receiving appropriate attention.

On Friday morning, March 15, 2018, Senators Janet Horan, Julie Yoshimachi and John Donaldson met with James Thompsen, Assistant V.P for Facilities Engineering at CUIMC. As we were suggesting the possibility of a pilot experiment whereby the maintenance office would assign personnel to specific buildings for which they would be exclusively responsible, Mr. Thompsen indicated that they had begun to implement such a system in the fall of 2019 (see the attached document). Previously, maintenance staff were not permanently assigned to specific areas or buildings but would be temporarily called to any area of CUIMC where there was an issue. Recently all the buildings at the CUIMC have been divided up into three agglomerations: the East Campus (e.g., the Nursing School), the Super Block (e.g., P&S and the Black Building) and the West Campus (the Hammer Building, etc.). Each area now has its own building-by-building, building-specific, permanent general maintenance and air-handling personnel. Other experts (e.g., painters, locksmiths) are summoned on an as-needed basis.

CUIMC Facilities is also in the process of evaluating a new work order system, Maximo being the trade name, which will resemble the system employed on Morningside. Essentially, CUIMC Facilities is in the process of implementing most of the requested organizational changes noted in the conclusion to the Report, but with the important exception that they do not apply to the New York Brain Bank, over which CUIMC Facilities has little control (see below). Facilities also plans to implement a formal maintenance service evaluation process like one already implemented on Morningside, and the system ultimately adopted is likely to be the same.

Mr. Thompsen was very accommodating and helpful, and the Committee hopes to establish a long-term working relationship with his office. We are considering asking him to become a member, or for his office to appoint a permanent representative. In any case, it will be important to monitor the situation closely going forward to be certain, at the very least, that the evaluation process is implemented within a reasonable period. The following issues remain for the Committee to decide:

1. Is the revised organizational structure being implemented sufficient to close this question?
2. If not, what should be the next steps?

3. Dr. Martuscello and her CUPS colleagues put a lot of work into their Report and this should be recognized by the Senate. How, then, might the original concerns presented therein be best tracked?
4. The Committee realizes that all the lab maintenance issues are not likely to be resolved overnight in buildings that are approaching 100 years of age, or by a reorganization of existing personnel only. Is there some way the Committee can constructively be involved in monitoring the situation to assess the degree of improvement? Should we ask Mr. Thompsen's office for regular reports?

The Committee hopes that its initial focus on maintenance issues and our championing of the Report helped to persuade the CUIMC leadership to recognize that there are real problems affecting many researchers in various ways at the CUIMC, and to begin to address them in the way they have. The Committee is gratified by what has been accomplished thus far, and especially thanks Mr. Centeno and Mr. Thompsen for their support and participation.

B. A Special Problem: The New York Brain Bank

The Report detailed specific problems at the New York Brain Bank. This facility receives the brains of individuals with specific neurological disease profiles and makes tissue samples available to scientists conducting neurological research, both at CUIMC and at other universities. We understand, though this has not been verified, that it is administered by CU, but that it resides in space owned by New York Presbyterian Hospital. Apparently, this arrangement of "dual responsibility" has led to confusion and neglect of the space housing the Brain Bank itself, and its mechanical and electrical systems.

In the March 15 discussions, the issue of the Brain Bank and the conflicting responsibilities there came up as well. Mr. Thompsen was not fully informed as to who had responsibility, ownership, etc., of the Brain Bank and he did not regard himself as having any authority over it. In the past, questions extended to maintenance staff of New York Presbyterian (in which the Bank is housed) by his office have been ignored. He opined that since issues involving the Brain Bank were not immediately pertinent to patient care, the Hospital was unlikely to give them high priority. He suggested that we contact Maria Delgado, Executive Director of Space Planning, CUIMC, to uncover the precise terms of the master lease that governs the Brain Bank, and the cost structure. The Committee hopes eventually to acquire a full listing of all spaces utilized by CUIMC personnel but housed in New York Presbyterian space. Julie Yoshimachi accepted responsibility to contact Maria Delgado, and to set up an appointment. Both John Donaldson and Janet Horan came away feeling that the University is open to solving this problem even if it means the University must accept the added costs. The Committee believes that Mr. Thompsen will be an easy person with whom to work and that gentle persistence on

the Committee's part, while working through his office, will be enough to get the Brain Bank issues permanently resolved (eventually). But, the Committee will need to be patient and persistent! Presently, it does not even know how the Brain Bank is funded, but it is known that individual research groups at CUIMC have NIH-sponsored contracts to bank brains of various patients with neurological diseases at the New York Brain Bank. Only recently did Dr. Martuscello show us its location in the sub-basement of Morgan Stanley Children's Hospital.

In preparation for our interview with Maria Delgado, and in response to her specific request for precise questions, Janet Horan, Julie Yoshimachi and John Donaldson met on Friday 22 March. Although some questions may best be directed to the Brain Bank director, Dr. John Paul Vonsattel, and some to Dr. Martuscello, who first brought the problems in the Brain Bank to the Committee's attention, we decided to pose the following questions to get the discussion moving:

1. Who has the ultimate supervisory role for the New York Brain Bank? Does it have an active board of directors?
2. Who owns the space, who owns the equipment in it, and what is the Brain Bank's legal status?
3. Who is responsible for maintenance of the space and the equipment therein; most especially the electrical service, air handling and machine (freezer) monitoring? Is it NYP or CUIMC? In practice how is this work load assigned and to whom?
4. Is it associated in some formal way with the New York Psychiatric Institute?
5. How is it financed? Are indirect costs from CU research grants used in part to defray the Brain Bank's operating expenses? Is it largely funded by NIH?
6. Can control of the space, whatever the word "control" means in practice, come under the exclusive authority of CU, and at what cost to CU?

While these issues are distant from their final resolution, thorough answers to the questions above will at least allow the Committee to move forward in its investigations, and perhaps eventually to propose changes to the Brain Bank's operating and governance structure. We view this as a collaborative effort with all concerned.

John Donaldson, Chair

Campus Planning and Physical Development Committee

Campus Planning and Physical Development Committee 2018-2019				
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**Columbia University Irving Medical Center (CUIMC) and
New York Presbyterian (NYP) Facilities**

Senate Campus Planning and Physical Development Committee

Sen. John Donaldson, chair

Sen. Julie Yoshimachi

Senate Research Officers Committee and Columbia University Postdoctoral Society

Regina T. Martuscello, Ph.D., postdoc senator 2017-2019

CUIMC Laboratory Maintenance

Report of the Campus Planning and Physical Development Committee

Outline

- A. History
- B. Committee's Involvement
- C. Facilities Issues (Dr. Martuscello)
- D. Governance Issues: CUIMC, NYP and the NY Brain Bank (Sen. Julie Yoshimachi, P&S)
- E. Progress: Organizational Changes

C. Facilities Issues

1. Damaging Effects of Water Leaks and Flooding



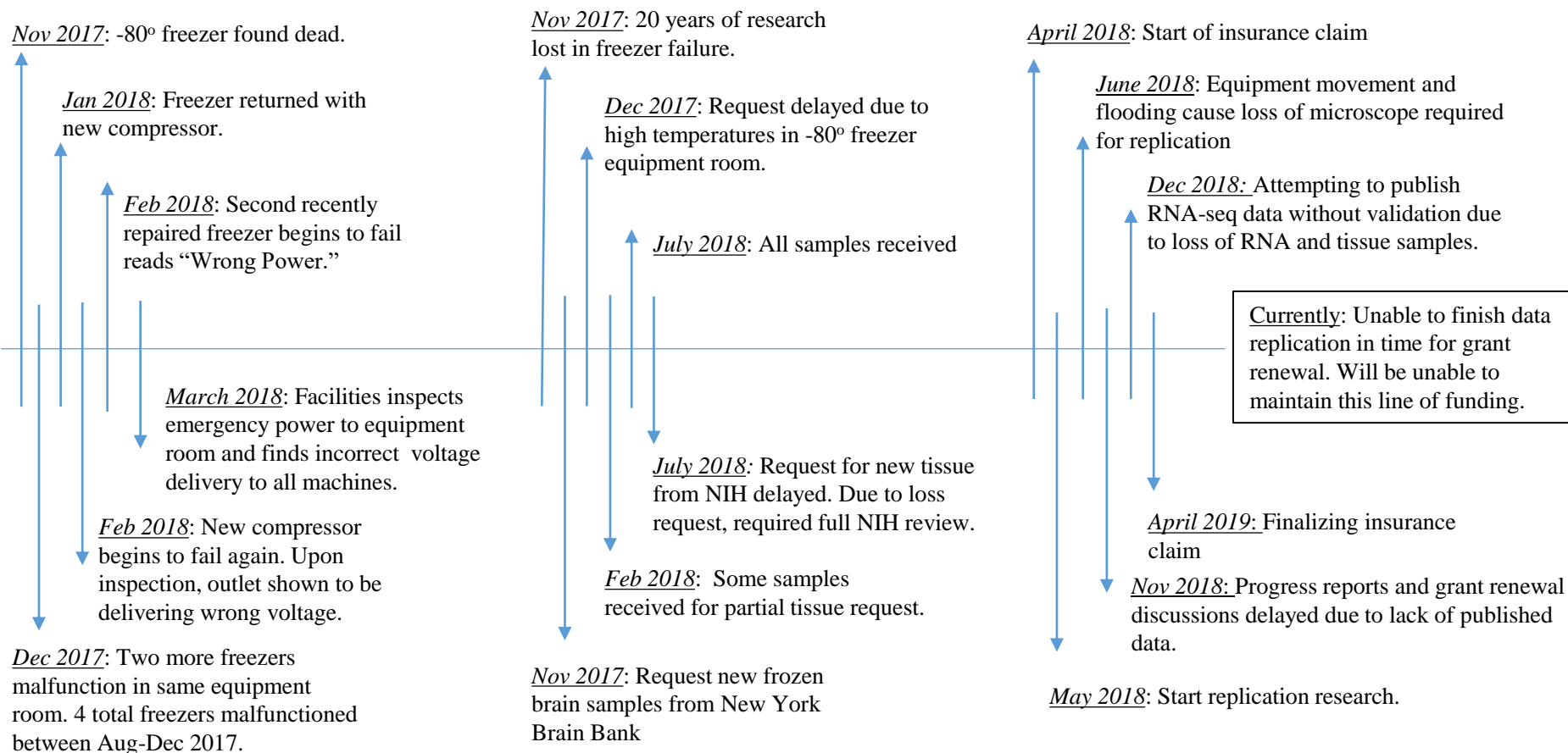


2. Temperature

Temperature is one of the most universally consequential parameters in the laboratory.

Inability to maintain stable building temperature in equipment rooms and laboratories reduce equipment efficiency, shelf life and efficacy of reagents, reproducibility of data and accuracy of test results.

3. Timeline of Facilities Affecting Scientific Research



4. Electrical Disruptions, Surges and Shutoffs

Required maintenance of the electrical system results in emergency backup power being disrupted and shut off.

- During this time all machines on backup power are turned off for 30-60 minutes at the beginning and end of maintenance.
 - This happens usually in the evenings and weekends, results in midnight runs to the lab for equipment checking.
 - People have found essential equipment unplugged or off after these events.
- Alterations in the electrical system will coincide with electrical surges.

Exploded plug from compressor malfunction due to power error.



5. Facilities Affecting Scientific Research

Noise and Animal Research

- Experiments utilizing animal models can take months to years for completion, and projects requiring knockout mice or specialized breeding can take years to decades.
- Rodents, in particular, have a much higher level of decibel and frequency sensitivity than humans.
- When loud noises occur, animal behavior can become erratic and result in removal from the study.
 - EX: Rodents will stop eating, overeat, lose fur, reduce breeding, eat their litters, fight and even die from excessive noise levels.
- **Individuals have stated a loss of grant funding and industry-sponsored projects** due to losses in animal cohorts from excessive noise, construction during evening hours and maintenance in the facility.

NYP vs. CUMIC

- Shared spaces between NYP and Columbia cause gaps in responsibility for facilities maintenance.
- New York Brain Bank
 - Housed in the sub-basement of NYP. Utilized by Columbia researchers and NYP.
 - Funded by:
 - Columbia
 - NIH-sponsored grants
 - NYP
- “Low Priority”
 - Priority of problems puts patients first, followed by immediate emergencies (i.e., flooding).
 - Softer issues such as temperature regulation are often pushed aside as lower priority.

D. Topics to Evaluate Further Governance Issues: Issues of Joint Ownership : NYP, CUIMC and the NY Brain Bank



- Facilities concerns related to:
 - CUIMC vs. NYP space
 - Ownership of equipment
 - Communications
- Damage related to Facilities concerns:
 - Loss of samples
 - Loss of contracts and grants
 - Cost acquired due to damages
 - Loss of productive time
- CUIMC vs. NYP

1. CUIMC vs. NYP Buildings

Columbia Owned

154 Haven
390 Ft. Washington Avenue
51 Audubon
83 Haven
Alan Rosenfield Building
Alianza
Bard Hall
William Black Building
Georgian Building
Hammer HSC
ICRC Building
Lasker
Nursing Building
Presbyterian Building (Floors 7, 8, 9, ½ of: 15, 17, 18, 19, 20)
Russ Berrie Pavilion
Tower I
Tower II
Tower III
Vagelos MedEd Bldg
VP&S Building
Vanderbilt Clinic *Tenants in Common Lease

NYP Owned

Allen Hospital
CHoNY Center
CHoNY North
CHoNY Tower
Eye Institute
Eye Institute Annex
Harkness Pavilion
Herbert Irving Pavilion
Milstein Hospital Building
Neurological Institute
Presbyterian Building (Floors 1, 2, 3, 4, 5, 10, 11, 12, 13, ½ of: 15, 16)
Service Building
Vanderbilt Clinic *Tenants in Common Lease

Other

DOH Building – NYC
New York State Psychiatric Institute- NYS
21 Audubon – Private Landlord
Edge Hotel – Private Landlord
Kolb Building - NYS

2. Next Steps


- In-depth evaluation of Columbia-affiliated members' evaluation of experience with CUIMC and NYP facilities
- In-depth evaluation of equipment ownership, rent payments, etc., in each space
- Working with CUIMC Facilities to facilitate a meeting with NYP
- Further evaluation of overall NYP Facilities process



E. Progress: Organizational Changes

Changes Already Happening within CUIMC Facilities

1. Previous allocation of facilities personnel
2. Present allocation of facilities personnel

 COLUMBIA	COLUMBIA UNIVERSITY IRVING MEDICAL CENTER	Commercial Model 2019	Facilities Engineering
COLUMBIA UNIVERSITY IRVING MEDICAL CENTER			
EAST CAMPUS	SUPER BLOCK	WEST CAMPUS	
21 Audubon Administration 51 Audubon Administration Alianza Dominica Building The Edge Hotel Irving Cancer Research Center Mary Woodward Lasker Building Russ Berrie Medical Science Pavilion	William Black Building New York City Department of Health Edward S. Harkness Eye Institute Annex Georgian Administration & Residence New York Presbyterian Hospital Vanderbilt Clinic Vagelos Physicians & Surgeons	Allan Rosenberg Building Hammer Health Sciences Center The Neurological Institute of New York (MRI) Roy & Diana Vagelos Education Center	