

International Focus

Vietnam: An Inside Look with ORBIS

Robert Dondelinger



When this biomed was given the opportunity to participate in a trip to Vietnam in advance of the ORBIS flying hospital's visit (see the January/February 2006 *BI&T*), I couldn't help but say yes. Aside from this being my first opportunity to participate in a humanitarian mission, it afforded me a chance to see a country I'd heard so much about and to assess the state of medical equipment and its maintenance in a developing country. The Danang Eye Hospital, where I spent my time, does a surprisingly good job of taking care of vision problems despite what we Americans would consider primitive conditions. It made me appreciate what we have in this country in a way I never have before.

This was truly "a trip of a lifetime." Every biomedical equipment technician should make time to participate in such a worthy and eye-opening experience—helping their fellow biomedes in developing countries.

The Hospital

The Danang Eye Hospital is a provincial facility with a rapidly growing patient base. Owing to the fact that quality eye care is sorely lacking in Vietnam, word of mouth is causing those beyond the province it serves to travel to this facility seeking medical care for serious eye conditions. As is the case with most healthcare personnel, they find it hard to resist patient pleas and the Vietnamese

government has responded by collaborating with ORBIS International to expand the capabilities of the facility.

I came to train biomedes and other interested staff on basic physiology and anatomy of the eye; the building blocks (lenses, prisms, mirrors, etc.) of ophthalmologic equipment; and basic diagnostic equipment used by ophthalmologists. A secondary purpose was to assess both their current biomedical maintenance capability and specific medical devices in advance of a scheduled Flying Eye Hospital visit.

Only certain parts in the buildings are air conditioned. The operating rooms (ORs) have no High Efficiency Particulate Air (HEPA) filtration, positive pressurization, air exchanges, or any assurance the room is at the correct humidity—not that too-dry air is a problem in Vietnam. An approximately 9-inch square bathroom-type fan mounted near the ceiling on an outside wall provides the only ventilation in the OR. The hospital has one anesthesia machine, which is moved between three active ORs as the caseload dictates. Since the rooms are not equipped with wall gases or suction, a cart-mounted "D"-size oxygen cylinder must accompany it. Although the manufacturer of the anesthesia machine (clearly marked "Boyle Apparatus," an archaic term dating from the pre-1930s) is in doubt, it is quite old and provides only oxygen and nitrous oxide (which is not presently used) as well as only

one mounting for a liquid agent vaporizer. This anesthesia machine, as was the design when it was made, has no provision for scavenging the waste gasses, so they are vented to the OR. The patients are monitored primarily manually, with blood pressures taken using a cuff and stethoscope periodically during the case. The only "sophisticated" patient monitor consists of a single pulse oximeter mounted on the anesthesia machine.

Sterilizers are nearly as antiquated as the anesthesia machine. Although thought to be only six years old, they are of a gravity-type design that is at least 30 years old. This simple, unsophisticated equipment is ideal since it rarely malfunctions and when it does, it is easy and quick to repair when parts can be bought.

The Biomed Shop

As a biomed, I was shocked to learn that the only test equipment they had available was a single inexpensive multimeter. They have no safety analyzer; defibrillator analyzer (in fact, they only had one defibrillator, which they had never used—it is a LifePak 6[®] with a broken CRT, donated to them in that condition); or even a test lung for their anesthesia machine. Even more disconcerting was the fact that a single tool set had to be shared with the hospital engineer and is better suited for working on a motorbike.

For those biomedes who complain about not having enough space in their shop, visit Danang Eye

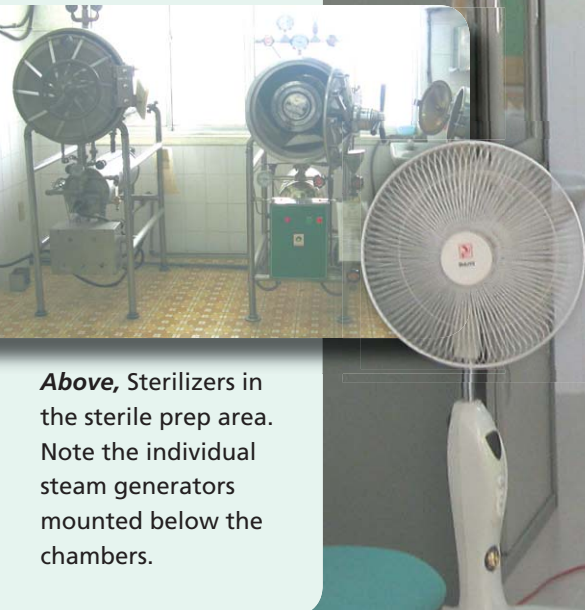
Hospital's biomed shop. This space is also shared with the prosthetic eye fabrication facility. As a result, most equipment is repaired on-site rather than being brought to the shop.

The biomed maintaining the medical equipment at Danang Eye Hospital faces two major challenges. Much of the "high-tech" medical equipment has been donated. Unfortunately, some of it is obsolete and no longer supported by the manufacturer. Oftentimes the donated equipment did not include a user's manual; even more often it lacked a service manual. The few sets of service literature they do have are in not written in their native language. Since there is not a big market for Vietnamese-language documentation, most manuals are written in English, Japanese, or Chinese. English-language manuals are not too bad since several individuals working at the hospital speak and read a little English. Chinese and Japanese manuals are the hardest to use since those

languages, especially the technical electronic and medical terms, are rarely used in Vietnam.

A second challenge is the prohibition on stocking repair parts. They are not allowed to stock any repair parts because there is no "need" for a part. A part is not needed until it is required to repair malfunctioning equipment, and only then may it be purchased. Stocking (and possibly never needing) repair parts ties up too much of their limited funds. This is not the biomed department's idea or policy, but one of the plethora of government rules and regulations they must follow. Once a bona fide need exists for a part, the purchase of low-cost parts may be approved by the hospital finance department, which may take several days. If the part costs more than \$1,000, the biomed department must write a proposal to the Health Department and Department of Finance. Two or three weeks later, approval may be granted and the part purchased by the local government. If the part is too expen-

Right, The Biomed Shop, which shares space with the hospital's prosthetic eye fabrication facility. The biomedes pictured are using the only tool set in the hospital.



Above, Sterilizers in the sterile prep area. Note the individual steam generators mounted below the chambers.



sive, it is not purchased and the equipment might not be usable for the remainder of the fiscal year or longer.

Nothing I've experienced has equaled the uplifting, eye-opening experience of helping a fellow biomed halfway around the world. Whether our respective nations are rich or poor, in the west or in the east, capitalist or communist, certain professions seem to transcend these categorizations. The medical field is one of those. The heartwarming feelings I experienced meeting and working with my fellow biomed, the opportunity to "give back" to a field that has been good to me, is something so new and unequalled that I find it hard to put into words...it's a feeling I've never really experienced before. It is something every biomed should experience for themselves. ■

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Before embarking on such a visit, there are a number of websites you should check for current information about conditions in the area you'll be visiting:

- U.S. Department of State:
www.state.gov/travelandbusiness
- U.S. Customs and Border Patrol:
www.customs.gov
- Centers for Disease Control and Prevention:
www.cdc.gov
- World Health Organization:
www.who.int/en
- Central Intelligence Agency's World Factbook:
www.cia.gov/cia/publications/factbook

Left, An air conditioner in the hospital. Only certain parts of the buildings are air conditioned.

Inset, An approximately 9-inch square bathroom-type fan mounted near the ceiling on an outside wall provides the only ventilation in the OR.

