



---

## COMMUNITY ESSAY

# Implementation of the MediSend Program: a multidisciplinary medical surplus recovery initiative at an academic health science center

Biruh Workeneh<sup>1\*</sup> & Matthew Mireles<sup>2</sup>

<sup>1</sup> Department of Internal Medicine, Stanford University, 300 Pasteur Drive, Grant S161, Stanford, CA 94304 USA  
(email: biruhw@stanford.edu)

<sup>2</sup> Department of International Studies, St. Thomas University, 6800 West Loop South, Suite 190, Bellaire, TX 77401 USA  
(email: mirelesmc@earthlink.net)

---

### Biruh Workeneh's Personal Statement:

As a second year medical student my focus was narrowly on navigating and absorbing the enormous amount of information that I needed to pass my courses—it was not one year at a time, rather it was one course at a time. This changed when I became a student leader and met phenomenal individuals, like my co-author, who introduced the idea of medical surplus recovery to me, as well as Martin Lazar, who founded MediSend/International. The world was not simply going to wait while I struggled to finish medical school, and if I wanted to make a difference I had to jump in. In the article below we describe the MediSend Program, a student-conceived, student-driven effort to collect medical, dental, and educational surplus at the University of Texas Health Science Center at Houston. The students that helped and continue to help craft the MediSend Program have realized that they are not only important constituents of higher education, but they play a vital role in shaping university priorities. In the process, the MediSend Program has provided an uncommon learning experience, one that incorporates the values of compassion and altruism with environmental preservation and equitable resource distribution. I am no longer a student and consider my participation in sustainable solutions a *duty*, a sensibility that was shaped during my tenure in medical school. Sustainability should be a universal guiding principle in healthcare education and practice, as well as other disciplines, because it is the key to human survival.

---

### Introduction

There has been increasing emphasis in health professional education and training to incorporate interdisciplinary collaboration into curricula, research, and practice. However, these efforts frequently do not develop support mechanisms that foster sustainable interactions between disciplines and therefore do not continue. The MediSend Program, a medical surplus recovery initiative that originated among Texas Medical Center students and was officially launched in 2002, exposes students, faculty, and administrators from various disciplines to resource management and environmental conservation values vital to a sustainable healthcare system. The MediSend Program acts to instill an institutional culture of humanitarianism and environmental conservation as students and faculty from various disciplines participate in this effort from year to year.

An important and largely under-recognized consequence of escalating healthcare spending is the enormous medical surplus that is generated and discarded. The annual price tag for this surplus in the

United States is estimated at US\$6.25 billion and the cost of storage and disposal alone represents a significant portion of healthcare expenditure (Levit et al. 2002). In addition to abating the financial outlays involved in storing and disposing medical surplus and the burden it imposes on the environment, medical recovery serves a humanitarian function, benefiting developing countries in desperate need of medical supplies.

A handful of organizations within the United States, including Recovered Medical Equipment for the Developing World (REMEDY) at Yale-New Haven Hospital, Project Hope, MediSend/International, and MedicalBridges, have successfully networked with hospital systems to collect and distribute surpluses to selected recipients across the world (Crone, 1992; Rosenblatt & Silverman, 1992; 1994; Rosenblatt et al. 1993). However, these efforts primarily involve health professionals as participants in recovery efforts and have yet to effectively integrate students at their most formative stages of health professional education and training.

---

\*Corresponding Author

The MediSend Program bridges health education and medical recovery in a multidisciplinary university-based research center, the University of Texas Health Science Center at Houston (UT-Houston), which is comprised of schools of medicine, dentistry, public health, nursing, biomedical sciences, and health informatics. Students working through the student governance body at UT-Houston developed over a two-year period a proposal to recover medical, educational, and research surplus. Several benchmarks provided the foundation and context for facilitating its eventual implementation.

## **Institutional Benchmarks**

### ***Environmental Sustainability***

In 1996, UT-Houston embarked on a course to incorporate environmental sustainability into its operations and strategic plan and this resolve was implemented by the creation of a well-staffed sustainability office. This commitment entailed a comprehensive effort to reduce use of resources, dependence on fossil fuels, and production of persistent human-made compounds that are not environmentally stable or safe. New buildings are now being designed in accordance with this vision and architectural goal, while existing facilities incorporate alternative energy sources and reclaimed and recycled materials (e.g., solar energy and discarded flooring materials). Further promoting environmental sustainability, the university adopted the Natural Step, a relatively new organizational philosophy that encourages harmony between business and the environment (Broman et al. 2000). The MediSend Program is consistent with Natural Step principles, extending the life of medical supplies and equipment by making them available to regions where these items are scarce and medical technology is underdeveloped. The sustainability office also provided the institutional infrastructure and operational assistance for the MediSend Program as it was being developed.

### ***Interdisciplinary Education, Research, and Practice***

A historic meeting occurred at UT-Houston in 1994 when the leaders of the American Medical Association and the American Public Health Association met for the first time and launched the Medicine/Public Health Initiative (MPHI), a collaborative partnership between the two disciplines to work together for innovative solutions to health issues (Reiser, 1996; 1997; Cashman et al. 1999). MPHI has invigorated interest in interdisciplinary education, research, and practice not only between the medical and public health schools, but also among other UT-Houston schools. Interdisciplinary programs have

been implemented and promoted despite fundamental administrative and logistical challenges that exist at an urban campus with six component schools. Noteworthy programs include Frontiers in Health, a problem-based learning course offered to all enrolled students; Houston Outreach, Medicine, Education, and Social Services (HOMES), a student-run clinic for the homeless that incorporates a team-based approach to healthcare delivery; and an annual healthcare competition with interdisciplinary teams of students from all six schools. A competitive medicine/public health fellowship challenged students from all component schools to develop strategies for various health fields in reshaping education, research, and practice. The MediSend Program was launched by a pair of students who participated in the fellowship program at different schools, suggesting the value of such efforts.

### ***MediSend/International***

Founded in 1990 as a non-profit organization, MediSend/International collects medical supplies, instruments, and equipment no longer used in the United States and distributes them to public and charity hospitals in developing countries (MediSend/International, 2006). Donated supplies from hospitals, clinics, agencies, and individuals are sorted, inventoried, and shipped in response to requests from prequalified charitable institutions abroad that offer medical care. UT-Houston and MediSend/International have forged a strategic partnership to send medical surplus.

## **Model for an Institutional Program**

A group of student leaders in 1999 originated the proposal for the Medical and Educational Surplus Recovery Initiative (MediSend Program) at UT-Houston. The program's institutionalization was critical to ensuring project continuation after graduation of the original student cadre. Figure 1 depicts the MediSend Program's chronological development, which may serve as an institutional model for other universities. Although the activities are shown as sequential or linear, in practice much development and implementation was conducted simultaneously. A faculty and administration advisory committee was created as program design was finalized after initial feasibility research. A MediSend Office, established as a part of the university's existing sustainability program, was created to oversee the MediSend program and to serve as a liaison between the university and MediSend/International. Additionally, the university committed US\$25,000 yearly to a fellowship program to provide ongoing analysis and institute a research component into the sustainability effort.

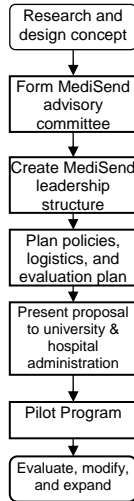


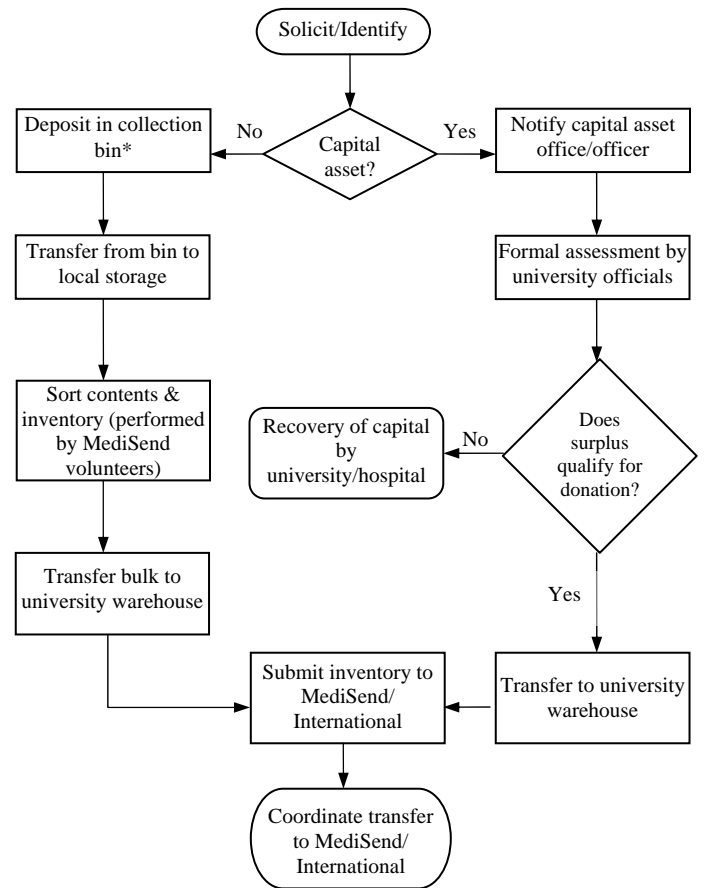
Figure 1 Organizational development.

Several ethical and legal concerns had to be addressed before the program could begin. As a state-funded institution, UT-Houston has a mandate to internally reclaim all usable items, or to otherwise identify local public entities to which the surplus could be offered. According to these policies, the university is prohibited from directly donating to foreign countries, but a provision allows for donations of surplus to charity and nonprofit organizations. Therefore, once MediSend/International acquires the donated surplus, the university is not involved in selecting recipients and is thereby effectively removed from this restriction. Items deemed not suitable for donation to MediSend/International because of efficacy and safety concerns include pharmaceuticals, liquids, or unpackaged sharp objects.

Before initiating the program at other UT-Houston schools, student leaders selected the dental school, where the university has full control of acquisitions, capital assets, and supply disposition, for a pilot program. Figure 2 is a generalized flowchart for the collection of surplus on which items are classified as capital or noncapital assets, with capital assets having value greater than US\$1,000. Students and faculty have the greatest role identifying potential noncapital surplus and developing a procedure to collect the material. Noncapital assets are collected by placing receptacle bins at strategic locations for partially used clinical supplies such as opened gauze packages, incomplete dental burr sets, and expired or surplus items that do not meet the definition of capital assets. Student volunteers monitor the bins and notify custodial services to remove the contents and transfer the material to a centralized storage location. The students periodically sort, select, and inventory the collected surplus before the items are transferred

to an off-campus warehouse. Students and faculty may also identify capital assets for donation; however, these transfers follow the university’s formal procedures and involve the capital assets management office.

Students were involved in the planning and design of the recovery initiative and incorporating it into the university’s operations. To date, the pilot program has collected over fifty large (4.5 cubic feet) boxes of dental supplies and over 1,000 medical books and journals. In 2002, the program facilitated the donation of books worth US\$500 to a medical school in Da Nang, Vietnam. More recently, UT-Houston and the student leadership have expanded the program to include Project Cure and are evaluating other organizations that can model the relationship between MediSend/International and UT-Houston. The full evaluation and benefits of this recovery program are still several years away; however, stu-



\*Campus-wide awareness program put in place encouraging medical professional students to identify and place recoverable items into designated bins.

Figure 2 Recovery Procedures.

dents, staff, faculty, and administration have undertaken the initial steps in launching a pilot program.

## Conclusion

Universities recognize that training physicians, dentists, nurses, and scientists seek creative and meaningful ways to enrich their education and prepare themselves for practice in a world that is vastly different from the one of their predecessors. As part of health professional education, institutions of higher education should recognize their role in student socialization and aim to produce health professionals more compassionate in their work and environmentally responsible within their communities. The MediSend Program has already proved an effective model, fostering similar relationships with other nonprofit organizations at UT-Houston. We believe similar programs at other universities and health science centers can model what was accomplished at UT-Houston and introduce a valuable learning experience for many health science students regardless of discipline.

## References

- Broman, G., Holmberg, J., & Robert, K. 2000. Simplicity without reduction: Thinking upstream towards the sustainable society. *Interfaces* 30(3):13–25.
- Cashman, S., Anderson, R., Weisbuch, J., Schwarz, M., & Fulmer, H. 1999. Carrying out the Medicine/Public Health Initiative: the roles of preventive medicine and community-responsive care. *Academic Medicine* 74(5):473–483.
- Crone, R. 1992. Global health interdependence: A grass-roots approach. *JAMA: The Journal of the American Medical Association* 268(11):1462–1463.
- Levit, K., Smith, C., Cowan, C., Lazenby, H., & Martin, A. 2002. Inflation spurs health spending in 2000. *Health Affairs* 21(1):172–181.
- MediSend International. 2006. FAQ: Why was MediSend International founded? <http://www.medisend.org/faq.html>. January 5, 2007.
- Reiser, S. 1996. Medicine and public health—pursuing a common destiny. *JAMA: The Journal of the American Medical Association* 276(17):1429–1430.
- Reiser, S. 1997. Topics for our times: the Medicine/Public Health Initiative. *American Journal of Public Health* 87(7):1098–1099.
- Rosenblatt, W. & Silverman, D. 1992. Recovery, reesterilization, and donation of unused surgical supplies. *JAMA: The Journal of the American Medical Association* 268(11):1441–1443.
- Rosenblatt, W., Ariyan, C., Gutter, V., & Silverman, D. 1993. Case-by-case assessment of recoverable materials for overseas donation from 1318 surgical procedures. *JAMA: The Journal of the American Medical Association* 269(20):2647–2649.
- Rosenblatt, W. & Silverman, D. 1994. Cost-effective use of operating room supplies based on the REMEDY database of recovered unused materials. *Journal of Clinical Anesthesia* 6(5):400–404.