INFECTION CONTROL IN A RADIOLOGY DEPARTMENT

By T Singh

Aim

- Reflection
- Concerns

Reminder

- International Express
  How Hospital Bug killed 90 patients
  Front page (UK)
  Tuesday 16 October 2007

- Daily News
  Expert probe new disease in Angola
  Page 6 (SA)
  Thursday 8 November 2007

- Sunday Tribune
  TB spreads faster in hospitals expert warns
  Page 6 (SA)
  Tuesday 28 October 2007

- Daily News
  Dirty Hands Killed babies
  Front page (SA)
  Wednesday 28 November 2007

- Daily News
  Hand washing is crucial, doctor tells midwives
  Page 3 (SA)
  Friday December 2007

Infectious Diseases

- Threat
- Spread
- Effects

Definition

- INFECTION
  The act or process of causing or getting a disease caused by bacteria or a virus

- CONTROL
  The act of restricting or managing

Infection control

- Prevention
  - Hand hygiene, cleaning and disinfection
  - Sterilization/vaccination, surveillance

- Investigation and Management of suspected spread of infection:
  - An Outbreak
  - within a particular health care system
Radiation Protection

Ward Radiography

Sun Rays

PERCEPTION

Infection Prevention and Control is the Role of a Nurse

Technological Distractions

EQUIPMENT

Advanced technology
Good quality images
Shortest acquisition time
OHS Regulations and Acts

Chapter 2, Bill of Rights Subsection 24

The Occupational Health and Safety Act of SA 85 of 1993
States that a safe and risk free environment be provided and maintained for persons at work by the employer.

The Act also includes the protection of persons other than the worker from hazards arising out of or in relation to the activities of the worker.

Precautions

- How these dangers must be prevented
- How to work safely
- Other protective measures must be in place to ensure that the workplace is safe.

Routes of transmission

1. Contact
2. Droplet
3. Airborne
4. Common Vehicle Transmission
5. Vector- Borne

Contact Direct Transmission

- Patient positioning
- Hands on approach
- Hand Hygiene

Pilot Study – Hand Hygiene

<table>
<thead>
<tr>
<th>Workers</th>
<th>5 participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior group &gt;5yrs</td>
<td>8</td>
</tr>
<tr>
<td>Junior group &lt;5yrs</td>
<td>7</td>
</tr>
</tbody>
</table>

- Policy was read
- Signatures of acknowledgement
- Available for perusal
- Observation
- Expected action
- Soap, towel, spray
- Poster

Observation

- 80% of group J followed protocol
- 40% of group S followed protocol

- 60% of the total participants were compliant to protocol
- 40% of the total participants were non compliant to protocol
Suggestions

- Staff to employ good clinical practice and use common sense
- Cooperation and commitment from all healthcare workers and managers
- Hand hygiene prevents hospital acquired infection

Contact
Indirect Transmission

- Patient’s documents
- Chairs in a waiting area
- Door handles
- Patient support accessories

Suggestions
- Wipe surfaces
- Wash hands

Droplet Transmission

Droplets DO NOT:
- remain suspended in air
- travel >1m

CAN INFECT:
The conjunctivae, nasal mucosa and the mouth deposition

Suggestion
- Patient education
- Use masks

Airborne Transmission

Problem
- No open windows
- No sunlight

Suggestions
- Adequate ventilation
  - Air conditioners
  - Ultra violet light

Common Vehicle Transmission

Do you clean and or disinfect:

- Work surfaces between patients?
  eg. Eject bucky between Chest x-rays

- Recording media?
  eg. Cassettes/ phosphor plates between examinations [foot to Baby’s chest]

- Lead Aprons?
  eg. From an enema to an angiogram

Reflect
Suggestions

- Normal hygiene practices
- Proper sterilization
- Disinfection of equipment

This type of spread should be rare in a hospital.

Vector-borne Transmission

Vectors are such as mosquitoes, flies and fleas.

Solution:
Screens on the windows and insecticides must be used.

Levels of Precautions
Standard Precaution

- Hand washing
- Gloves
- Masks, eye protection & face shield
- Protective clothing
- Environmental control
- Occupational health

Applied:
- at all times
- to all patients
- to all body fluids

Transmission Based Precaution

Applied:
- When specific infectious disease is diagnosed or suspected.
- The route determines the category of precaution.

Use standard precaution + specific,
eg. Airborne transmission
For TB use a mask with filter particles 1 micron or less in size with a filter efficiency of 95%.

Infection Prevention and Control Policies

- A policy is a plan of action agreed or chosen by a business
- Implementation
- Audits
- Quality Improvement Program
List of Policies

- Hand hygiene
- Cleaning and Disinfection
- Protective Clothing
- Environmental Hygiene
- Disposal of Waste
- Disposal of Sharps
- Laundry
- Standard Precautions
- Pest Control

Employers who introduced POLICIES on this issue Noted a reduction of 75% in workplace violence.

Implementation

Record keeping
- Employees - read and understood the policy
- Procedures

IC is a practical sub discipline of epidemiology

Accountable

Emerging
Undermine
Challenges
Personal hygiene

Accountability cont.

Infection Prevention and Control should be:
- Care
- Awareness
- Litigation
- Patient Rights
- Televised monitoring and recording
Risk

- The turnover of patients is high >100 pat./day
- An expensive imaging modality Operates under financial pressures
- Used to diagnose Skin infection, TB, diarrhoea, open wounds
- Used to monitor infectious condition MDR TB, XDR TB

Responsible

Problems
- Staff shortages
- Financial Constraints
- Increased workload

Improvements

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bars of soap</td>
<td>Liquid soap</td>
</tr>
<tr>
<td>Towels</td>
<td>Disposable paper towels</td>
</tr>
<tr>
<td>Masks</td>
<td>N95 masks</td>
</tr>
</tbody>
</table>

Infrastructure supported and recognized

References

Legislation of SA
- The South African Constitution Act, No. 108 of 1996 (Sections 2, 24, 27, 36, 39)
- The National Health Act, No.65 of 2003
- The Occupational Health and Safety Act, No 85 of 1993 (Section 4[1])
- Guidelines for the Management of Infection Control
  By KZN Infection Control Committee KZN Department of Health

- Infection Control
- Policy Directive

An Australian government initiative

- www.infectioncontrolhealthinsite.gov.au/topics

A peer reviewed scientific journal published by the University of Chicago Press

- www.en.wikipedia.org/wiki/infection

Basic strategy of hospital infection control in Japan
- Infection Control in hospitals- sink or swim, Keith Barker, Consultant Microbiologist, London

References Cont.

KZN IC policies refers to:

Thank You