

Odessa Reports Declines in Infection Rates

By Vladimir Grubnik, MD and Regina Napolitano, RN, MA

Ukraine's Odessa Oblast Hospital (OOH) has achieved a dramatic drop in post-surgical and neonatal infection through its work with Coney Island Hospital (CIH) in Brooklyn, New York over the last three years. Hospital-acquired, or nosocomial, infections fell by more than 50 percent in post-surgical patients and were completely eliminated last year in the hospital's nursery.

In addition to improving the health of patients, reduction in the infection rate has another benefit: large savings for the cash-strapped health systems--whether in the NIS or United States. In 1992, the Centers for Disease Control (CDC) reported that nosocomial infections affected more than two million patients annually in the United States and resulted in expenditures of over \$4.5 billion dollars. Although figures aren't available for the NIS, nosocomial infections are a large problem, and significant amounts of scarce health-care dollars go toward treating infections patients pick up while in the hospital.

Ukrainian and American physicians from the partnership discussed their findings during the Second Annual Ukrainian-American Conference on Surgical Infections last September, which was attended by 150 doctors from Belarus, Moldova and Ukraine. Ukrainian partners described how the basic elements of a successful infection control program could be instituted under current economic constraints. US partners shared details of infection control programs in the United States, basic guidelines for prevention of surgical wound infections, and for prevention and treatment of urinary tract infections. In addition, representatives from the Seattle-based, USAID-funded Program for Appropriate Technology in Health (PATH) discussed the status of a new occupational safety program that reduces blood borne pathogens and is used in the operating room at the Odessa Oblast Hospital.

Reductions in Surgical Department Infections

Data collected at the OOH surgical department between 1993 and 1995 indicates a 57 percent reduction in the incidence of post-surgical infectious complications such as wound infection or urinary tract infection following catheterization (See Table 1). The surgical department treats about 7,000 patients per year. The department uses the Regional Epidemiologic Center definition of infection, which differs from international standards developed by the World Health Organization (WHO). Generally, the OOH's definition is not as inclusive as WHO's and results in counting fewer infections.

Prior to the introduction of advanced infection control measures, the rate of post-surgical infections was 9.8 percent. Over the past two years, the nosocomial rate has declined to 4.2 percent. In addition, the rate of post-operative infections declined 23.1 percent for those patients with advanced disease or requiring emergency surgery.

These improvements stem from several changes made in the OOH Department of Surgery following the educational exchanges of partner teams from Odessa and Brooklyn. A primary reason for the reduction in post-surgical infections is the introduction of less-invasive laser and laparoscopic surgical techniques, which have been introduced for cholecystectomies--gall bladder surgery--and general surgical procedures. These techniques are less traumatic to the patient, thereby decreasing recovery time, length of hospital stay and the risk of post-operative infection. Surgeons and surgical nurses now participate in surgical rounds, review cases of nosocomial infections and take part in educational conferences together. This new approach has resulted in improved patient care practices and gives each member of the team a feeling of personal responsibility. The creation of an infection control committee, composed of epidemiologists and infectious disease specialists from the OOH-affiliated Odessa Medical Institute, has made it possible for surgeons at OOH to review complicated cases of post-

surgical infections and determine what practices should be implemented to prevent infections in the future. Monthly meetings are held at OOH to review these cases and establish protocols in infection control at the hospital.

Neonatology Department Infection Declines

The OOH neonatology department has also made strides in infection control. Partners have been instrumental in designing an infection control committee, which brings together the skills and knowledge of doctors and nurses trained in advanced nosocomial techniques. Committee discussions focus on issues related to diagnosis, treatment and prevention of infections in the newborn. The committee also actively promotes ongoing education among the unit staff and has posted educational charts on the walls of the neonatal intensive care unit to assist staff in making assessments of infection in newborns. Hand washing is also stressed as an important method of infection prevention.

During the years of involvement with the partnership program, infant mortality (0 to six days) for babies weighing 1,000 to 1,499 grams decreased from 71.4 percent in 1992 to 27.8 percent in 1995. This is due in part to the fact that fewer infants are dying as a result of infectious complications. Similarly, infant mortality (0 to six days) for babies weighing between 1,500 and 1,999 grams decreased from 19 percent in 1992 to 8 percent in 1995 (See Table 2). In addition, the number of nosocomial infections reported by the nursery to the Regional Epidemiologic Center declined from 11 infections in 1994 to zero in 1995. The neonatal department also uses infection definitions established by the Regional Epidemiologic Center.

Igor Semenenko, head of the neonatology department at OOH and professor at the Odessa Medical Institute, attributes these improvements to changes in infection control practice and implementation of new techniques and treatments acquired through the AIHA program. This includes enforcement of hand washing and implementation of new treatment modalities for disorders such as asphyxia and sepsis. Expectant mothers are now more aggressively screened for the presence of viral and bacterial diseases, and offered treatment-- if appropriate and available--prior to delivery. This will also have an effect on the incidence of infections in newborns, since it reduces their risk of acquiring infections from their mothers. The neonatology department at OOH has promoted its health care advances nationwide via lectures, media publicity and conferences.

A national conference is planned for May 1996 in Odessa, Ukraine to formalize nationwide standards for hospital infection control programs. Building on the successes of the AIHA Odessa-Brooklyn partnership program in infection control, this conference will allow members of the Ukrainian Ministry of Health to meet with Ukrainian head physicians and surgeons. Essential elements of the program include criteria for classification and definition of nosocomial infections; principles of surveillance, including data collection, analysis and interpretation; and basic methods for prevention and control of nosocomial infections. Plans for the conference include a review of current practices that may be wasteful, such as routine cultures of hospital air. Representatives from Coney Island Hospital attending the conference will assist in shaping these standards and providing reports on hospital infection control programs in the United States.

The development of hospital-wide nosocomial infection protocols is critical to the progress of medicine throughout Ukraine, said Dr. Vasily Gogulenko, head physician of OOH. "Infection control," he said, "provides the wings which carry any improvements in clinical practice through to ultimate success."

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Table 1
 OOH Surgical Department
 Post-operative Infections

| YEAR | Total number post-operative patients | Total number post-operative infections | Infection Rate (Percent) |
|------|--------------------------------------|--|--------------------------|
| 1992 | 7,458 | 731 | 9.8% |
| 1995 | 7,891 | 332 | 4.2 |

Table 2
 OOH Neonatal Department
 Infant Mortality (Days 0-6) at OOH

| 1992 1995 | | | | | | |
|--------------------------------|-----------------------|----------------------|-------------|-----------------------|----------------------|-------------|
| WEIGHT AT BIRTH (grams) | TOTAL NUMBER PATIENTS | NUMBER INFANT DEATHS | PERCENT (%) | TOTAL NUMBER PATIENTS | NUMBER INFANT DEATHS | PERCENT (%) |
| 1000-1499 | 7 | 5 | 71.4% | 18 | 5 | 27.7% |
| 1500-1999 | 63 | 12 | 19.0% | 49 | 4 | 8.1% |