

Practice Forum

# Implementation of an Infection Control Programme in Kano, Northern Nigeria

Salisu Abubakar

Aminu Kano Teaching Hospital, Kano, Nigeria

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## Abstract:

Lack of infection control awareness among health care workers at Aminu Kano Teaching Hospital has resulted in poor waste segregation and disposal, avoidable needle stick injuries, poor suction machine/catheter care and a high rate of catheter-associated urinary tract infections (CAUTI), amongst other problems.

With direction and oversight from the top management committee, a dedicated infection control nurse was appointed to implement an infection control programme within the hospital. This small infection control team has successfully promoted infection control awareness to about 90% and raised compliance to standard precautions to 86%. Waste segregation and disposal has been improved significantly and the number of sharps injuries has been reduced.

As a result of improved practices, the hospital acquired infection rate decreased from 5.8% in 2003 to 2.8% by 2006. Furthermore, CAUTI and nosocomial pneumonia have dropped 33% and 6% respectively.

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## Introduction

Infection prevention and control has become a global concern and is receiving increased attention in developed countries. In Nigeria, there are many infection control challenges, such as the absence of a nosocomial infection surveillance system at a national level and a high prevalence of communicable diseases. Over 3 million people are living with HIV and most of them are co-infected with tuberculosis or hepatitis.

Lack of infection control awareness among health personnel and behavioral problems, both in the community and among health care workers, are major concerns.

Aminu Kano Teaching Hospital was established in 1996. An infection control nurse (ICN) was appointed and formal implementation of an infection control programme commenced in 2003, following the ICN's recommendations and guidelines on how to form an effective Infection Control Committee.

## Challenges

- There was an absence of nosocomial infection surveillance and documentation, making it difficult for the hospital to assess the quality of care rendered to the public.
- A lack of infection control awareness amongst hospital staff resulted in low compliance to standard precautions and a high infection rate.
- There was no training and/or in-house lectures on infection prevention and control for healthcare staff or waste disposal personnel.
- Waste segregation was not performed and most of the hospital waste was disposed of in a public dumping ground with other communal waste where people, including children, scavenged.
- Sharps disposal was poor and needle stick injuries were high due to sharps manipulation and routine needle recapping. There was no documentation of such incidents and no protocol or guidelines existed to offer post exposure prophylaxis (PEP).



- Although housekeeping and general cleanliness is very good throughout the hospital, this was not reflected in the laboratory department where there was no routine cleaning and patients/relations were allowed to enter for the purpose of submitting specimens and/or result collection.
- Liquid disinfectants were over diluted and used for days until finished.
- Care of suction machines was poor and a single suction catheter was used on many patients. Diluted disinfectants were always left for days in the suction bottle. This served as a medium for bacterial growth.
- There was a very high rate of catheter associated urinary tract infection (CAUTI). This was probably due to poor catheter care and performing catheter insertions without observing aseptic technique. Most urine collection bags were left on the floor and urinary catheters remained *in situ* longer than necessary.

## Methods and results

### Actions

#### *Surveillance*

Nosocomial infection surveillance has been introduced and hospital acquired infections are now documented by the ICN. Wards are informed about their infection rates and a quarterly report is submitted to hospital management through the Infection Control Committee.

#### *Awareness*

The ICN conducted a series of ward/unit rounds to inform healthcare workers about the programme; problems of nosocomial infection; and prevention and control measures. Adherence to standard precautions was emphasized and infection control topics were incorporated into biweekly in-house lecture for nurses.

With assistance from JSI/MMIS, the ICN also conducted a series of 2 day training workshops on infection control, injection safety and healthcare waste management. Role play and practical demonstrations of hand hygiene, the use of gloves and other protective equipments were included in the training. The programme was widely attended by nurses, doctors, laboratory technicians and waste disposal staff. The continuing education unit of the nursing department has made this training mandatory for all new nurses. Subsequently, the same training has been conducted for over 30 newly employed nurses.

#### *Waste segregation and disposal*

A healthcare waste disposal policy was introduced in the hospital. Separate colour-coded waste bins were provided for general (communal) waste and infectious waste.

The hospital incinerator was repaired to its automated function and waste is now properly incinerated.

#### *Needle stick injuries*

Sharps containers (safety boxes) were provided for immediate disposal of needles/ syringes and other sharps. In addition, a sharps awareness campaign was launched. Needle recapping and unsafe manipulation of sharps were prohibited and the use of commodities with safety features was emphasized. Protocols for reporting, documenting, assessment and administration of PEP were developed.

#### *Cleanliness*

General cleanliness on wards and units remain very good and house keeping personnel are encouraged to maintain the standard. A routine cleaning and waste disposal schedule was developed for the laboratory. A hygiene inspection tool (checklist) for monitoring infection control standards was also developed.

#### *Disinfectant use*

Information on proper dilution and use of disinfectants was provided during routine visits. Staff were informed that disinfectants should only be diluted for immediate use and not left overnight.

#### *Suction bottles*

The cleaning and disinfection of suction bottles is now routinely monitored. The practice of leaving diluted disinfectants in the suction bottles for long periods has been discouraged. The provision of single-use catheters was recommended.

#### *Urinary catheters*

Guidelines for the prevention of CAUTI were proposed by the ICN, stressing strict aseptic procedures. Intensified, pro-active surveillance and ongoing control efforts were reinstated. Urine collection bags are now suspended on a rack and, during routine infection control rounds, patients/relations are informed about urinary catheter infections and the role they can play to prevent it.

### Results

With a good surveillance system and ongoing infection control efforts, nosocomial infections are now monitored and documented appropriately. Results indicate that the hospital infection rate has been successfully reduced from 5.8% in 2003 to 2.8% by 2006 (Figure 1).

Infection control awareness among staff at AKTH has been raised to about 90% and compliance with standard precautions has been raised to about 86%. Even support staff know about nosocomial infections.

Healthcare waste segregation has improved from 15% in 2004 to 80% by 2006. Following repair of the hospital incinerator, 3/4 filled sharps boxes are completely incinerated before final disposal through burial. All other in-



fectious waste is treated accordingly before disposal and no hospital waste now goes to public dumping grounds. This protects the less privileged adults and children that scavenge in waste disposal areas, and the surrounding community, from infectious diseases that may result from environmental/air pollution.

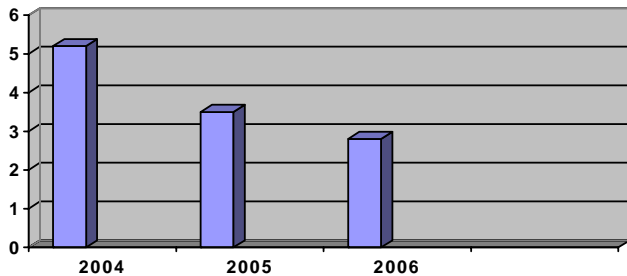


Figure 1: Reduction in overall hospital infection rate

Sharps safety awareness and avoidance of needle stick/sharps injuries has greatly improved. Staff with accidental exposure now report to a designated person. Prophylaxis to prevent hepatitis and HIV infections is given within 2 hours after risk assessment. The incidence of needle stick injuries has dropped among nurses but the number of doctors reporting such injuries has raised, due to increased awareness. Blood splashes to eyes/mucus membranes have decreased from 5 cases in 2005 to only 1 in 2006, due to the increased use of protective materials.

Cleanliness, the use of gloves and other protective materials, and waste disposal has improved in the laboratory. Patients/relations are informed of the risks of indiscriminate entrance into the medical laboratory. A receptionist and a security guard are now stationed in the main entrance to direct them appropriately.

There is now rational dilution and use of disinfectants on the wards. This has improved the effectiveness of disinfection and decontamination in the hospital.

Suction bottles are now clean, disinfected and kept in good working condition, with single use suction catheters provided on the wards. This has helped greatly in reducing the risk of nosocomial pneumonia from 11% to 6% in a year.

Improved urinary catheter care has resulted in a reduction of the CAUTI rate from 52% in 2004 to 33% in 2006.

### Conclusion

With no budget or funding, and in a complex teaching hospital setting where many felt the problems were too big to be corrected, infection control has been promoted to a high level. Improved waste disposal policies have

protected the local community from dangerous and/or infectious materials; improved infection control practices within the hospital have protected patients from avoidable infections; and improved procedures and PEP protocols have protected staff from blood-borne infections.

The high standards of hygiene and general cleanliness in the hospital are regularly commended by patients/ relatives and visitors, including those from outside Nigeria, and the ICN was recently described as the “gold standard in infection control” at the first Injection Safety/Infection Control stakeholders’ forum in Abuja, Nigeria.



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