Mercy University Hospital Cork.

Infection Control Manual

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MERCY UNIVERSITY HOSPITAL	
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Revision History			
Date	**Changes**	**By**	**Version**

POLICY STATEMENT:

To establish a set of Infection Control Guidelines which are scientifically valid and yet relevant to the needs of the Mercy University Hospital, leading to improvement in preventative measures and patient outcome.

OBJECTIVES:

- To have recognised, organised ways of carrying out procedures in accordance with high standards and to keep these standards uniform throughout if possible.
- That all staff will have access to evidence based practice and that it will serve as a good educational tool for staff.
- That it will be reviewed yearly and in the interim to issue additional guidelines as necessary.
- Most importantly that the outcome will benefit our patients/clients.

1.1 Mercy University Hospital Mission Statement

We are here to serve our patients, their families and friends, our fellow workers and the wide community. We must protect them (and in doing so, protect ourselves) from infectious diseases by formulating policies and working to procedures, in accordance with the highest standards of medical care.

We are committed to the compassionate care of those marginalized due to infectious diseases. We must be ready to respond t the challenge of new diseases. While it necessary to follow outlined procedures for patients isolated due to infectious diseases, these patients will experience individualized care, rather than minimized care and alienation.

We set standards which cover risk management and organisational controls that are seen as firmly underpinning clinical governance. We have a statutory duty to seek quality improvement by ensuring that service performance and clinical quality are integrated. The value and quality elements of infection control activities feature strongly in risk management and clinical governance and control assurance programmes. We partake in surveillance and must look at our patients as the centre focus of our mission.

2. Mercy University Hospital Infection Control Programme

The core business of an Infection control Programme or service is to identify and manage risks of infection to patients, staff and visitors. The outcome of the service contributes to an organisation's overall strategy for delivering low risk, high quality care (Horton & Parker 1997)

2.1 Responsibility & Accountability for Infection Control in the Mercy University Hospital

NOTE: BASED ON THE ABOVE IT IS THE POLICY OF THE MERCY UNIVERSITY HOSPITAL THAT EACH AND EVERY EMPLOYEE OF THE HOSPITAL HAS A RESPONSIBILITY TOWARDS CONTROLLING INFECTION AND EDUCATED TOWARDS REMEBERING AT ALL TIMES THAT IN DOING SO WE MUST NOT FORGET THAT OUR PATIENT MUST ALWAYS BE OUR MAIN FOCUS.

(a) MUH Core Infection Control Team

The core Infection control Team is responsible for the day to day running of the Infection Control Programme. Their role is to ensure that an effective infection Control Programme has been planned, including surveillance of Health Associated Infections and to co-ordinate it's implementation and evaluate the impact of such measures. Whilst the team will actively participate in these areas, some aspects of the Infection Control may fall under the remit of others. In such cases the Infection Control Team will provide advice and direction, ultimately ensuring that all tasks reach completion. In summary therefore the role of the Core Infection control Team is-

- **Production** of an Infection Control Programme with clearly defined objectives.

- **Production** of written policies /procedures on Infection Control, including update and evaluation. Departments i.e. Theatre, Endoscopy, Out Patients, Pulmonary Function etc. have guidelines local to their departments, drawn up in con junction with Infection Control.

- **Surveillance** – Participation in surveillance of all aspects of infection and provide data which should be evaluated to allow for any change in practice or allocation of resource to prevent Hospital Acquired Infections and focusing on the resistant organisms which pose a

particular threat (see Surveillance Section – H Drive- Infection Control folder

- Participation in **audit** to allow for a systemic and more critical look at the effectiveness of the Infection Control service (Damani 1997).

MUH Core Infection Control Team

Dr. J. Clair Microbiologist Bleep 6656, Ext. 5718 (Hospital) 24 hr. 7 days	Ms. M. Coughlan Surveillance Scientist Bacteriology Dept. Ext. 5579/519
Ms. N. Bambury CNS Infection Control Bleep 6625, Ext. 5717	Ms. C. O Neill CNM2 Infection Control (Surveillance) Bleep 6583, Ext. 5578
Ms. J.A. Buckley Pharmacist Tel. 5632 Monday- Friday.	

Provisions are made for 24-hour access to the Core Infection Control Team. The Microbiologist may be contacted (out of hours) by the Medical staff/Director of Nursing/ Assistant Director of Nursing and the Infection Control Nurses may be contacted (out of hours) by the Director of Nursing/ Assistant Director of Nursing.

(b) Management Responsibility

It is the responsibility of the Chief Executive Officer (CEO) of the hospital to ensure that adequate arrangements are made to control hospital infection. The chief Executive Officer with his colleagues on the Executive Management Board (EMB) is responsible for implementing infection control policies and procedures at a management level.

In addition to the overall official responsibilities of the Chief Executive Officer and the Executive Management Board, the Nursing Management Structure within the hospital must ensure that proper infection control policies, procedures and recommendations are implemented and supported through their directorate.

(c) Responsibility at Ward/Dept. Level

- ❖ At ward level the overall responsibility lies with the Senior Nurse Manager (CNM2)

- ❖ Clinical Nurse Managers 1 (CNM1s) must also take responsibility

- ❖ Patient allocated nurses must take responsibility for their allocated patients/areas.

- ❖ Senior Health Care Workers (HCWs) such as Medical Consultants, Managers in the Allied Health Professional Groups- Catering, Domestic Services, Technical Services etc. must act as role models and actively promote infection control.

2.2 Infection Control Meetings

Daily/Weekly Meetings

The Core Infection Control Team meets on a weekly basis, in addition to the nurse's daily contact/consultation with the Microbiologist.

Infection Control Committee Meetings

"A root branch shift towards prevention of infection will be needed at all levels if hospital acquired infection is to be kept under control. That requires commitment from everyone involved and a philosophy that prevention is everybody's business, not just the specialists" (NAO 2000).

(A) Infection Control Committee meetings are held monthly. The Microbiologist acts as Chairperson and the Infection Control Nurse as secretary of the group. A representative from each Department in the hospital is invited, preferably Staff Nurses representing the wards.

(B) In addition, twice annually, the Committee draws its membership from the Chief Executive or a senior member of the management team (Wilson 2002), Director of Nursing, Medical Consultant /Senior Nursing representatives, Occupational Health, Engineering, Pharmacy, and Supplies etc. The Chairman of the Committee is usually the Microbiologist. Non Committee members should be invited to attend Committee meetings where problems concerning their own Departments are to be discussed. The function of this twice yearly meeting is:

- ❖ That of supporting the development of an effective Infection Control Programme.

- It is important that the members of the Committee voice areas of concern and problems relating to either Infection Control practice or policy, in particular that the Committee highlights areas, which have not been addressed within their own sphere of responsibility. The Committee should discuss implications, approve Infection Control Policies and assist in implementation and audit as a core process in quality management. Above all, to advise when major decisions are to be made and to allocate funding when/where necessary.

- The Committee will be given reports on current problems and on the incidence of infection and evaluation of other reports involving infection.

Emergency meetings may be necessary in the event of an outbreak/major disaster (Ayliffe et al (2002))

3. Criteria for Reporting Infection

3.1 Reporting to Infection Control

It is important that the following should be reported to Infection Control during Ward rounds or throughout the day as problems arise.

- Any single infection identified (positive or presumed positive) of a serious specific nature e.g. Hepatitis/other viruses, T.B., Meningitis, MRSA, C. difficile, ESBLs etc.
- Suspected gastro-enteric infection such as vomiting/diarrhoea, especially involving more than one patient in a defined area.
- Any infected IV sites, heplock sites etc.
- Cellulitis.
- Any Hospital acquired infections (that is any infection not present or incubating at the time of admission but occurring 72 hours later.
- Childhood infectious diseases e.g. measles, varicella, gastro-enteric symptoms, P.U.O., etc. and infestations such as scabies, lice, fleas, mice, cockroaches etc.
- The discharge/death of any "high risk" patient.
- More than one infection occurring within the same organism or amongst the patients of one consultant, suggesting the beginning of an outbreak.
- Re-admission of patients with post-op sepsis.
- Re- admission of a previously known MRSA affected patient.
- Any acute or unresolving infection, especially in "high risk" areas, e.g. ICU, Theatre, Paediatric Unit, Leukaemia Unit, Oncology Unit, etc.
- Pyrexia of unknown origins (PUOs)

3.2 Reporting by Catering Staff

Food handlers should report any infections to their catering supervisor who, in turn should report to Infection Control/Occupational Health. "Its importance needs repeated emphasis; at pre-employment (with handout), at refresher training and annually. Appropriate translation for non-nationals should be an indispensable component. Reporting for food handler's merits concerted, ongoing focus. Training for managers is especially significant" (NDSC 2004).

- Sore throat with fever.
- Infected skin lesions (i.e. boil, infected wound) or cuts on exposed body parts (hand, arm, face, neck or scalp).
- Pus containing discharges from the eyes, ears, nose or mouth/gums.
- Gastrointestinal illness- Gastrointestinal illness while on holiday, especially overseas, should always be reported on return.

3.3. Reporting to Public Health Authority

Recent change has been made to the notifiable disease list. These changes are based on recommendations of the Scientific Advisory Committee (SAC) of the National Health Surveillance Centre (Surveillance, 2003 (NHSC)). A subgroup of the SAC carried out a review, which involved extensive consultation with key parties, at the request of the Department of Health and Children.

The changes to the list of notifiable diseases are consistent with a European Commission decision on the communicable diseases to be covered by the community network (Decision No. 2000/96/EC, under Decision No. 2119/98/EC of the European Parliament and of the Council).

Under the amended regulations, “unusual clusters or changing patterns of illness that may be of public health concern must also be reported. This is an important development, particularly in the context of any potential deliberate release of biological agents” (NDSC E-I 2004).

Infectious Disease Notification Booklets are available on all departments throughout the Hospital and further supplies available from Infection control.

3.4 TABLE A

DISEASES AND THEIR RESPECTIVE CAUSATIVE PATHOGENS SPECIFIED TO BE INFECTIOUS DISEASES (Under the Disease Amendment (No. 3) Regulations 2003 (S.I. No. 707 of 2003) NDSC).

DISEASE	CAUSATIVE PATHOGEN
Acute anterior poliomyelitis	Polio Virus
Acute infectious Gastroenteritis	
Ano-genital warts	
Anthrax	Bacillus anthracis
Bacillus cereus food-borne infection/intoxication	Bacillus cereus
Bacterial meningitis (not otherwise specified)	
Botulism	Clostridium botulinum
Brucellosis	Brucella species
Campylobacter infection	Campylobacter species
Chancroid	Haemophilus ducreyl
Chlamydia trachomatis infection (genital)	Chlamydia trachomatis
Cholera	Vibreo cholerae
Clostridium perfringens (type A food borne disease)	Chlostridium perfringens
Creutzfeldt & New Variant Jakob disease CJD & nvCJD	
Cryptosporidiosis	Cyptosporidium parvum
Diptheria	Cornebacterium diptheriae
Echinococcosis	Echinoccosis species
Enterococcal bacteraemia	Enterococcus species (blood)
Enterohaemorrhagic E-coli	E-coli of sero group known to be toxin producing
E-coli infection (invasive	E-coli (Blood, CSF)
Giardiasis	Giardia lambia
Gonorrhoea	Neisseria gonorrhoea
Granuloma inguinale	
Haemophilus influenza (invasive)	Haemophilus influenza (blood, CSF or other normally sterile site)
Hepatitis A (acute)	Hapatitis A virus
Hepatitis B (acute & chronic)	Hepatitis B virus
Hepatitis C	Hepatitis C virus
Herpes simplex (genital)	Herpes simplex virus
Influenza	Influenza A & B virus
Legionellosis	Legionella species
Leptospirosis	Leptospira species

Listeriosis	Listeria Monocytogenes
Lymphogranuloma venereum	
Malaria	Plasmodium falciparum, vivax, ovale, malariae
Measles	Measles virus
Meningococcal disease	Neisseria meningitidis
Mumps	Mumps virus
Non-specific urethritis	
Norovirus infection	Norovirus
Paratyphoid	Salmonella paratyphi
Pertussis	Bordetella pertussis
Plague	Yersinia pestis
Q Fever	Coxiella buretii
Rabies	Rabies virus
Rubella	Rubella virus
Slamonellosis	Salmonella enterica
Severe Acute Respiratory Distress Syndrome (SARS)	SARS – associated coronavirus
Shigellosis	Shigella species
Smallpox	Variola virus
Staphylococcal food poisoning	Enteroxigenic Staphylococcus aureus
Staphylococcus aureusbacteraemia	Staphylococcus aureus (blood)
Streptococcus A infection (invasive)	Streptococcus pyrogenes (blood, CSF or other normally sterile sites)
Streptococcus pneumoniae infection (invasive)	Streptococcus pneumoniae (blood, CSF or other normally sterile sites)
Syphilis	Treponema pallidum
Tetanus	Clostridium tetani
Toxoplasmosis	Toxoplasma gondii
Trichinosis	Trichinella species
Trichomoniasis	Trichomnas vaginalis
Tuberculosis	Mycobacterium tuberculosis complex
Tularemia	Francisella tularenis
Typhoid	Salmonella typhi
Typhus	Rickettsia prowazekii
Viral encephalitis, Viral Meningitis	
Viral Haemorrhagic Fevers	Lassa VIRUS, Marburg virus, Ebola virus, Crimean-Congo haemorrhagic fever virus
Yellow Fever	Yellow Fever Virus
Yersinosis	Yersinia enterocolitica, Yersinia pseudotuberculosis

There is a statutory obligation for Clinicians to report all of the above to Public Health. In some instances e.g. Meningitis, even though it may not be a definite diagnosis and treatment has commenced, it should be reported by phone provisionally.

Notification of a Suspected Outbreak

Suspected outbreaks of infection should be immediately reported to the Infection Control Team.

3.5 Investigation of a Suspected Outbreak

The Infection Control Team should investigate the suspected outbreak and initiate appropriate routine infection control measures. If the outbreak is deemed major, hospital management should be notified. A major outbreak is not dependent so much on numbers of people affected but rather the nature of the infectious agent, the pathogenicity and the transmissibility of the organism. The Microbiologist should, therefore, determine the occurrence of a major outbreak and any outbreak should be regarded as major, if there are exceptional implications for Hospital resources e.g. ward closures or possible media attention.

In the event of a major outbreak the Infection Control Team should meet as an emergency with Infection Control Committee and draft others as deemed necessary, determined by the nature of the outbreak, and to include as appropriate:

- Director of Nursing/Assistant Director of Nursing
- Hospital Manager
- Infection Control Team
- Ward Sister - caring for infected patients
- Consultant - treating infected patients
- Director of Support Services
- Health Care Assistant Manager
- Other – as deemed necessary.

Function of the Emergency Committee

- Co-ordinate nursing/medical care of patients.
- Implement/monitor infection control measures.
- Investigate the cause/extent of the outbreak.
- Provide information/guidelines for staff/hospital departments and for patients relatives where appropriate.
- Ensure that actions required are taken and that adequate resources are available to deal with the outbreak.
- Co-ordinate communication with outside agencies including the media and Community Health Service; NB – Only Hospital Management or someone delegated by Management should communicate with the media (See Mercy University Hospital Nursing & Personnel Policies).

End of Outbreak

When the outbreak has been controlled, a final meeting of the group should be held to:

(A) Review the experience of all participants in management of outbreak.

(B) Identify any shortfalls/difficulties that were encountered.

(C) Revise the outbreak control plan in accordance with results and recommend, if necessary, structural or procedural improvements which would reduce the chances of recurrence and write a coherent, final report. This report should be presented to the Infection Control Committee, to the Departments involved in the outbreak, to management etc. It should include details of the cause of the outbreak, control measures undertaken and their effectiveness, the number of cases and recommendations to prevent future occurrences (Horton, Parker 2002).

4. Hand Washing/Hand Disinfection

What! Will these hands ne'er be clean?

William Shakespeare (Macbeth)

4.1 Introduction

The evidence for supporting a link between hand washing and contact transmission of infection is dated in history. It was first established by Oliver Wendell Holmes in the US (1843) and in Europe by Semmelweiss (1861) (Horton, 2002). It was again well supported by Larson (1981). They both showed a drop in the rate of puerperal sepsis and its associated mortality when medical staff washed their hands between examining women during childbirth.

Hand washing is one of the most important procedures for preventing the spread of disease. Hands are the principle route by which cross infection occurs (Elliot, 1992). Hand washing is an infection control practice with a clearly demonstrated efficacy and remains the corner stone of efforts to reduce the spread of organisms. The current spread of antibiotic-resistant organisms can be attributed, at least in part, to a failure by health care professionals to wash their hands either as often or as efficiently as the situation requires (Heenan, 1996). The National Prevalence Studies (Emmerson et al, 1999) demonstrated that 10% of patients admitted to hospital acquire a hospital infection. A Hospital Acquired Infection (HAI) is any infection not present or incubating at the time of admission but occurs 72 hours later.

The Strategy for the Control of Antimicrobial Resistance in Ireland (SARI) was launched in 2001 by the then Minister for Health and it provided a blue print for the prevention and control of antimicrobial resistance. Amongst its recommendations were the development of guidelines in relation to infection control in the hospital and in the community setting and hand hygiene is the key component of this.

As part of the remit under SARI **National Guidelines for Hand Hygiene in Irish Health Care Settings** were introduced in 2005. All staff members **should** be familiar with this document and use as an adjunct to MUH Guidelines.

It is available

- **In** the Mercy Hospital Library
- **From** Health Protection Surveillance Centre,
  25-27 Middle Gardiner Street, Dublin 1.
  Tel. +353 1 876 5300

- **Fax** +353 1 856 1299
- **Email** info@hpsc.ie www.hpsc.ie

If any difficulties are encountered in obtaining a copy please contact infection control.

Corporate responsibility for implementation of these guidelines lies with the Chief Executive Officer (CEO) but Senior Health Care Workers (HWCs) such as, Consultants, Nurse Managers and Managers in the Allied Health Professional groups, Catering, Domestic and Technical Services must act as role models and actively promote hand hygiene (Larson et al, 1982 & SARI, 2004).

All sinks throughout the Hospital **MUST** at all times be fitted with wall mounted dispenser soap and paper towel dispensers. This also applies to bathrooms, toilets, showers etc.

Sinks in clinical areas **MUST** be fitted with wall mounted dispenser soap, paper towel dispensers, antiseptic hand wash ie. Hydrex, alcohol gel ie Spirogel and Prometic XL Cream.

In addition all entrances to wards/other clinical areas should have wall mounted alcohol gel ie Spirogel, at the disposal of staff and visitors.

Alcohol gel **MUST** always be available outside the door of isolation rooms

4.2 What Are Your Hands Carrying?

Micro-organisms found on the skin include two categories:

(A) Resident Micro-Organisms (normal flora)

These are usually deep seated in the epidermis, are not readily removed and do not readily cause infections. However, during surgery/invasive procedures, they may enter deep tissues and establish an infection.

(B) Transient Micro-Organisms

These are organisms that are not part of the normal flora and represent recent contamination, that usually survives for a limited period of time. They are acquired during contact with the infected/colonized patient or the environment and are easily removed by a good hand washing technique. They include most of the organisms responsible for cross infection, e.g. Gram-negative bacilli (E.coli, Klebsiella, Pseudomonas

spp, Salmonella spp.), Staph aureus, MRSA and viruses e.g. rotaviruses (Damani, N.N. (1997)).

All members of Hospital staff and patients should wash their hands:

- Immediately after using the toilet
- Immediately before a meal
- As soon as hands are visibly soiled

In addition, special groups of staff should wash their hands at other times also – Clinicians/Nurses/Carers/Physiotherapists/Porters etc.

4.4 The Different Levels of Hand Hygiene

There are three recommended levels of Hand Hygiene to ensure that the hand hygiene performed is suitable for the task being undertaken. The efficacy of hand hygiene will depend on application of an adequate volume of a suitable hand hygiene agent with good technique for the correct duration of time, and finally ensuring that hands are dried properly.

(A) Social Hand Hygiene- Routine Hand Washing

The aim of social (routine) hand washing with soap and warm water is to remove dirt and organic material, dead skin and most transient organisms. On visibly clean hands it can be undertaken using an alcohol hand rub, and this will remove transient organisms.

Social hand washing involves washing hands with a good quality liquid dispenser soap and warm water for at least 15 seconds. The parts of the hand that can be missed with improper hand washing are the thumbs, back of the hands, back of the fingers, under the nails and the wrists (see table 4.4)

Social Hand Hygiene with soap and warm water, or an alcohol hand rub, which is used on visibly clean hands- indications for use

- **When hands are visibly contaminated with dirt, soil or organic material- always wash hands when visibly contaminated.**
- **At the beginning and end of the shift**
- **Before/after each patient contact**

- **After moving from a contaminated to a clean area during care of an individual patient**
- **Before/after wearing gloves.**
- **After handling contaminated equipment, material or contaminated environment.**
- **Before preparing/handling food (soap only as alcohol may taint the food)**
- **After covering your mouth while coughing/sneezing.**
- **After blowing your nose**
- **After using the toilet**

(B) Antiseptic Hand Hygiene

Antiseptic hand disinfection with an antiseptic hand wash agent ie Hydrex is generally carried out for aseptic procedures on the ward and for areas of Isolation. Hygienic hand disinfection will remove and kill most transient micro-organisms- **indications for use**

- During outbreaks of infection where contact with blood/body fluids or situations where microbial contamination is likely to occur.
- In "high" risk areas e.g. isolation, ICU etc.
- Before/after performing an invasive procedure
- Before/after wound care, urethral or IV catheters etc.

(C) Surgical Hand Hygiene

Surgical hand washing requires the removal and killing of transient micro-organisms and substantial reduction and suppuration of the resident flora of the surgical team for the duration of the operation, in case a surgical glove is punctured/torn. Ensure that fingernails are kept short and clean. Wrist watches and jewellery **MUST** be removed before surgical hand disinfection (Bernthal E, 1997).

4.5 How to Wash Your Hands- Correct Technique

Hand washing with a good technique covering all surfaces of the hands at the right time is more important than the agent used or the length of time of hand washing. **DO NOT** use nailbrushes on the wards. Nailbrushes (soft, sterile) used **ONLY** for Surgical Scrub.

(A) Preparation Check List

- **Do keep** nails short and pay special attention to them when washing your hands – most bacteria on the hands come from beneath the finger nails.

- **Do not** wear nail varnish or false nails. There is evidence that bacteria may harbour in the subungual areas of the hands in high concentrations, and that chipped nail varnish and artificial nails have been epidemiologically linked to outbreaks (Hedderwick 2000). One study found that 40% of staff wearing rings harboured gram negative bacilli i.e. Acinetobacter, Klebsiella, e. clocae etc. under rings and that some carried the same organisms for several months CDC (2002).

- **Do not** wear ridged/stoned rings- for safety reasons as well as the Infection Control aspect of it. The total bacterial counts are higher when rings are worn. Also, rings interfere with thorough hand washing and may pierce gloves. It is also more difficult to put on gloves (ICNA, 1997). Studies have demonstrated that skin underneath rings is more heavily colonized than comparable areas of skin on fingers without rings. Ridged/stoned rings may also be a source of injury to the patient.

- **Remove** wrist watches and roll up or remove long sleeved clothing – the wrists should also be included when washing the hands (Gould, 1994) and it may also be necessary to wash the forearms if they are likely to have been contaminated.

(B) Sequence of Events

- **Wet hands under running water**

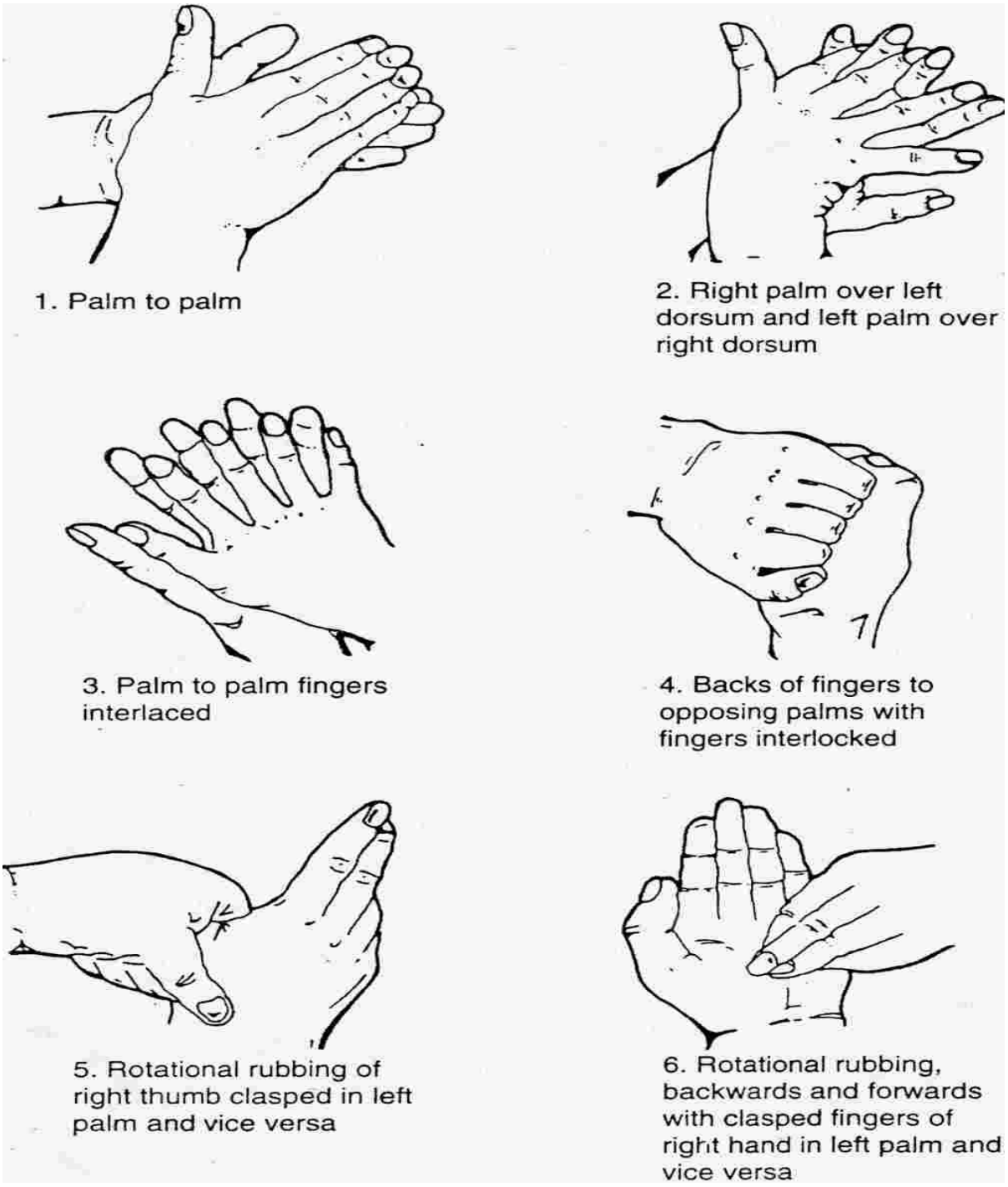
- **Dispense soap/antiseptic (5mls approx) into a cupped hand**

- **Hand wash for 10-15 seconds vigorously and thoroughly without adding more water.**

- **Rinse hands thoroughly under running water.**

- **Dry hands properly with a disposable towel. Drying is equally as important as washing – bacteria thrive in moisture.**

(C) Six step hand washing technique was devised by Ayliffe et al. Each step consists of five strokes forward and five backward.



1. Palm to palm

2. Right palm over left dorsum and left palm over right dorsum

3. Palm to palm fingers interlaced

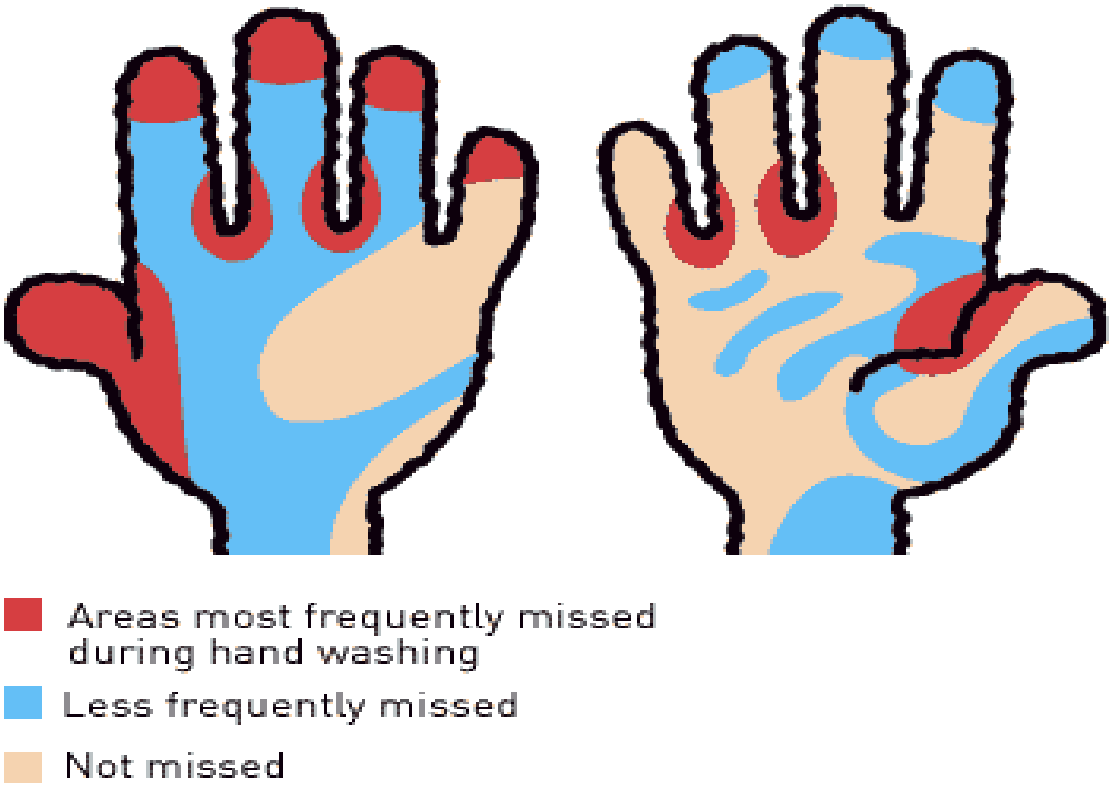
4. Backs of fingers to opposing palms with fingers interlocked

5. Rotational rubbing of right thumb clasped in left palm and vice versa

6. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

Remember to wash the wrists of both hands

(D) Areas most, less, not missed when hand washing.



(Adapted from Taylor L (1978), An evaluation of hand washing techniques - I, Nursing Times, 12 January, pp 54-55)

(E) Alcohol Hand Rub Technique

Follow the six steps already described except instead of using water dispense 3mls of the gel into the palm of the hand. **Remember to rub the wrists of both hands.**

Alcohol Gels

These are alternative methods of hand disinfection as already described (section 4.5) They do not cleanse and, therefore it is important that hands should first be cleaned with soap and water, in the presence of visible contamination. They are particularly useful in areas where a wash hand basin

is not readily available, or when return to a wash hand basin is impractical e.g. during a ward round, in between bed making ,during a dressing procedure or if the previously washed hands touch the curtain trolley etc. They are also particularly useful outside the door of an isolation room/area and for individual patient bed space in “high” risk areas and during outbreaks on the advice of infection control.

(F) Prometics XL Cream

The use of Prometics XL Cream available from the Pharmacy Department (project of the Microbiology Laboratory) is also encouraged in the hospital. This cream can be used for the same purposes as alcohol rub and as it contains natural emollients which help to moisturize the skin staff are encouraged to use it 3-4 times daily.

The main active ingredient is a natural fatty acid present in small amounts in the skin. This is particularly active against VRE and MRSA and a protective shield against the organisms remains in the skin when Prometics is used unlike alcohol based products where the protective effect evaporates within seconds.

NB: Only a very minute amount is required to be efficient. Surplus may cause the hands to become greasy.

(G) Surgical Hand Disinfection

Surgical Hand antisepsis should be performed prior to all surgical procedures. It involves thorough washing and disinfection of hands, subungual areas and forearms. The agent used must have broad spectrum microbial activity, act rapidly and persist on the skin over several hours Betadine is the agent used in the MUH- See Theatre Policies for full guidelines – available in the theatre and on the H Drive of the hospital network.

4.6 Skin Care- *Look After Your Hands*

Bacterial counts increase when skin is damaged.

- **Maintain** an intact skin in as far as possible.
- **Always** wet hands before applying soap or medicated agents
- **Always** rinse and dry hands thoroughly- drying is particularly important

during the winter months when the hands have a tendency to become chapped.

- **DO NOT** use communal pots of hand cream.
- **Always** cover cuts and abrasions with an impermeable waterproof .plaster
- **Always** wear disposable gloves when handling blood/body substances
- **If** you suspect sensitivity or allergy to disposable gloves, seek advice from the Occupational Health Department.
- **Always** wash your hands after glove removal.

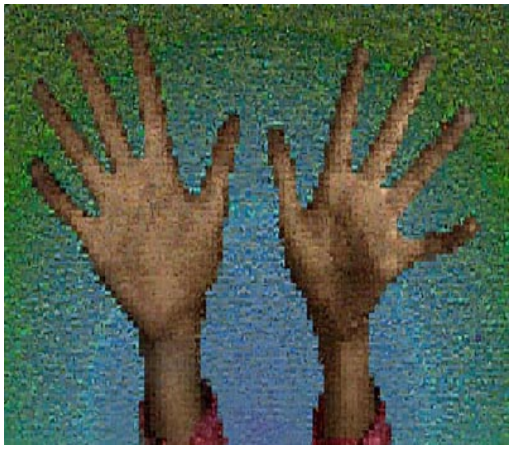
4.7 General Comments and Practical Points

- **Only** Liquid soap from a dispenser (disposable cartridge) is recommended in a Hospital setting, but the container itself/nozzle must be regularly cleaned. Bar soap is only allowed for patients own personal use.
- **Never** use open topped jars of hand emollients ie. Atrixo etc- communal containers are a serious infection hazard.
- Any change of products can **only** be introduced by joint liaison between Infection Control, Occupational Health and Supplies Department.
- **Gloves -** Remember gloves are only a barrier when intact. They should never be regarded as a substitute for hand washing. Hands **MUST** be washed before/after wearing gloves.
- **Ensure** that all sinks are equipped with soap/paper towel, alcohol and where necessary Hydrex. **NB.** Towel in the holder **NOT** lying on top.
- **NEVER** discard disposable towels in the toilet bowl, bed pan washer or macerator. Such items cause blockage of the system and have enormous implications for the Hospital, particularly the Maintenance Department.
- **No** need to use several sheets of disposable paper.

NB: Patients should be made aware of these implications.

NOTE!

Your 10 Fingers



Are-

The 10 most important carriers of Cross - Infection

LET US ASK OURSELVES
WHO DID WE INFECT TODAY?

THE FUTURE IS IN YOUR HANDS

YOU CAN PREVENT THE SPREAD OF INFECTION

YOU CAN REDUCE THE FINANCIAL BURDEN ON THE HOSPITAL

YOU CAN REDUCE HUMAN SUFFERING

THE RISE OF RESISTANT MICRO-ORGANISMS IS THE CONTINUING THREAT OF THE FUTURE

YOU CAN PREVENT THE SPREAD

YOU MUST EDUCATE OTHERS

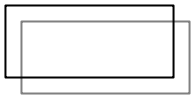
REMEMBER HAND WASHING SAVES LIVES

Semmelweiss is as relevant to-day as he was a century ago

5. Mercy University Hospital Colour Coding System

5.1 MUH Colour Coding for Cleaning Cloths, Brushes & Buckets

Ward Kitchen
White Cloth



Clean Utility/Clean Clinical/Other Clean Areas
Pink Cloth

Dirty Utility/Bathrooms/Toilets etc.
Blue Cloth

Isolation Rooms/Areas
Yellow Sign
Yellow Cloth

Green Sign
Green Cloth

Note: **It applies to all wards/areas and to the Contract Cleaners**

5.2 Colour Coding for Isolation Rooms/Areas

Specifically prepared colour coded cards, restricting visitors are placed on the patient's door. The different categories are assigned the following colour codes.

Yellow Transmission Based Precautions (for infection)

Green Protective Isolation (for immunosuppressed)

Red — In reserve for extremely high risk infection i.e. Multi Drug Resistant Tuberculosis, Lassa Fever, Marburg Disease, SARS etc. If required, sign is available from Infection Control.

5.3 "Special Risk" Infection Coding System

"High Risk" Category Infection

- HIV positive of presumed positive
- Hepatitis B/C or presumed positive
- Leptospirosis (Weils Disease)
- Typhoid/Paratyphoid/Dysentery
- Other Infections – Any other unusual infection where the risk of contagion is high.

Any of the above mentioned should have a special **"Yellow"** Luminous Sticker with **B.H.** written in red.

(a) Outside of Case Notes
(b) Inside of Nursing Kardex
(c) Request forms to X-Ray, Physiotherapy, Occupational Therapy, E.E.G. Dept. etc.

In order to preserve confidentiality, it is not regarded as essential to note the precise infection in the case notes. Neither is it essential to write it on the sticker. All staff should recognise this sticker and thereby that the necessary "Blood/Body Substance" precautions.

MRSA — Small Circular **Purple** Sticker

ESBLS — Small Circular **Red** Sticker

R.STREPTOCOCCI — Small Circular **Dark Blue** Sticker

These stickers must be placed:

(a) Outside of Case Notes
(b) Inside of Nursing Kardex
(c) Front page of Drug Chart
(d) On all Request Forms to X-Ray, Physiotherapy, Occupational Therapy, E.E.G. Dept. etc.

Do not write the particular infection on the stickers; insert only the date of isolation on or alongside the sticker (to observe confidentiality)

These stickers act as an alert.

6. Principles of Asepsis/Aseptic Technique

6.1 Introduction

The terms asepsis and aseptic technique are used to describe methods which have been developed to prevent contamination of wounds or other susceptible sites (e.g. the urinary tract) in the Operating Theatre, the Ward and other treatment areas, by ensuring that only sterile objects and fluids will make contact with these sites and that the risks of airborne contamination are minimized.

Any procedure that involves penetration of the skin, exposure of wounds or instrumentation should be carried out with sterile instruments and materials from CSSD, using a non touch technique with forceps or gloves (Ayliffe, Lowbury, Geddes, Williams, 1993).

The hand washing principle must be adhered to (see Section 4 – Hand Washing). Following the first hand wash, Prometics XL cream or alcohol rub should be available at any time during aseptic procedures, particularly when non-sterile articles have been touched.

Aim

- To minimize the risk of introducing pathogenic organisms into a wound or other susceptible site and to prevent the transfer of pathogens from the wound to other patients or staff.

Indications

- Wounds healing by primary intention (before surface skin has healed).
- Intravenous cannulation.
- Urinary Catheterisation.
- Suturing.
- Vaginal examination during labour.
- Medical invasive procedures.

Principles

- Ensure that all equipment required is readily available and there is a clear field in which to carry out the procedure.

- Wash hands or disinfect clean hands with Prometic XL Cream or an alcohol gel.

- Open the pack carefully to prevent contamination of contents

- Wear sterile gloves for the procedure

- Use aseptic principles to ensure that:
  (a) Only sterile items come into contact with the susceptible site
  (b) Sterile items do not come into contact with non sterile object.

- After completion, discard waste contaminated with body substance into a yellow waste bag and sharps into a sharps container.

- Discard protective clothing and wash hands to prevent cross infection to other (Wilson, 2002).

6.2 Preparation of Trolley for Aseptic Technique

Trolleys used for Aseptic Procedures should not be used for any other purpose and must be well maintained (free from surface cracks/chips).

- Wash trolley with detergent (wash up liquid) and water and dry thoroughly with a disposable towel.

- Disinfect with alcohol (70%) using a disposable towel and leave to dry for two minutes. In the case of a dressing round, disinfecting with alcohol suffices between each individual dressing, unless physically contaminated.

- Place everything for one procedure on the bottom shelf of the trolley including pack, scissors, normal saline sachets, extra dressings or any other material which may be determined by the nature of the dressing/other procedure. **NB: The top shelf MUST be kept clear.**

- **NB:** Place also a receptacle containing a swish of washing up liquid on lower shelf for discarded instruments (non-disposable). This prevents adherence of blood, tissue etc. to the instruments. Instruments should be placed in the container according as they are used. Apart from the contaminating aspect there is a risk that the

instruments may be discarded with the used wrappings and dressings if left on the trolley.

- Attach pack holder to the side of the trolley, below the level of the top shelf, so that any contaminated materials lie below the level of the sterile field.

6.3 Preparation of the Environment for Aseptic Procedures

These preparatory precautions apply to all aseptic procedures, but with most reference to "wound care".

General Precautions

- The procedure should be carried out in as clean an environment as possible.

- Bed making, cleaning, dusting etc. should be completed ideally a half an hour before dressings/other procedures are carried out.

- Windows/doors should be closed and ward movement restricted to a minimum.

- Ambulent patients should be requested to sit quietly during the procedure. Where possible curtains should be drawn well in advance.

- In the case of wound dressings, only one wound should be uncovered at a time and wounds should be exposed only for the least possible time.

- Clean dressings/procedures should be placed first on the list – i.e. before colostomies, infected wounds, wounds of HIV/Hepatitis B/C etc.

- Staff with respiratory infection, sore throat, hand /finger infection should refrain from dressings/other aseptic procedures.

- A greater reduction of droplet dispersion of organisms can be achieved by staff/patient not talking unnecessarily during the procedure (Ayliffe, Lowbury, Geddes, 1993; Royal Marsden, 1990).

These are general Infection Control principles – For further details refer to the Mercy University Hospital Guideline booklet for management of wounds.

7. Prevention of Hospital Acquired Infection

7.1 Wound Care

These Guidelines are general Infection Control principles for Wound Care. For extensive researched details, see Guidelines for Wound Management available on all wards.

Introduction

The cost of post-operative wound infection can be high, both for the patient and the Hospital. At the least, the patients may be inconvenienced by a prolonged period of hospitalization; at worst the patient my die from Septicaemia. All too often wound infections nullify the potentially, beneficial effects of the operations preceding them. It is, therefore, highly desirable that the incidence of wound infection should be reduced for humanitarian as well as economic reasons.

Aims of Wound Care

- To promote healing.
- To minimize the risk of exogenous infection.

Broad Principles

- Apply principles of asepsis (See Section 6.1 and 6.2).
- The wound dressing should be removed carefully to prevent dispersion of organisms (Ayliffe et al, 1993).
- If the wound is clean and dry, it is better to leave it alone (Thomlinson, 1987).
- Avoid unecessary prolonged exposure of wounds during dressing changes.
- Wounds should be cleaned using normal saline. The use of antiseptics can be injurious to tissues.
- Accurate recording of the condition of the wound and skin should be made at each dressing change. This will aid the early detection of wound infection (Morrisson, 1987).

- If “strike through” occurs, e.g. leakage reaching the surface of the dressing, the dressing should be removed and a new one applied. Extra padding should NEVER be applied over the soaked dressing (Ayliffe et al, 1992).

Exceptions to this are:

- Wounds on day of surgery. If strike through is evident, the area is marked and re-enforced if necessary.

- Leg ulcer patients with compression bandaging (in the Out Patients Department). This bandaging is left inset for one week and it is possible that strike through may occur. If so, the patient is advised to reinforce with some more similar bandaging (this is actually given to the patient by the OPD clinic).

Dressing of Wounds

Preparation of the Dressing Trolley	See Section 6.1
Preparation of the Environment	See Section 6.2
Procedure for Wound Dressing	See Guidelines for Wound Management – available on all Departments.

For wounds with Resistant Organisms e.g. MRSA (See Section 10.

7.2 Urinary Incontinence/Catheter Care

Introduction

These Guidelines are general Infection Control principles for Catheter Insertion/Catheter care. For extensive researched details on Urinary Incontinence/Urinary Catheterisation – see booklet available on all wards in the Mercy University Hospital and also seek advice from the Urology Team.

The National Prevalence Study (Meers et al, 1981) revealed that 10% of patients in hospitals visited developed nosocomial infection; 30% of these were urinary tract infection. Data provided by the National Nosocomial Study in America revealed that 40% of all hospital acquired infections affected the urinary tract. Hence the need to apply extreme Infection Control measures in the field of catheter care.

General Principles

- The use of urinary catheters should be limited to clinical needs that cannot be met by other needs. This may include, but not limited to, relief of urinary tract obstruction, urinary drainage in patients with neurogenic bladder dysfunction and urinary retention in urologic surgery or other surgery on contiguous structures, accurate measurement of output in critically ill patients and radiological investigations.

- Catheter insertion and maintenance should be undertaken by people who are adequately trained in the procedures.

- Hands **MUST** be washed and sterile gloves worn for catheter insertion. Non sterile gloves should be worn for emptying of catheter bags. Remember to wash hands before and after wearing gloves.

- The system of urine drainage should be sterile and continuously closed, with an outlet designed to avoid contamination and a sampling port. The drainage system should be appropriate to individual patient need.

- The closed system should only be broken for limited, clearly defined clinical reasons. Bladder washouts should only be for specific clinical reasons and not as part of routine practice.

- The catheter should be changed according to clinical need, and not a fixed regime, and with regard to the manufacturers instructions.

- All procedures involving the catheter and drainage system should be clearly documented in the nursing notes. At a minimum, this should include the name of the person inserting the catheter, the date, the type and size of the catheter and the volume of water in the balloon.

Insertion of a Urethral Catheter

- The catheter should be of material suitable for the anticipated duration of catheterization.

- The smallest balloon size should be used, unless the Urologist advises otherwise, and inflated with the correct amount of sterile water.

- The smallest gauge catheter consistent with good drainage should be used. The length will depend on the sex of the patient. If regular or continuous irrigation is anticipated, a 3-way catheter should be used.

- The clinical needs of patients will determine whether an assistant is required.

- Where possible, the patient should have a shower before the procedure, if not, the genitalia should be washed with non-scented soap and water. Sterile saline sachets to be used for swabbing the vulva.
  NB: Do not use Hibidil, as it may cause allergy and in turn irritation leading to infection (See Section 5.2 for Preparation of Trolley).

- The urethra should be lubricated with sterile, single use, anaesthetic gel.

- The catheter should be inserted using an aseptic technique and sterile equipment. A second pair of sterile gloves should be available, should contamination occur.

Maintenance of the Drainage System

- Drainage systems should be simple to operate with one hand, close securely and be easy to position. Where feasible, offer the patient a choice of drainage systems.

- The position and integrity of the system should be maintained in a manner whereby it is compatible with patient comfort.

- The drainage bag must be kept below the level of the bladder at all times to maintain an unobstructed flow of urine. It should be emptied into a disinfected or single use container. Contamination of the outlet should be avoided (wipe with an impregnated alcohol swab before/after emptying).

- When urine samples are aspirated from the sampling port, an aseptic technique and sterile equipment must be used and the port disinfected with an alcohol impregnated swab before/after use.

- The drainage bag must be changed at catheter change, if it is damaged, leaking, when there is an accumulation of sediment, or if there is an odour, rather than on a fixed regime.

- Meatal care should be performed at intervals appropriate for keeping the meatus free of encrustations and contamination. Showering or the use of a gentle bidet is preferable. If the patient uses a bath it must be cleaned before/after. The drainage bag should be emptied and the tap closed before the patient enters the bath.

- Waste should be disposed of as per Hospital Policy.

Storage of Catheters

Proper care/storage of catheters is very important. The British Standard BS states that because of deterioration that may occur, under certain conditions of storage, catheters should be used as soon as possible after manufacture. As soon as a catheter shows any modification of material characteristics, it should be destroyed.

- Catheters should be stored away from direct sunlight.
- Catheters should be stored at room temperature, preferably at about 15 degrees centigrade.
- Limit the number of catheters in each container or box, to avoid damaging the package.
- Observe the expiry date of the catheter.
- Never place elastic bands around catheter.

7.3 Prevention of Infection Associated with Intravenous Therapy

These Guidelines are only general principles for Prevention of Infection associated with Intravenous Therapy. For full details, see Guidelines for Registered General Nurses on the Administration of IV Drugs.

Introduction

An intravenous catheter is a foreign body which produces a reaction in the host consisting of a film of fibrinous material (biofilm) on the inner and outer surfaces of the catheter. This biofilm may be colonized by micro-organisms and will be protected from host defence mechanisms. Infection usually follows colonization of the biofilm, causing local sepsis, septic thrombophlebitis or in some cases systemic infection, e.g. bacteraemia or septicaemia (Damani, 1997).

Intravascular (IV) devices are now widely used in medical care for the administration of fluids, blood products, nutritional support and haemodynamic monitoring. Infections associated with IV devices are often life threatening, particularly in the critically ill, immunocompromised or neonates and can largely be prevented by good infection control practice (Wilson, 1995).

Sources of infection may be:

(A) **Intrinsic**
This is due to contamination or faulty sterilization of fluids during manufacture. It is usually due to gram negative organisms growing in the infusate, such as klebsiella, Enterobacter or Pseudomonas spp.

(B) **Extrinsic**
This is due to contamination of the IV catheter during the insertion, administration of the fluid or from the hands of the operator. However, the most important reservoirs of pathogens causing catheter-related infection are the insertion site and the hub. It is mainly due to micro-organisms residing on the patient's skin, e.g. Staph epidemidis, Staph aureus and diptheroids.

Key Points

Peripheral Cannulae

- Ensure that the patient is in a comfortable position and aware of the nature of the procedure as this will reduce anxiety.

- Place some protection under the patient's arm to protect the bedclothes.

- Principles of proper hand washing and strict aseptic technique must be adhered to. The person cannulating should ideally have an assistant, as otherwise complete sterility is not guaranteed.

- The vena puncture site should **NOT** be touched once the vein has been selected and the skin prepared; avoid touching the shaft of the catheter with fingers during insertion.

- Upper extremity site in preference to a lower extremity site. In paediatric patients, insert catheters into a scalp, hand or foot site in preference to a leg, arm or anticubital fossa site.

- Allowing the site to dry properly after disinfection is very important.

- Select a catheter that will fit properly into the vein. The correct size catheter reduces trauma and congestion of the vein. Insert the catheter as swiftly as possible using "non touch" technique. Do **NOT** attempt repeated insertions with the same catheter. If the first insertion is not successful, the procedure should be repeated with a new cathether.

- Look out for flash back of blood and advance the catheter slowly. Secure the catheter to prevent movement (as per booklet).

- Check the site hourly, when the cannula is in use and four hourly, when not in use.

- Change the giving set every 48 hours routinely. For medicated giving sets, every 24 hours and for blood giving sets, with alternate blood units.

Central Venous Cannulae

The insertion of Central Venous Cannulae should ideally be carried out in the Operating Theatre or in Ward Treatment Rooms. However, there is no reason why it may not be carried out in an open ward if very stringent measures of asepsis are adhered to.

- When carried out in the Ward setting, it **MUST** be carried out under strict, operating theatre aseptic technique, requiring the use of sterile packs, sterile gloves, sterile gowns, sterile drapes etc.

- **NB:** Proper skin disinfection is absolutely necessary and the sterile field should only be prepared when ready to commence the procedure, to avoid excess exposure to the atmosphere.

- The doctor **MUST** be assisted by a Nurse/s while carrying out the procedure.

Additional Practical Points

- Stringent adherence to aseptic technique during insertion (already mentioned) and later catheter manipulation significantly reduces the risk of infection and is cost effective.
  NB: Any manipulation of a Central Line requires the use of sterile gloves, preceded by proper hand washing (Greene, 1990).

- In as far as possible it is recommended that administration set changing, drug administration, blood taking and dressing change should be carried out at the one interruption of catheter integrity.

- Hickman line dressings should be routinely changed weekly; Central line dressings should also be changed weekly, or more frequently, if the dressing is wet/loose or if the site is inflamed/painful.

- Connections should be reduced to a minimum. The risk of infection is increased by the use of three-way taps and injection ports but the use of protective caps and swabbing with 70% alcohol (medi-swab) before the injection reduces the hazard.

- ❖ It is recommended when a heplock is removed that it is replaced with a sterile heplock.

- ❖ Remove any intravascular device as soon as its use is no longer clinically indicated, as the risk of infection increases with the length of time of catheterization. Therefore, all patients with intravenous catheters should be evaluated on a daily basis for evidence of catheter related complications, e.g. tenderness, thrombosis, swelling or signs of inflammation or infection. The insertion site should be palpated daily for tenderness through intact dressing.

- ❖ The catheter should **NOT** be inserted into an area of inflammation or infection and **MUST** be removed and re-sited if required.

- ❖ Use subclavian rather than jugular or femoral sites fo central venous catheter placement, unless medically contraindicated.

- ❖ Wipe the outer hub of the catheter with 70% alcohol (medi swab) before attaching the administration set. The luer lock should be kept as clean and as dry as possible.

- ❖ Antibiotic prophylaxis before or during catheter insertion is NOT recommended to prevent catheter colonization or blood stream infection. Routine use of topical antimicrobial ointments is also NOT recommended at the site of catheter insertion.

- ❖ **NB:** Blood cultures should be taken from the line ports as well as the peripheral vein site when infected. If line infection is confirmed a decision on the removal of the line will now need to be made by the medical team.

- ❖ In cases of proven catheter related sepsis, appropriate antibiotics should be given before fresh catheter insertion to prevent re-colonization of new IV Lines. The choice of antibiotic will depend on the sensitivity of the micro-organism; for blind therapy the Microbiologist should be contacted for advice (Damani, 1997).

Air Lock – Intravenous Infusions

Prevention

Observing principles of strict aseptic technique, including proper hand washing and the wearing of disposable gloves –

(A) Prime the administration set with the infusion fluid, so that it is ready for use once the cannula is in position. Check that the fluid is running freely and that all the air is expelled from the system. This prevents the danger of embolous occurring.

NB: The equipment should only be primed immediately prior to the infusion to minimise the risk of infection.

(B) Preparation for changing a container of intravenous fluid should begin while a small amount of fluid remains in the container, thus preventing the formation of air bubbles in the system.

(C) Ensure that any connections used are secure.

Air in Line Detection Pumps

Pump Alarming

Observing strict principles of aseptic technique including proper hand washing and the wearing of disposable gloves.

(A) Place a **sterile** clinical sheet on the work area.

(B) **Clamp** the T Connector.

(C) **Disconnect** the system and remove any air from the giving set by running through (on the sterile, clinical sheet) taking care to avoid touching any non-sterile surface/equipment.
NB: Do not use a syringe/needle to extract air via the rubber bung

(D) **Remove** clamp and **quickly** reconnect/re-start infusion.

(E) Check that the set is loaded correctly/re-load if necessary.

7.4 Management of Parenteral Nutrition (TPN)

Parenteral nutrition is administered via a central venous catheter where the high blood flow reduces the risk of thrombophlebitic effects of glucose. Bacteria can multiply easily in parenteral fluid – gram negative bacilli and particularly yeast, so infection is a frequent complication of PN therapy. Particular care **MUST** therefore be taken to avoid contamination of IV devices used to administer TPN.

- Prevention of infection depends on scrupulous aseptic technique both in cannula insertion/subsequent daily care (Ayliffe et al, 1993).

- Ideally designate the cannula for TPN only, avoid using multi lument catheters and do not add drugs or withdraw blood from the line.

- Do not connect ports, stop cocks or taps. It should be preferably a single lumen line.

- ❖ Change the infusion fluid and administration set every 24 hours, using sterile gloves and non-touch technique.

- ❖ Inspect the insertion site daily for signs of infection.

- ❖ Record temperature and pulse chart 4 hourly to detect early signs of sepsis.

- ❖ Take blood cultures through the line and from a peripheral vein if the patient becomes pyrexial.

See Mercy University Hospital Nutritional Policy for full details

Further Reading – Guidelines for Preventing Intravascular Catheter related Infection.

7.5 Prevention of Infection Associated with Epidural Therapy

Introduction

"Whilst insertion of an epidural catheter has similarities with intravascular cannula placement, the consequences of infection include potentially fatal meningitis and epidural abscess" (Catchpole, 1996).

Clearly, **very strict principles of full aseptic technique** are crucial to the prevention of these infections, at the time of **insertion/care/removal** of the epidural catheter. Infections involving any spinal delivery system must be treated aggressively with removal of the infected system, culture and immediate antimicrobial treatment (Doyle et al, 1996).

Key Points

The insertion of an epidural catheter is an aseptic procedure and should be carried out in a ventilated operating theatre. In an ICU setting it may be necessary in certain circumstances to perform this procedure in the Department, if so; it MUST be carried out under strict operating theatre aseptic technique, requiring the use of sterile packs, sterile gowns, sterile drapes, sterile gloves etc.
NB: Proper skin disinfection (as per theatre scrub policy) and the sterile field should only be prepared when ready to commence the procedure, to avoid excess exposure to the atmosphere.

Close observation of the site is important and the dressing changed (dry Mepore dressing) ONLY if necessary. Leave covered for 12 hours post removal of catheter. Do NOT use disinfectant if dressing needs changing or post removal of catheter. Only with evidence of infection should an epidural site be treated with a disinfectant – Betadine is suggested and it is advisable to wait for 1 hour post removal of the catheter to allow sealing of the site.

ALWAYS send the catheter tip, labelled Epidural Catheter Tip (in a sterile universal container) to the Bacteriology Department for analysis on removal of the catheter whether infected or non-infected. It is advisable for two people to check the tip to ensure it is intact. To avoid false analysis, take care to avoid touching the skin with the catheter.

8. Blood/Body Substance Isolation

8.1 Background to Blood/Body Substance Isolation

The emergence of the blood-borne human immunodeficiency virus (HIV) and the associated acquired immune deficiency syndrome (AIDs) pandemic highlighted the risk to health care workers of acquiring blood borne viruses through contact with blood and other body substances. It has been acknowledged that, because individuals infected with blood borne viruses cannot be readily identified, precautions to minimise the risk of transmission should be used in the care of all patients. The concept became known as **"Universal Blood and Body Fluid Precautions"**. The recommendations were first published by the Centres for Disease Control, Atlanta, in 1985.

These precautions applied to blood, blood products and the following body substances:

- Semen
- Vaginal fluid/Cerebrospinal fluid
- Pleural/Pericardial/Peritoneal fluid
- Saliva in association with Dentistry/Oral procedures
- Synovial fluid
- Amniotic fluid

These precautions applied to the following, if contaminated with visible blood:

- Urine
- Faeces
- Vomit
- Nasal secretions
- Sweat
- Tears

These precautions were reviewed in 1987 – adopting an approach whereby all human blood and all body substances are treated as if they are known to be infectious for HIV/Hepatitis B or C/other blood borne pathogens. This approach was described as **"Body Substance Isolation" (BSI) (Ward, Wilson, Taylor, Glynn, 1997).**

Again reviewed in 1996 by CDC (HICPAC) – Update by Hospital Infection Control Practices Advisory Committee and described **as Standard Precautions Garner Julie S (1996) (See Section 7.1).**

8.2 Standard Precautions

All health care workers should follow these guidelines at all times irrespective of the infectious status of the patient.

General Principles

- Prevent blood/body substance contact with non-intact skin and mucous membranes.

- Minimise blood/body substance contact with intact skin.

- Prevent sharp injuries.

- Immunise staff against Hepatitis B.

- Prevent contaminated items being used between patients.

- Before performing a procedure the risk of exposure should be assessed and protective clothing selected accordingly.

- Gloves should be worn for touching blood/body substances, mucous membrane, e.g. vaginal/dental examinations and non-intact skin e.g. wounds. Gloves should be changed after contact with each patient and at the end of each procedure. Hands must be washed before and after wearing gloves.

- Plastic aprons should be worn if contamination of clothing with blood/body substance is anticipated. They should be used for one procedure and then discarded.

- Water-repellent gowns should be worn during procedures likely to cause extensive splashing onto the body e.g. major surgical procedures, endoscopy etc. Eye protection (or face visors) should be worn during procedures likely to cause splashing of body substances into the eyes, mouth or nose e.g. major surgical procedures, scrubbing instruments etc. They should be available during procedures where splashing is possible but unlikely.

- Additional protective clothing, such as boots and headgear may be necessary for major surgical procedures.

- Mouthpieces, resuscitation bags or other ventilation devices should be available in all clinical areas (in the resuscitation trolley) for when the need to resuscitate arises.

- Hands should be washed immediately and thoroughly before/after wearing gloves. Cuts and abrasions in any area of exposed skin should be covered with a secure, waterproof plaster. Health care workers with exudative lesions/weeping, dermatitis should seek advice from Occupational Health. They should avoid all direct patient care, food handling or handling of patient care equipment until the condition resolves.

- **Management of Sharps** – Extreme care must be exercised during the use and disposal of sharps (See Policies for Safe Use and Disposal of Sharps/Needle Stick Injury/Hepatitis B. Vaccination Policy).

- **Spillage of Blood/Body Substances** – Spillage of blood/body substances (with the exception of urine) should be dealt with immediately (using gloves) by covering with hypochlorite granules e.g. Presept Granules.

  Cover with disposable paper towels and leave for a few minutes – the debris treated as clinical waste (yellow bag); wash the area with detergent and water.

- **Spillage of Urine** – Unfortunately, acidic solutions such as urine may react with the hypochlorite and cause release of chlorine vapour. Hypochlorite granules should **NOT**, therefore, be used on large spills of urine.

  - Put on disposable gloves and plastic apron if very large spill.
  - Soak up spill with disposable paper towels.
  - Discard into a yellow refuse bag.
  - Wash area with detergent and water.
  - Hypochlorite solution may be used afterwards.
  - Disposal of Waste Material – Waste material contaminated with blood/body substances should be discarded into yellow clinical waste bags. Excreta can be safely discarded into the sewage system. Linen should be placed in an “Alginate” bag (See Guidelines for Disposal of Waste for details).

Decontamination of Equipment

Before decontamination, all equipment should be thoroughly cleaned with detergent and water. Gloves should be worn and depending on the extent of contamination, a plastic apron may be worn. Proper cleaning is essential to remove blood/body substances, which may otherwise adhere to the surface and enable micro-organisms to survive the decontamination process.

See: Cleaning/Disinfection Guidelines

Local Policies are available for specialist Departments, e.g. Theatre, Endoscopy Unit, Urology Unit, Outpatient Department etc., on the Departments. (Ward, Wilson, Taylor, Glynn; 1997)

Note: Before returning equipment, on loan from other Departments/other Hospitals, rental equipment/equipment for repairs etc., it **MUST** be properly cleaned and where necessary disinfected (as per Hospital Policy).

In some instances it may be necessary to furnish an **Equipment - Cleaning/Decontamination Certificate** available to print from the Infection Control folder on the H Drive. If any problems are encountered contact Infection Control.

9. Isolation

9.1 Introduction

The spread of infection to patients in hospital can be controlled by physical protection (isolation); the extent of this control varies with the methods used (Bagshaw et al, 1978). Isolation becomes necessary when a person presents an infection risk to others and vice versa. The term isolation is generally used in the sense of segregation of the patient in a single room, but it must also include other methods by which the patient is protected, including barrier nursing in an open ward or cohort nursing in a side ward or open ward, as a single room may not always be available. Single room isolation is the preferred method. Depending on the causative organism, isolation does not always mean isolating the whole person e.g. a bacteria impermeable dressing may isolate a wound, (Ayliffe, Collins, Taylor, 1982).

Risk Assessment

A well thought out plan finds the balance. The first stage is to diagnose the infection, recognise the casual organism and determine its route of spread. With this information, it is possible to decide on the most appropriate form of isolation. It is important that patients with known/suspected “high risk” infection are isolated at the time of admission. If a separate room is not available seek advice from the Infection Control Team. Appropriate infection precautions must commence on clinical suspicion; laboratory confirmation is not necessary. The extent of this control varies with the methods used, (Damani, N.N., 1997).

The consequent restrictions on freedom of movement and ability to communicate can be disturbing for patients in isolation. They can experience sensory deprivation, (Moore, 1991). To plan and deliver holistic care in these circumstances, health care workers need to understand what the experience means to each patient and use that awareness to deliver sensitive, appropriate and effective care (Oldham T, 1998).

NB: It is important to emphasize that isolation precautions can protect only if they are used consistently and appropriately. In some patients e.g. those with extensive burns, combined Transmission Based and Protective is desirable to protect patients already infected with one pathogen against infection with other pathogens (Ayliffe, Lowbury, Geddes, Williams, 1993).

Dedicate equipment to those in isolation i.e. stethoscope, sphygmomonoter etc.

NB: **Only** mercury thermometers should be used for patients in isolation, particularly Neutropenia and "high risk" infection (stock in Infection Control)

9.2 Guidelines for Isolation in the Mercy University Hospital.

NB: **Isolation of patients with infection – Negative Pressure Room**
YELLOW COLOUR CODING SYSTEM – cloths, scrub, buckets etc.
Isolation of neutropenic patients – Positive Pressure Room
GREEN COLOUR CODING SYSTEM – cloths, scrub, buckets etc.

Ideally a room having positive air pressure should be kept unoccupied but, as this is not always possible it must be ensured that

Two Tier System of Precautions

Standard precautions for all patients (See Section 7.1)

In addition to:

Transmission Based Precautions (for infected patients)

↓ **Airborne** ↓ **Droplet** ↓ **Contact**

The revised guideline contains two tiers of precautions. The first, "Standard Precautions", synthesizes the major features of Universal Precautions and Body Substance Isolation, into a single set of precautions to be used for the care of all patients in hospital regardless of their presumed infection status. In many instances, the risk of nosocomial transmission of infection may be highest before a definite diagnosis can be made and before precautions based on that diagnosis can be implemented. The routine use of Standard Precautions for all patients should reduce greatly the risk for conditions other than those requiring Airborne, Droplet or Contact Precautions.

In the second tier, are precautions designed only for the care of specified patients. These additional "Transmission Based Precautions" are used for patients known or suspected of being infected or colonized with epidemiologically important pathogens that can be transmitted by airborne or droplet transmission or by contact with dry skin or contaminated surfaces.

Transmission Based Precautions are based on routes of transmission for a smaller number of specified patients known or suspected to be infected or colonized with highly transmissible or epidemiologically important pathogens. These Transmission Based Precautions, designed to reduce the risk of Airborne, Droplet and Contact transmission in hospital are to be used in conjunction with Standard Precautions (CDC Guidelines, 1996)

9.3 Rationale for Transmission Based Precautions

Transmission of infection within a hospital requires three elements

(A) A source of infecting organisms
(B) A susceptible host
(C) A means of transmitting the organisms

Airborne Transmission

It occurs by dissemination of either airborne droplet nuclei of evaporated droplets containing micro-organisms that remain suspended in the air for long periods of time or dust particles containing the infectious agent. Micro-organisms carried in this manner can be dispersed widely by air currents and may become inhaled by a susceptible host within the same room or over a longer distance from the source patient, depending on the environmental factors. Air handling and ventilation are required – Negative Pressure.

Droplet Transmission

Theoretically a form of contact transmission. However, the mechanism of transfer of the organism is quite distinct from either direct or indirect contact transmission. Droplets are generated from the patient primarily during coughing, sneezing and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission occurs when droplets containing micro-organisms generated from the infected person are propelled a short distance through the air and deposited on the host's conjunctivae, nasal mucosa or mouth. Because droplets do not remain suspended in the air, special air handling and ventilation are not required.

Contact Transmission

(a) Direct Contact Transmission

This involves a direct body surface – to – body surface contact and physical transfer of organisms between a susceptible host and an infected or colonized patient, i.e. on turning a patient, bathing a patient, other patient care activities requiring direct personal contact. Direct contact can also occur between two patients, with one serving as the source and the other the susceptible host.

(b) Indirect Contact Transmission

Involves contact of susceptible host with a contaminated object, usually gloves that are not changed between patients etc

9.4 Synopsis of Types of Precautions and Patients Requiring the Precautions

Note: These precautions are in addition to Standard Precautions (See Section 7.1 for Standard Precautions)

Airborne

- Measles
- Varicella (including Zoster)
- Tuberculosis
- MRSA
- Multi Drug Resistant TB
- SARS
- Influenza Pandemic
- **Viral Haemorrhagic Fevers**
- Ebola
- Lassa
- Marburg etc.

NB: These demand very strict isolation

Droplet

- Invasive Haemophilus Influenza Type B
- Invasive Neisseria Meningitis
- **Other Bacterial Respiratory Infections:**

- Diptheria
- Pertussis
- Streprococcal Pharyngitis
- Pneumonia or Scarlet Fever in Infants & Young children

- **Other Viral Infections:**

- Adenovirus
- Small Round Viruses

Contact

- Multin Drug Resistant Gram Negatives
- Clostridium difficile
- E.Coli 0157:h7
- Shigela
- Hepatitis A
- Rota Virus
- MRSA
- **Highly Contagious Skin Infections:**

- Diptheria (cutaneous)
- Herpes Zoster
-Impetigo
-Major non-contained abscesses, cellulites or decubiti

- Influenza
- Mumps
- Parovirus
- Rubella

-Pediculosis
-Scabies
-Staphlococcal furunculosis in Infants & Young Children
-Viral Haemorrhagic Conjunctivitis

(A) Airborne Precautions
(in addition to Standard Precautions)

Patient Placement

Single Room - Negative air pressure. Keep the door closed

Respiratory Protection

Heavy duty N95 or N97 masks for Open Pulmonary Tuberculosis or suspected Pulmonary Tuberculosis, Green Surgical Mask for Meningococcal or suspected Meningococcal Meningitis. Non immune or pregnant staff should not enter the room of patients known or suspected to have Rubella or varicella. Persons with immunity to varicella and rubella do not require masks.

Patient Transport

Limit movement/transport of patient from the room to essential purposes only. If transport/movement is necessary, minimize patient dispersal of organisms.

(B) Droplet Precautions
(in addition to Standard Precautions)

Patient Placement

Single Room. Special air handling/ventilation not necessary. Only cohort with patient/patients who are infected with the same organism.

Mask

Wear a mask when working within three feet of the patient for Meningitis – See Disease Specific Sections for other necessities or on the advice of Infection Control.

Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary minimize patient dispersal of droplets.

Patient Care Equipment

Where possible, dedicate the use of patient care equipment to a single patient. Otherwise, ensure that all items are adequately cleaned/disinfected.

(C) Contact Precautions
(in addition to Standard Precautions)

In addition to Standard Precautions, use contact precautions for specified patients known or suspected to be infected or colonized with epidemiologically important micro-organisms that can be transmitted by direct contat with the patient or patient care items.

Patient Placement

Single room preferably. Cohort only with patients who are affected by the same organism.

Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. Where necessary ensure that adequate precautions are taken to minimize the risk of transmission to others and contamination of environmental surfaces or equipment.

Patient Care Equipment

Where possible dedicate the use of patient care equipment to a single patient. Otherwise, ensure that all items are adequately cleaned/disinfected before use for another patient.

The following are general Isolation Guidelines and MUST always be incorporated into the Airborne, Droplet or Contact Precautions forementioned.

Where possible Infection Control should be notified when transmission based precautions are instituted.

1. **Staff** – Always strive to select staff that are immune to the patient's infection

2. **Location** – Place the relevant colour coded sign on the outside of the door (see Section 8.4 below) indicating restricted entry to the room. Door should be kept closed.

3. **Charts** – Patients charts should be kept outside of the room as paper cannot be decontaminated.

4. **Visitors** – Visitors must report to Sister/Nurse in charge before entering the room and instructions given as to any precautions that should be taken. Visitors should be kept to a minimum and visiting for children (except in certain circumstances) is not allowed/recommended (see Visiting Policy)

5. **Equipment** – Only essential equipment should be brought into the room and the equipment used should be easy to decontaminate. Mercury thermometer is recommended.

6. **Protective Clothing**
   - Ensure an adequate supply of protective clothing (gloves, aprons, masks) whatever is necessary for the particular category is available **(outside)** the door.
   - Eensure that the alcohol gel is replaced as necessary and encourage visitors to use the gel on entering/leaving the area.
   - Ensure the yellow bag is available **(inside)** the room for disposal of gloves, aprons etc. before leaving the room.

7. **Linen** – to be placed in "Alginate" bags and securely tied before leaving the room. Ideally arrange for immediate transport to laundry.

8. **Crockery/Cutlery** – Machine wash with rinse cycle above 80 degrees centigrade and allow to dry thoroughly. For patients with smear positive pulmonary tuberculosis/Hepatitis B or HIV, who are bleeding from the mouth or respiratory tract, use disposable crockery.

9. **Environmental Cleaning** – daily/terminal
   (see Hospital Cleaning/Disinfection Protocols – Section 12)- **Yellow Colour Coding**

NOTE

<u>DO NOT</u> overstock an isolation room/area with i.e. nutrient drinks, nappies, dressings, disinfectant, refuse bags etc. (only what is required at the time). This leads to considerable wastage, as everything within the infected zone has to be discarded at terminal cleaning of the room.

9.5 Protective Isolation

Indications

Following diseases, lesions or therapy associated with an increased susceptibility to infection and in which patients need special protection from the hospital environment. Isolation requirements vary with the degree of immunodeficiency, but to date are ill defined by the literature (Ayliffe et al, 2000) following chemotherapy, patients, especially Leukaemic patients ban develop neutropenia, other immunodeficient states, severe dermatitis, burns etc.

Precautions for Protective Isolation

Where possible Infection Control should be notified when Isolation is instituted. Also, seek the advice of the Haematologist/Oncologist.

Location

- **Single room** with positive air pressure, **GREEN SIGN** on the door. The room and equipment must be very thoroughly cleaned before the patient enters.

- **Staff** with infection, skin lesions, eczema etc. or those having had recent vaccinations or exposed to a communicable disease should not attend to the patient. Nurses attending on patients with infection should not care for those in Protective Isolation.

- **Visitors** must report to the Ward Sister/Nurse in charge before entering the room. With regard to visitors and infection see immediately above.

Protective Clothing

- **Gloves** – Proper hand washing/gloves for physical contact with patient. Sterile gloves must be worn for any manipulation of IV Lines, catheter care, dressings etc.

- **Aprons** – Recommended for staff members in contact with patient.

- **Masks** – According to some literature masks are rarely required, the emphasis is on proper hand washing and non-infectious staff attending to the patient but the Mercy University Hospital's policy is to wear a mask – NOT a white paper mask – a surgical mask.

- **Equipment** – It may be necessary to disinfect some items of equipment before use. The Sphymomanometer, stethoscope etc. must be disinfected and dedicated to the patient. Disinfect the thermometer each time before/after use.

- **Flora** - No plants/cut flowers should be allowed in the room as they may harbour bacteria/insects.

- **Refuse** – No specific precautions but do not let accumulate in the room.

- **Crockery** – No specific precautions – machine wash.

- **Food** – Only cooked and processed foods should be given to profoundly immunodeficient patients i.e. no salads or raw food, which may be contaminated with gram negative bacilli. If in doubt, contact the dietician.

  NB: Extreme hygienic precautions should be exercised if giving ice to the patient – single sachet ice cubes are recommended and in the case of severe immunodeficiency, sterile water is recommended.

- **Interdepartmental Visits** – Ideally should be avoided. If necessary it should be arranged that the patient is seen immediately to avoid contact with other patients who may have infectious condition.

Environmental Cleaning – daily/terminal – Green Colour Coding - See Hospital Cleaning Protocols

9.6 Protective Isolation in St. Anne's Leukaemia Unit

Rationale

Infection is a major cause of death in children whose immune system is compromised by leukaemia, cancer, other blood disorders and its treatment. These children are vulnerable to infection from –

- Their own endogenous micro-organisms.
- Opportunistic micro-organisms.
- A much small dose of micro-organisms than would be a problem for a non immunocompromised child. They generally are at increased risk from bacterial, fungal, parasitic and viral infections.

It is not always possible to prevent infection from the patient's own body flora but, certain measures can be used to eliminate or minimise the risk from endogenous organisms (Wilson, J., 2002, Infection Control in Clinical Practice). These measures will be incorporated in the following Guidelines.

See Infection Control Manual – Section 8 for full details of the revised Mercy University Hospital Isolation Policy, as adopted from the CDC Infection Control Practices Advisory Committee, (Garner, J.S., 1996). These Guidelines however, do not fully clarify Protective Isolation for the Leukaemia Unit.

NB: It must be remembered that the Leukaemia Unit is actually individual Protective Isolation within an Isolation Unit.

Entrance to the Leukaemia Unit

- A **GREEN SIGN** denoting Protective Isolation (as per MUH Policy) should be placed on the outside of the entrance doors.
- A door bell should be fitted on the outside to facilitate handing over of supplies/meal trays/monitoring of visitors to the children etc. (see section on visiting).
- The entrance doors should remain closed at all times
- In as far as possible only dedicated medical/nursing parents/guardians should enter the unit.
- A wash hand basin should be positioned immediately inside the entrance doors.
- Treatment Room – this room is not be used for any therapeutic or diagnostic clinical testing of patients from the general side and children

from the general side **MUST** go to the operating theatre for General Anaesthesia.

- In the event of an outbreak of infection in the general paediatric unit leukaemic children should be admitted via Private Corridor 2 and via the rear entrance to the Leukaemic Unit. This should be based on risk assessment and if necessary following consultation with the Haematologist/Microbiologist or Infection Control.

NB: Strictly No through traffic

Accommodation

Isolation requirements vary with the degree of immunodeficiency but this is still ill defined in the literature (CDC Guidelines, 1996). Most infections acquired by immunosuppressed patients are endogenous and the value of single room isolation is often doubtful but cross infection can be a hazard. These patients generally are at increased risk for bacterial, fungal, parasitic and viral infections (as described above) from endogenous and exogenous sources.

- Each child should be individually nursed in their own room with protective isolation precautions in place and the door closed. Ideally in a self contained unit (with shower and toilet) and a positive air ventilation system (8-10 changes per hour is advised) Ayliffe et al, 1993.

- **NB:** Where available, and on a regular basis, the proper functioning of the Mechanical Air Filtration System must be checked/cleaned, and recorded by the Maintenance Engineering Department. In addition, a mobile Hepa Filter Unit should be dedicated/not removed from the area. This must be cleaned as part of the environmental equipment and filters changed on a regular basis (by Maintenance).

- These children should remain confined to the area (with the exception of necessary visits to i.e. the X-Ray Department or the Operating Theatre). They should, in as far as possible, remain in their rooms and should not at any time visit the “outside” play room.

- On entering and leaving hand washing is a **MUST**.

NB: Remember to open the windows throughout when any rooms/areas are vacant.

Staffing

- The unit should have its own compliment of haematology/oncology skilled staff

- These staff should be dedicated to the area and should not be re-allocated during a quiet period/s, to the general paediatric unit/other units.

- While not advisable, occasionally it may be necessary to assign a staff member from the general Paediatric Section (i.e. in the event of an increased work load) to the Leukaemia Unit. **NB:** It is important to always have some staff member on hand who has no communication with known infection on the ward.

- Staff must ensure that they maintain all of their own necessary stock/supplies and should not have to borrow from the general paediatric ward/other units and vice versa

- Staff with any serious infections, serious skin lesions etc. or those having had recent vaccinations with live organisms i.e. BCG or Polio Vaccine, or those who may be incubating an infectious disease should not attend to these patients (if in doubt, contact Infection Control).

- Staff attending to patients with infection in the unit itself should refrain from attending to the other non-infected patients in so far as possible. Again, if in doubt contact Infection Control.

NB: NO staff meals/beverages to taken in the Leukaemia Unit. This applies to both day/night shifts.

Visitors

- Ideally, strictly for parents or guardians – others, i.e. siblings, only on prior consultation with staff.

- **ONLY** necessary staff (as already outlined).

- With regard to visitors having infections/feeling unwell – the same restrictions as for staff (above) apply.

- All persons entering the unit **MUST** wash their hands and depending on the risk assessment, the nurse will advise re any other precautions to be taken i.e. the wearing of gloves, masks or aprons. These should be available immediately inside the door and it is also recommended to have an alcohol wipe, hand gel and/or Promethic XL Cream in the vicinity for both staff and visitors.

Hand Hygiene

- Hand washing is regarded as one of the most important factors in preventing spread of infection. Consultants, Nurse Managers and Ward Managers must insist on good hand washing procedures.

- Routine hand washing with soap and water will render the hands socially clean but in “high” risk areas, including Leukaemia Units, an antiseptic hand wash preparation is also necessary – Hibiscrub.

- The use of **Prometic XL Cream** is also encouraged. It is recommended that it is applied 3-4 times during the day or when rapid disinfection is necessary. Remember it does not replace hand washing but has quite a good inhibitory effect on MRSA etc.

- Even when gloves are worn remember that hand washing is mandatory – before and after.

- Advise hand cleansing by the patient, before eating, after using the bathroom, handling equipment etc.

NB: Alcohol Gel (i.e. Spirigel) to be placed at each Individual Bed Side /Door

Protective Wear

Gloves/Aprons/Gowns/Masks

High standards of hygiene to prevent contact spread are important.

Gloves are indicated for:

- Contact/anticipated contact with blood/body substance (Standard Precautions).
- If the patient has an infection.
- If the patient has a very low neutrophil count.
- When administering/handling chemotherapy drugs.
- Sterile gloves for aseptic procedures.
- Sterile gloves for any manipulation of Central Venous Lines (both in the hospital and in the home setting).

Plastic Aprons are indicated for:

- Contact/anticipated contact with blood/body substance.
- Close contact with the neutropenic patient.
- Visitors having close contact with the patient.
- Use by cleaning staff.

Masks
(still ill - defined in the literature – CDC Guidelines, 1996)

- **Not routinely necessary**, only for those attending to/visiting the patient if they have a sore throat, cough etc. In as far as possible, such individuals should refrain from entering the room.

- Inter departmental visits, in as far as possible, should be avoided, but if necessary, it should be pre-arranged that the patient is seen immediately, to avoid contact with other patients, i.e. a visit to the X-Ray Department. Ideally, and where possible, first on the days list. In such instances an N95 Mask should be worn by the patient (due to presence of patients in large numbers in these areas.

- N95 masks for staff handling/administering chemotherapy drugs.

- No need for patients to wear masks either on their way in/out of the hospital.

Equipment

- Immediately before/on admission of the patient, ensure that the room is spotlessly clean and that the bed frame/bed table, locker or any other equipment is wiped over with 1:80 Milton.
- Dedicate equipment, i.e. sphygmomanometer, stethoscope, thermometer etc. These items must be disinfected with an alcohol wipe before use.

- Daily damp cleaning of equipment in the room, including IV stands, IV pumps, etc.

Food/Food Hygiene

- Only cooked and processed food should be given to immunosuppressed patients. Uncooked food, particularly salads, may be contaminated with Gram-negative bacilli or listeria and also soft cheeses.

- If food from outside is brought in by parents, it is vital that this food is handled properly and **NEVER** to be reused. Avoid re-heated food at all times.

- Ensure that the kitchen work tops, fridge, microwave etc. are clean and wiped over with Milton 1:80.

NB: Avoid giving ice to leukaemia patients. If it is absolutely necessary, use only cubes made from sterile water, i.e. boiled water, in separate ice bag sachets.

Toys/Play Area

- Leukaemic children should not have access to the play area attached to the general ward.

- In addition (on their own unit) plastic toys are the type recommended, in preference to soft toys. Plastic toys can be easily washed and decontaminated by wiping over with Milton 1:80 (for general disinfection) 1:10 (for blood spillage or high risk infection). Remember to rinse off.

NB: It may be advisable when purchasing toys that they are made of heat tolerant material that withstand machine washing.

Cleaning

The Leukaemia Unit requires extraordinary cleaning measures

- Ideally, dedicated cleaning staff who are familiar with the requirements for the specific area.
- Dedicated equipment – hoover, washing equipment, cleaning agents etc.

- These items must not be moved/stored outside of the unit.

- It is the responsibility of the unit staff to ensure that the cleaners are aware of any special requirements, i.e. if a patient has infection then that patients room/area must be last on the days cleaning list.

- A clean supply of cloths/disposable cloths, scrub heads, buckets etc. (as per colour coding system) should be available for each cleaning session. Heavy duty cloths must be removed from the area after each schedule and machine washed.

- As rooms/areas become vacant, a thorough clean of those areas should be arranged/undertaken.

NB: Cleaning of televisions, videos, window blinds etc. – these screens harbour a lot of dust and tend to attract bacteria.

Refuse

- ❖ No special precautions (see Waste Management Guidelines/Infection Control Manual) for disposal of refuse and linen but it must never accumulate in the unit.

Crockery

- ❖ No special requirements - Wash in the automatic dish washer.

NB: No Plants/Cut flowers should be allowed in the unit as they may harbour bacteria/insects

Construction/Demolition/Renovations in or near the Leukaemia Unit

Nosocomial outbreaks of invasive Aspergillosis have become a well recognised complication of construction/demolition/renovation activities in or near hospital wards accommodating immunocompromised patients. Nosocomial Asperigillosis can cause sever systemic infection in these patients (Manuel & Kibbler, 1998). Outbreaks of infection in susceptible patients are often associated with high spore levels in the air derived from environmental sources, i.e. building sites, rather than person to person spread, (Humphries et al, 1991).

- ❖ Where construction/demolition/renovation projects are planned in Leukaemia Units, a multi-disciplinary team comprising of Hospital Administrators, Nursing Directors, Technical Services, Designers, Infection Control Staff, Relevant Clinicians, Medical & Nursing staff should be established to develop, monitor the implementation of risk management and Infection Control Guidelines.

- ❖ Clear lines of communication, among all personnel involved, must be established at the planning phase. The protection of vulnerable patients will depend on the acceptance and effectiveness of implementing Infection Control measures, which will require high level of commitment, understanding and co-operation from all personnel involved in the construction project.

Construction/Demolition/Renovation activities in close proximity to the hospital

- It should be noticed that similar risks are present in the context of large scale construction/demolition/renovation activities external to but proximal to the hospital.

- Hospital Managers should ensure that they are aware of such activities i.e. by liaising with the Planning Authorities and receive notification of planning decisions in the locality and institute precautionary measures to protect a risk patients where appropriate, based on the findings of the risk assessment (NDSC Guidelines for the Prevention of Nosocomial Aspergillosis during construction/renovation activities).

Screening for MRSA etc.

- Monthly screening of staff (all grades).
- Screening of holiday locum staff or any new staff, prior to commencing duty (Infection Control to be timely notified).
- Screening of staff post presence of MRSA on the unit.
- Screening of patients on the advice of the Microbiologist.
- Infection Control to carry out the procedure.

Liaison Staff & Patients own Home

Increasingly, patients with leukaemia requiring specialist treatment and invasive devices are being cared for in their own homes. Preparation will have started whilst still in hospital and continuing education by the Oncology Liaison Nurse

- The organisms found in the home may be different from and not as virulent as those in hospitals, but clinical practices need to be underpinned by basic hygiene and infection control principles.

- Family members and anyone associated with the care of the patient need a basic knowledge of safe practice.
- A basic understanding of routes of transmission of the micro-organisms likely to be met and the methods of care of medical devices and procedures to prevent their spread must remain the cornerstone of practice (Horton et al, 2002).

- The use of alcohol gel and/or Prometic XL Cream are encouraged for use in the home both by the patient, family and the nurse.

- The patient/family should be advised regarding the risk of Pasteurella attached to “licking” of line by dogs/cats.

Weekly Return Clinics

These clinics/any other return visits for bloods etc. ideally should be dealt with in an out patients setting as the unit is not large enough to accommodate both in/out patient children and parents.

- In an out patient setting, it is important that the patients do not pass through the general waiting area or sit in the general waiting area – a separate entrance is advised.

- These rooms/areas should have some form of clean air.

- Priority should be given to these children to be accommodated for the first clinic of the day.

For further Guidelines on Cleaning/Disinfection, Isolation etc. see Section 8 and Section 9 and 12 of this Manual.

For detailed Guidelines for care of Central Venous Lines etc. refer to Guidelines for Administration of Medical Preparations.
Strict adherence to the principles of asepsis, as outlined in the Guidelines, must be adhered to for any intervention of the Central Line in the unit or in the home setting.

9.7 Strict Isolation

Strict Isolation is stringent, high security isolation (in a single room/negative pressure/ante room with wash hand basin and en suite toilet facilities). It is used for patients with highly transmissible and dangerous infections, rarely encountered in this area. However, due to the increase in foreign travel etc., it could be encountered. Ideally, these patients should be transferred to a Regional Infectious Diseases Unit in an ambulance with special precautions. Arrangements for such transfers should be made under the direct supervision of the Microbiologist. However, as there is a lack of such facilities in this country it may be necessary to deal with such situations in this hospital. (Refer to Mercy University Hospital Guidelines for dealing with SARS – these guidelines form a good basis for dealing with any “high” risk infection.

Location

- Single Room (purpose built) with **RED card** on the door.

Indications for Strict Isolation

- Lassa Fever
- Marburg
- Ebola

- Plague, Anthrax
- Rabies
- Sars
- Influenza Pandemic
- Othe deemed very “high” risk.

Precautions for Strict Isolation

Infection Control **MUST** be notified and the following precautions (in addition to those already outlined) applied whilst awaiting transfer to Isolation Unit/Designated Hospital.

- **Single Room** under negative pressure is essential. **RED SIGN** on the door, which must be strictly closed.

- **Staff** – Restrict the number of staff having access to the patient and the Department Head must maintain a list of all staff in contact with the patient in strict isolation.

- **Protective Clothing** – Only disposable non-permeable, long sleeved gowns must be worn and gloves must cover the cuffs of the gown. Masks of high filtration (N95) which covers the nose and mouth must be worn.

- **Equipment** – Use disposable equipment wherever possible. Non disposable equipment must be kept inside the room and do not circulate for communal use without consulting the Microbiologist.

- **Linen** – Use disposable linen if available. Non disposable linen should be autoclaved before processing in the laundry. Otherwise destroy.

- **Laboratory Specimens** – In addition to placing specimens in a “bio hazard” bag, the laboratory MUST be notified of the danger. Specimens MUST be transported in a closed, robust container (available from Bacteriology, with necessary equipment etc.)

Last Offices

- See Guidelines for Laying out of “High Risk” bodies (Section 11).

See also –

- **Hospital Cleaning/Disinfection Protocols** (Section 12).

- **Hospital Detailed Guidelines for SARS** – See Mercy University Hospital **Major Incident Plan**, Pages 62-81. These Guidelines may be referred to for any “very high risk” situation. They are particularly specific to any “high risk” situation in the Emergency Department.

9.8 Isolation Methods for Individual Diseases

Note:
Standard Precautions must be taken with all patients and isolation when needed is always in addition to Standard Precautions.

Ideally "High Risk" infections requiring strict isolation (Red Sign) should be transferred directly to an Infectious Disease Hospital/Centre (if available).

This section lists infections in alphabetical order, the category of isolation and special nursing procedures. Some infections may not require isolation e.g. Leptospirosis, but require excretion precautions (urine). Examples are included in this table.

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
Acquired Immune Deficiency Syndrome (AIDS)	Standard Precautions **Infectious Material** – Blood/Body Substances	Isolation not necessary – only if there is profuse bleeding – then **Contact Isolation** YELLOW SIGN	**ONLY** while the profuse bleeding persists
Anthrax Cutaneous	Standard Precautions	**Contact Isolation**	Isolation for duration of hospitalisation (until off antibiotics & cultures negative) Laboratory must be informed
(a) Pulmonary or Systematic	Standard Precautions **Infectious Material** - Spores entering abrasions on skin Lung inhalation of spores	**Strict Airborne & Contact Isolation** RED SIGN	The Laboratory MUST be notified Isolate for length of illness/completion of drug therapy

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
Aspergillus	Standard Precautions	Isolation not necessary	Not transmitted from person to person. Fungi causing opportunistic infections in immuno-compromised. It occurs widely in the environment – particularly during renovations.
Brucellosis	Standard Precautions	Isolation not required.	
Campylobacter	Standard Precautions **Infectious Material** - Diarrhoea	Isolation not necessary.	Not usually spread from person to person. Never drink from milk bottles whose corks have been "picked" by birds.
Candida (Moniliasis Thrush)	Standard Precautions	Isolation not usually necessary. If necessary i.e. neo natal and leukaemia units – **Contact Isolation Precautions**. **YELLOW SIGN**	Isolate for duration of illness. Spread is rare, except in high dependency units, ICU, Leukaemia, Neo Natal Units etc. Careful use of antibiotics should be considered.
Chicken Pox (Varicella Zoster Virus)	Discharge home if clinically fit. Standard Precautions. **Infectious Material** – Respiratory droplets & vesicle fluid.	**Droplet & Contact Isolation Precautions.** **YELLOW SIGN**	Infectivity from 7 days/ until vesicles are dry/crusted. Non-immune staff, particularly if pregnant, should refrain from attending to these patients. **NB** All staff are encouraged to know their immune status.
Cold Sore Herpes (Simplex Virus)	Standard Precautions	Isolation not necessary but avoid	Encourage good basic hygiene.

	Infectious Material – Saliva, Vesicles	contact with the infectious material.	
DISEASE	**PRECAUTIONS INFECTIOUS MATERIALS**	**CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)**	**PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS**
Cholera	**Infectious Material** – Stools	**Strict Contact Isolation** **RED SIGN**	Length of illness
Clostridium Difficile (Spore forming)	Standard Precautions. **Infectious Material** – Diarrhoea	Single Rooms or Cohort Nursing in one room/area **YELLOW SIGN**	(See Section 9.1 for further details) Isolation while diarrhoea persists. NB: Continue flagyl for 4-5 days after diarrhoea has stopped.
Conjunctivitis	Standard Precautions **Infectious Material** – Eyes/ Eye Secretions	Isolation not necessary.	
Crytosporidosis	Standard Precautions	Isolation not necessary	Encourage good hygiene. Investigate source. Exclude food handlers.
Cytomegalovirus	Standard Precautions. Pregnant women should be very careful to avoid contact with patients' urine.	Isolation not necessary.	
Diptheria	Standard Precautions. **Infectious Material** – Nasal/oral secretions. Usually spread by aerosol.	**Strict Contact & Airborne Isolation** **RED SIGN**	Isolation for duration of hospital stay. Focus of infection may be the throat, nasopharynx or skin.
Dysentary (Shigellala species)	Standard Precautions **Infectious Material** – Stools	**Contact Isolation** **YELLOW SIGN**	Isolate until 3 consecutive negative stools after acute phase & free of symptoms with normal stool. Spread faecal/oral

route (direct/indirect)

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
Enteric Parasites e.g. Ascaris, Hookworm, Tapeworm, Threadworm	Standard Precautions **Infectious Material** - Stools	No isolation needed.	Extreme care with general/hand hygiene.
Enteric Fever Typhoid Paratyphoid	Standard Precautions	**Strict Contact Isolation** **RED SIGN**	
ESBL's (Extended Spectrum Beta Lactams) Gram negatives i.e. Klebsiella Serratia Proteus Enterobacter Pseudomonas aerogenosa	Standard Precautions	**Contact Isolation** **YELLOW SIGN**	Isolation until clear Detailed cleaning of sinks, door handles, general environment etc. by Contract Cleaners and, in between, clean by Ward Staff. Recommend – Alcohol Gel Prometic XL at bed side/ entry sink etc.
<u>Fungal Infection</u> Systemic i.e. Cryptococcosis Histoplasmosis	Standard Precautions	Isolation not necessary See Section on Ringworm	
German Measles (Rubella)	Standard Precautions **Infectious Material** Droplets Urine of infants and congenital infection.	**Droplet & Contact Isolation.** **YELLOW SIGN**	Discharge patient home if clinical condition permits. Exclude non immune staff/visitors of child bearing age or those pregnant.
Gonococcal - Opthalmia Neonatorum - Genital Infection	Standard Precautions **Infectious Material** – Genital tract membranes	**Contact Isolation – single room** May be nursed in open ward.	Isolate while there is still discharge

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
Hepatitis - Types			
Type A	Standard Precautions. **Infectious Material** – Faeces Faecael/oral spread & food water cont.	**Contact Isolation** **YELLOW SIGN**	Considered infectious 1/52 prior to onset of jaundice & usually for a few days afterwards.
Type B	Standard Precautions (See Aids/Hepatitis B Guidelines)	Isolation not necessary unless there is very profuse bleeding/ other complications which may exist then – **YELLOW SIGN**	
Type C	As Type B	As Type B	
Type D	As Type B	As Type B	
HIV (See AIDs)	Standard Precautions Blood/Body Substance Isolation	Do not require isolation unless there is very profuse bleeding then – **YELLOW SIGN** Single Room is required for immunosuppressed patients.	Isolation only for duration of bleeding (if profuse). **NB:** Staff who have cold sores should not attend to immuno-s patients.
Herpes Simplex	Standard Precautions **Infectious Material** – Exudate, Saliva, Lesions.	**Contact Isolation** **YELLOW SIGN**	Isolate for duration.
Herpes Zoster	Standard Precautions	**Contact Isolation** **YELLOW SIGN**	Isolated during the length of the acute phase – until vesicles dry. As Herpes Zoster may lead to Chicken Pox susceptible individuals and pregnant staff who are not immune

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
			should be excluded from these patients. Visitors who have not had Chicken Pox should be warned of the risks.
Herpes Zoster ….. cont.			**NB:** Staff with herpes should not attend to immuno – compromised patients.
Impetigo	Standard Precautions **Infectious Material** – Lesions	**Contact Isolation** **YELLOW SIGN**	Isolate until swabs are negative – after successful course of antibiotics.
Influenza	Standard Precautions	Standard Droplet & Airborne Isolation (if admitted with the disease) **YELLOW SIGN**	For 5 days after onset. Isolation is of doubtful value if acquired in hospital or if others are suffering from the illness. Immunisation can be offered to a selected group.
Lassa Fever VHF	Standard Precautions	**Strict Contact Isolation** **RED SIGN**	
Legionnaires Disease	Standard Precautions	Isolation not necessary	Not transmitted from person to person. Regular flushing of toilets/running of hot/cold taps/ shower is recommended.
Leptospirosis Leoptospirosis (Weil's Disease)	Standard Precautions Infectious Materail – Urine	Isolation not necessary	Not transmitted from person to person.
Lyme Disease	Standard Precautions	Isolation not required	No person to person spread.

			Transmitted to humans by hard ticks found on bracken and in undergrowth.
DISEASE	**PRECAUTIONS INFECTIOUS MATERIALS**	**CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)**	**PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS**
Malaria	Standard Precautions	Isolation unnecessary	Caused by female mosquito bite. No person to person spread. Rarely blood transfusion spread.
Marburg Virus Disease VHF	Standard Precautions	Strict Contact Isolation. **RED SIGN**	Isolate for duration of time in hospital.
Measles	Discharge home if clinical condition permits. Standard Precautions	Contact & Droplet Isolation. **YELLOW SIGN**	Infectious for 5 days after start of rash except in immuno-compromised patients with whom precautions should be taken for the duration of illness. Immunoglobulin for exposed immuno – compromised patients. If outbreak in Paediatric Ward, do not admit non-immune children until 14 days after the last contact has been discharged home.
Meningitis Coliforms Neisseria Meningitis (Meningococcal)	Standard Precaution Standard Precautions	Isolation unnecessary Droplet & Contact Isolation **YELLOW SIGN**	Isolate for 48 hours after start of effective antibiotic therapy and patient has received

DISEASE	PRECAUTIONS INFECTIOUS MATERIALS	CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)	PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS
			chemoprophylaxis. Children should not visit. Close contacts should be given Rifampicin
Pneumococcal Meningitis	Standard Precautions	Isolation not necessary	
Viral Meningitis	Standard Precautions	Isolation not necessary.	
Meningococococcal Septicaemia	Standard Precautions	Droplet & Contact Isolation **YELLOW SIGN**	Isolation for 48 hours after start of effective antibiotic therapy and patient has received chemophrophylaxis
MRSA	Standard Precautions	Contact & Airborne Isolation **YELLOW SIGN**	Isolate until negative swabs (3) See MRSA Section for details
Mumps	Standard Precautions Exclude non-immune staff. Inform visitors who are not immune	Droplet & Contact Isolation **YELLOW SIGN**	7 days before to 9 days after onset of Parotid swelling. Persons with subclinical infection may be infectious.
Norovirus (Winter Vomiting)	Standard Precautions	**Contact + Airborne** **YELLOW SIGN**	
Pneumonia	Standard Precautions	Usually no isolation required but **Airborne Isolation** is required for Streptococcal Pneumonia resistant to penicillin **YELLOW SIGN**	
Poliomyelitis	Standard Precautions Faecal/oral route contaminated water	Strict Droplet & Contact Isolation Droplet spread during the first week – Masks should be worn. Subsequently faecal excretion is	Isolate while virus persists in stools – may be present for weeks. **NB**: Virus shedding may follow vaccination with a live polio vaccine for

		more important.	several weeks – careful with nappy changes.
		RED SIGN	Visitors and staff should be immunized.

DISEASE	**PRECAUTIONS INFECTIOUS MATERIALS**	**CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)**	**PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS**
Poliomyelitis ….. cont.			Gamma globulin for non-immune contacts. Contacts. Booster for immune contacts.
Psittacosis (Q Fever)	Standard Precautions Infectious material – secretion precautions	Airborne Isolation **YELLOW SIGN**	Isolate for 7 days after onset. Spread by airborne dissemination of rickettsiae in dust and direct and indirect contact with infected animals and other contaminated materials.
Rabies	Standard Precautions Infectious Material Secretions Gloves/Gowns/ Goggles etc. Minimum of staff involvement. Staff with any **lesions** should **not** attend to the patient. **Pregnant** staff should **not** attend to the patient. Staff should be offered Gamma globulin/immunization	Strict Contact Isolation **RED SIGN**	Isolate for duration of illness. It is spread via a bite from infected cat/dog/bat via saliva. Person to person transmission has not been documented, however it is theoretically possible since the saliva of the infected person may contain virus.
Ringworm	Standard Precautions Infectious material – Infected skin scales.	Depending on the extent of the Ringworm, isolation in a cubicle is advisable, especially in a Paediatric ward.	

		If isolated Contact Isolation **YELLOW SIGN**	
Salmonella (not Typhoid Paratyphoid)	Standard Precautions Infectious Agent – Faeces Faecal/Oral spread	Contact Isolation **YELLOW SIGN**	Until 3 stools negative or cessation of symptoms. The organism may be present in the gut for several weeks.
DISEASE	**PRECAUTIONS INFECTIOUS MATERIALS**	**CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)**	**PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS**
Scabies	Standard Precautions	Not necessary to isolate except in the case of Norwegian Scabies – in this case, Contact Isolation **YELLOW SIGN**	Isolate until successfully treated. Norwegian Scabies are very highly contagious.
Streptococcal Infection (including Scarlet Fever & Erysipelas)	Standard Precautions Infectious material – exudates and secretions exudates	Contact & Droplet Isolation **YELLOW SIGN**	Isolate until organism is no longer isolated (following drug therapy)
Tape Worm	Standard Precautions Intestinal infection. Infectious material – Intestinal Excretion	No isolation needed.	
Thread Worms	Standard Precautions Infectious material – Intestinal Excretion	No Isolation necessary	Attention to proper hand hygiene. Give patient their own toilet roll etc.
Toxocara	Standard Precautions Infectious Material – Excretion	No Isolation necessary.	
Toxoplasmosis	Standard Precautions	No Isolation needed.	
Tuberculosis Pulmonary (open)	Standard Precautions Infectious Material – Secretion & Exudate Precautions	Airborne Isolation Negative Pressure Room **YELLOW SIGN**	2 Weeks after start of effective treatment and sputum negative for AFB. See Section 8.1 for details.

Multi Resistant Tuberculosis	Standard Precautions	Strict Airborne Isolation **RED SIGN**	Isolate while in Hospital. Arrange monitoring of compliance on discharge.
Closed Tuberculosis	Standard Precautions	No Isolation needed.	
Typhoid Paratyphoid	Standard Precautions	Strict Contact Isolation **RED SIGN**	Refer to Special Unit.
DISEASE	**PRECAUTIONS INFECTIOUS MATERIALS**	**CATEGORY OF ISOLATION & COLOUR CODE (IN ADDITION TO STANDARD PRECAUTIONS)**	**PERIOD OF ISOLATION WHILE IN HOSPITAL OTHER COMMENTS**
Viral Haemorrhagic Fevers (some, e.g. Lassa Fever, are already mentioned	Standard Precautions	Strict Isolation **RED SIGN**	
Vancomycin Resistant Enterococci VRE	Standard Precautions Infectious Material – Exudate & Secretions	Contact Isolation **YELLOW SIGN**	Patients can remain colonized for a long time after leaving hospital. They should be promptly identified on re-admission. Extra cleaning, wiping over door & toilet handles, hand washing facilities, nozzles etc. as an adjunct to the contract cleaning. The use of alcohol gel/Prometic XL encouraged.
Whooping Cough (Pertussis)	Standard Precautions Discharge patient home is clinical condition allows Infectious Material - Secretions	Airborne & Contact Isolation **YELLOW SIGN**	Isolate until 3 weeks after start of paroxysmal cough or 7 days after start of effective antibiotic treatment. Visiting by children should be restricted to those who are immune.

Prophylactic erythromycin to close contacts as advised by Micro-Biologist.

Ayliffe et al (2000)
Horton, Parker (2002)
NDSC & NHS Guidelines

10. Precautions with Specific Infections

10.1 Infectious Diarrhoea

These precautions are to be carried out in conjunction with Standard Isolation Precautions (**Yellow**) – (see Section 9.2). They apply to single room/open ward or cohort. They apply to all patients with diarrhoea/vomiting as all cases of gastroenteritis should be regarded as potentially infectious until appropriate investigations are completed (Damani. N.N., 1997).

Precautions

Send a specimen of faeces to the laboratory immediately when diarrhoea occurs and where possible single room isolation (with toilet facilities) until results are available. Ideally such patients should not use general washing facilities/toilets. Where possible, only if clinical condition allows, patients with enteric infection should be discharged home.

If food poisoning is suspected, a dietary history of infected patients/staff and of non-infected controls should be investigated.

Samples of suspected foods should be collected from the kitchen. Catering staff should be questioned for symptoms and samples of stools collected if necessary. Affected Catering staff should not handle food until three negative samples of stools are obtained (Ayliffe, Lowbury, Geddes, Williams, 1993).

Patients should be instructed to wash their hands thoroughly after using the toilet/commode/bed pan or urinal (these should be for the patients own use) and these patients should also have their own toilet paper/towel etc.

Excreta to be disposed of at once using “Standard Precautions” approach of wearing plastic apron/gloves. Remember to wash hands before and after. Staff dealing with excreta of patients with infectious diarrhoea/vomiting should not, as far as possible, undertake feeding of other patients or attend highly susceptible patients e.g. immunosuppressed.

Cleaning of the room – if infection is present the Ward Sister/Nurse in charge must inform the cleaner and advise on the precautions to be taken e.g. wearing plastic apron/gloves. The room/area should be last on the cleaning schedule and separate (**YELLOW**) cleaning cloths; buckets etc. to be used (See Cleaning/Disinfection Protocols – Section 12). If in doubt seek the advice of the Infection Control for advice on cleaning/terminal cleaning/disinfection etc.

Commode seat to be cleaned each time after use and disinfected with the appropriate disinfectant, usually Milton 1:10 depending on the organism (see Cleaning/Disinfection – Table 12.7).

Specimens to the laboratory should be securely fastened and placed in a **"Bio-Hazard"** bag and remember to insert Bio-Hazard on the request form. Also remember to inform all other Departments as necessary.

In the Paediatric Ward, staff attending to children with infectious diarrhoea should not feed babies or prepare feeds. Gloves/aprons must be worn when changing nappies of babies with known/suspect diarrhoea. Mothers who tend their own babies should be instructed in the importance of hand washing and should not handle other cots/babies.

Depending on the type of diarrhoeal infection, see Table 8.3 for type specific isolation and precautions to be taken.

10.2 Tuberculosis

Open Pulmonary Tuberculosis

Droplet/Airborne Precautions in addition to Standard Precautions
(See Section 8.1) CDC 1996.

Location

- Patients who are sputum smear (AFB) positive, including those previously negative who became smear positive on/after bronchoscopy should be admitted to a single room. A room with negative air pressure and en suite facilities is the recommended (Ayliffe et al 2003).

- **NB:** Remember to contact the maintenance department to ensure correct pressure (on/before admission of the patient).

Protective Wear (immediately outside the door)

- N95 or 97 high filtration type (**PINK** or **YELLOW**)
- Plastic aprons, gloves
- Alcohol Gel
- Prometic XL Cream
- Alcohol Wipes (for door handles etc.)
- **YELLOW** Isolation Sign on the door.

Visitors

- Visitors should be restricted to those who have been in close contact before the diagnosis and should be limited. They must wear a mask.

- Hand washing or the use of an alcohol gel as for all isolation areas is all that is necessary.

Staffing

- Staff having immunity to Tuberculosis

- **Keep to a minimum without compromising patient care. Allocated person/persons should carry out as many tasks as possible at the one intervention, for the patient i.e. present meal trays to the patient and collect when partaking in some other intervention. No need for kitchen staff to enter the room.**

Equipment

- Dedicate equipment
    - Mercury thermometer
    - Blood pressure cuff etc.
    - Single use disposable respiratory equipment and accessories should be used where possible.
    - If items are re-usable then they should be thoroughly cleaned and disinfected or sterilized.

Chart

- All charts should be left outside of the door.

Refuse

- YELLOW bag placed immediately inside the door.

Linen

- All linen to be placed in a water soluble bag (alginate), securely tie immediately.

Crockery/Cutlery

- Machine wash

Infection Sticker

- Place a YELLOW sticker with B.H. written in red on all request forms to the Laboratory X-Ray, Physiotherapy, Pulmonary Function

etc. Also place a sticker on the outside of the patients case notes/inside the Nursing Kardex.

Last Offices

- Standard Precautions

Cleaning

- Rooms occupied by patients with Tuberculosis should be last on the day's schedule.
- Any surfaces/equipment contaminated with saliva/sputum should be cleaned immediately using a disposable towel washed with detergent and water and wiped over with Milton 1:10.
- Terminal cleaning (see Hospital Cleaning Protocols – Section 12)

Toys

- Toys should be washed/wiped over with Milton 1:10 or autoclaved

Inter-Departmental Visits

- Limit the movement/transport of the patient to essential purposes only.
- Seek advice from the Infection Control team.

Termination of Isolation

- The Microbiologist in conjunction with the Consultant should decide when to terminate isolation. Uncomplicated sputum positive tuberculosis will usually be non-infectious after two weeks compliance with multi-drug therapy (Ayliffe, Lowbury, Geddes, Williams, 1992).
- Adult patients with pulmonary TB having three negative smear samples and patients with non-pulmonary TB (with the exception of those with infected discharging wounds) should be regarded as non-infectious and nursed in an open ward.
- **NO** patient with suspected/confirmed respiratory tuberculosis, whatever the sputum status, should be admitted to an open ward

containing immunosuppressed patients, such as HIV infected or Oncology patients (Damani, N.N., 1997).

NB: Cough inducing procedures for production of sputum etc. should **never** be performed in an open ward.

Patients with Smear Negative Sputum

- ❖ They are not infectious. Routine infection control measures will be adequate. They may be nursed in a general ward. Safe disposal of used tissues etc. into clinical waste (**YELLOW**) bag.

- ❖ They are not infectious provided that drainage/dressings etc. are handled with care. Immediate safe disposal of dressings etc. into clinical waste (**YELLOW)** bag is essential to prevent cross infection.

10.3 Guidelines for Bronchoscopy in Patients with possible Pulmonary Tuberculosis – in the Mercy University Hospital, 2005

Possible tuberculosis is a common reason for admission for bronchoscopy in our hospital.

1. ***Mycobacterium Tuberculosis*** is discovered in the laboratory by one of two methods:
   (a) Acid and alcohol fast bacilli stain (also called AFB or smear) – this is done by directly looking at the specimen under the microscope and identifying the organism. TB specimens which contain a lot of TB organisms are often acid and alcohol fast stain positive (AFB positive or smear positive).
   (b) Tuberculosis culture – this is done by growing the organism in culture. TB is very slow growing so, unlike bacterial infections, it may be 10-12 weeks before the results are reported. TB specimens which contain very few TB organisms are often acid and alcohol fast stain negative (AFB negative or smear negative but culture positive.

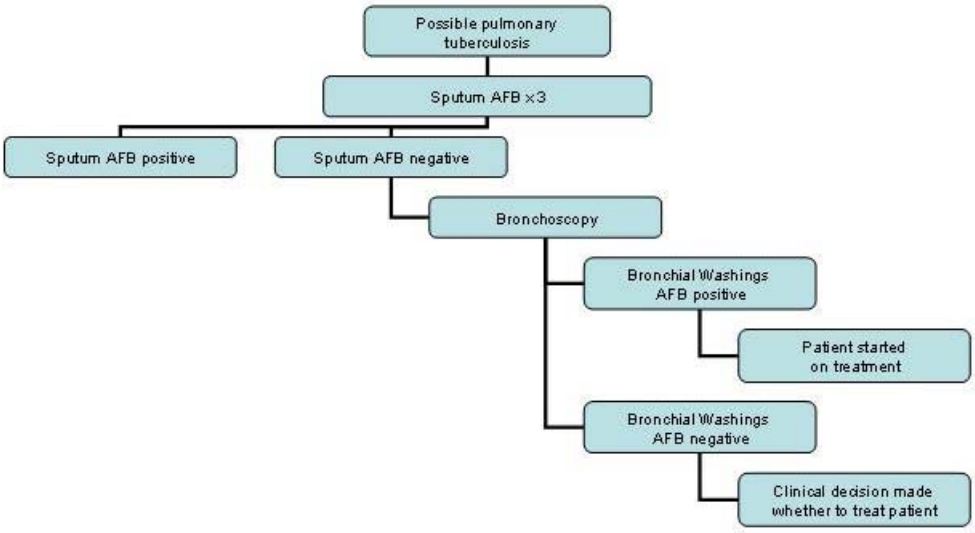
2. ***Pulmonary Tuberculosis*** is diagnosed in one of three ways at present:

(a) Positive sputum, AFB or smear. The patient is coughing up sputum that is AFB or smear positive. These patients are **open** or **infectious**, but are usually diagnosed as having pulmonary tuberculosis without the need for bronchoscopy and are started on treatment. Tuberculosis culture will usually confirm the diagnosis and identify the subtype organism.

(b) Negative sputum, AFB or smear negative. The patient is not coughing up sputum or the sputum that the patient is coughing is AFB or smear negative. These patients are **closed** or **not infectious** and will usually proceed to bronchoscopy to obtain bronchial washings. Bronchial washings or tuberculosis culture will then determine whether the organism can be found.

(c) Clinically based on a high index of suspicion, after the above investigations have proven negative.

3. Therefore, the critical determinant of whether a patient is infectious or not is **whether their sputum is AFB or smear positive** (see algorithm below).



For patients with suspected tuberculosis, surgical facemasks do not provide adequate protection during bronchoscopy and should be replaced by disposable particulate respirators e.g. N95 Respirator

Guidelines for staff in preparing the patient with possible pulmonary TB for Bronchoscopy

In most case if the Bronchoscopy is being performed to look for pulmonary TB, the sputum will be AFB or smear negative and thus the patient should managed **as any other patient** on the ward, except that all patients with suspected tuberculosis should undergo bronchoscopy at the end of the list.

In rare cases, or when a patient with AFB or smear positive pulmonary TB is having a bronchoscopy for another reason, the following infection control guidelines apply:

- Isolate the patient if possible.
- If this is impossible, the patient must wear a mask at all times.
- Wear a disposable particulate respirators e.g. N95 respirator, gown and gloves when dealing with the patient in close contact (nurses, not adjacent patients).

Guidelines for staff in the Endoscopy Suite

Patients with suspected tuberculosis should undergo bronchoscopy at the end of the list.

(a) **All staff** in the endoscopy suite should wear a facemask, gown and gloves during bronchoscopy, irrespective of whether the patient is an "open" or "closed" case.

(b) If a patient has suspected pulmonary tuberculosis, all staff should wear a disposable particulate respirator e.g. N95 Respirator.

Dr. Terry O'Connor
Dr. Neil Brennan
CNS Nellie Bambury
Dr. Jim Clair

10.4Meningococcal Meningitis

Introduction

Person to person contact is mainly by droplet spread from the upper respiratory tract and no reservoir other than humans and the organism dies quickly outside of the host. The incubation period is 2-10 days but most invasive disease normally develops within seven days of acquisition. Therefore, for practical purposes a one-week period is considered sufficient to identify the close contacts for prophylaxis (Damani, N.N., 1997). Urgent admission to the Hospital is a priority and early treatment with benzylpenicillin is important and saves life (PHLS Meningococcal Infection Working Group – 1995). It is now the policy of the HSE that all suspect cases are given such,

by the General Practitioner (if seen by the GP) prior to admission (Southern Health Board Guidelines for Meningococcal Chemoprophylaxis).

Management in Hospital

Location

All cases of suspected Meningococcal disease should be placed in Single Room – Standard Isolation (**YELLOW**) – Respiratory Precautions. Some books state isolation for 48 hours after therapy but penicillin does not get rid of the carrier status. The acceptable practice now is to give all patients Rifampicin for 48 hours before going to an open ward.

Notification

All suspected/confirmed cases of Meningococcal illness should be urgently reported to the Public Health Department, Abbey Court House, by the Clinician/Microbiologist.

Chemoprophylaxis of Contacts

Close contacts have an increased risk – 750 times more than others (B.M.J.) of developing Meningitis/Septicaemia. This risk is greater in the first few days. Rifampicin should be offered as soon as possible to all close contacts (UK Guidelines).

Outside the Southern Health Boards hours (9.00 am to 5.00 pm, Monday to Friday), chemophrophylaxis is provided by the Hospital. Remember it must still be notified when working hours resume**. NB: As there are side effects to Rifampicin, a leaflet regarding it must be given to those receiving the drug (Such leaflets are available on each Department).**

Close contacts deemed at risk are:

- Household contacts – all those sharing living accommodation with the case in the ten days prior to admission.
- Kissing contacts – all kissing contacts of the case in the 10 days prior to admission.
- Nursery school/day care centre contacts – school contacts are not usually considered to require chemoprophylaxis unless more than one related case occurs in school.

- ❖ Health care workers are not considered at risk and do not require prophylaxis unless involved in mouth to mouth resuscitation.

<u>NOTE</u>: It is important to emphasize that chemophrophylaxis is effective in reducing the naso-pharyngeal carriage rates after treatment but does not completely eliminate transmission between household members. Contacts should be reminded of the persisting risk of disease, and of the need to contact their G.P. urgently if they develop any symptoms.

10.4A Viral Meningitis

If in doubt as to the viral or bacterial aetiology of a clinical case of meningitis it is desirable that the patients should be isolated in a single room, as quickly as possible – Standard Isolation Precautions -YELLOW

In the case of Viral Meningitis the following must be taken into consideration on admission.

1. Viral Meningitis is spread in two ways:
   - Hand to Mouth.
   - Droplet Spread.

2. It may not be always practical to isolate a diagnosed case of viral meningitis but it is still desirable. If this is not feasible, please ensure that the patient is kept away from babies, as babies are the most vulnerable to the virus. Affected children should be restricted to their own room/area and should not be allowed to roam the corridors/department etc.

   Should more than one child present with viral meningitis they may be cohort nursed.

NB: Remember proper hand washing at all times and the use of Alcohol gel and Prometic XL Cream – other precautions as in Section 10.3 (previous section).

3. All cases of Viral Meningitis must be reported to:
   - Infection Control Dr. Clair/Infection Control Nurses
   - Microbiology Secretary (if unavailable) Ext 5716.

10.5 Clostridium Difficile Infection

Introduction

In the last two decades, Clostridium Difficile has been recognised as a major cause of diarrhoea, particularly in the elderly and debilitated patients and patients who have had antibiotic treatment (Damani, N. N. 1997). The majority of cases that have been reported have occurred in people over fifty (Professional Nurse, 1997). Whilst being associated with a number of enteric diseases (Viscidi et al, 1981), it is significantly the most common cause of pseudomembranous colitis (antibiotic associated colitis), (Bartlett et al, 1980). All suspected cases should be investigated by sending faecal specimens to the Microbiology laboratory for detection of Clostridia toxin (Tabaqchali S, Jumaap P., 1995). Clostridia Difficile has the ability form spores that survive in the environment for months. They are highly resistant to most disinfectants and therefore in order to minimize environmental contamination the emphasis needs to be on standards of cleaning rather than chemical disinfection but however, Milton 1:10 is highly recommended. The following infection control precautions should be taken.

These precautions are to be carried out in conjunction with Standard Isolation Precaution YELLOW – Section 8.1

Precautions

Location

- Infected patients should be segregated from non-infected patients in a single room with en suite toilet facilities, where possible, or if more than one is affected cohort in one room – **yellow** card on door.

Staff

- Where possible designated staff should care for these patients.

Charts

- Patient's charts should be kept outside of the room, as paper cannot be decontaminated.

Visitors

- Visitors must report to Ward Sister/Nurse in charge before entering the room to receive instructions on protective clothing/precautions to be taken. They should be kept to a minimum and visiting for children is not recommended.

Refuse

- ❖ All refuse to be treated as infectious and placed in yellow bag for incineration. This bag should be kept on a stand inside the door of the room, tied securely before leaving the room. Arrange for prompt transport to the Compound.

Linen

- ❖ All linen to be treated as infectious and placed in “alginate” bags, tied securely before sending to the laundry.

Crockery/Cutlery

- ❖ Machine wash with rinse cycle above 80 degrees C and dry thoroughly. Do **NOT** over stock the Isolation room with supplies e.g. nappies, bags, dressings etc. This leads to considerable wastage, as everything within the infected zone has to be discarded at terminal cleaning of the room.

Hand Hygiene

- ❖ Hands can become contaminated by direct contact with patients who are colonized/infected with Clostridium Difficile, or by contact with spores contaminating the environmental surfaces. Therefore, strict hand washing and wearing non sterile disposable gloves before/after contact with the patient remains the most effective infection control measure in preventing person to person spread of this infection.

- ❖ Hands must also be washed after removing gloves. Remember to repeat this procedure between each patient.

Plastic aprons must also be worn. No masks.

Environmental Cleaning – Daily

- ❖ The patients immediate environment/other areas where spores may accumulate e.g. sluice, commodes, toilets, bedpans, sinks, floors and other soiled areas must be cleaned frequently and thoroughly with warm water and detergent .

- ❖ The room must be cleaned daily and the cleaner advised of the requirements and precautions to take.

- ❖ Separate equipment must be reserved for this purpose and kept within the area.

- ❖ Single use disposable cloths must be used and discarded into the yellow bag (within the room) after use.

- ❖ Milton 1:10 should be used for disinfection. Note: Door handles should be wiped frequently during the day/night (an alcowipe).

Termination of Isolation

- The patient may be discharged home/to the open ward when the diarrhoea no longer persists or the Clostridia toxins are not longer present in the stools

- **NB:** In the case of patient discharge or transfer the medical practitioner should be informed about the patient's diagnosis.

Terminal Cleaning

- All refuse, linen (including curtains) in alginate bags, should, when properly closed be removed from the room.

- All equipment must be cleaned with detergent and water and disinfected with Milton 1:10 before removing from the room.

- Likewise for fixed equipment e.g. Oxygen fittings, lampshades, switches, walls, floors, windows, ledges, beds etc.

- **NB:** Remember after using Milton, delicate surfaces such as mattresses should again be washed over with plain water.

- When clean/disinfected as for any infection open windows fully and leave vacant for as long as possible. However if the room is needed urgently as it is not airborn it may be used. Proper cleaning/disinfection is what is necessary.

10.6 Hepatitis B, C/HIV Infections

Introduction

Health care workers are known to be at risk of acquiring blood-borne pathogens through exposure to infected blood/body substances. Worldwide, at least sixty four health care workers have acquired HIV through exposure at work, many have acquired Hepatitis B. Virus and there is evidence of Hepatitis C transmission. The greatest risk of transmission is following inoculation injuries, but it is also known to have occurred following splashing of blood on to mucous membranes or broken skin.

Individuals infected with blood borne pathogens cannot be reliably detected and although some activities are known to increase the risk, e.g. sharing of intravenous drug users equipment/sexually promiscuous medical staff are not always aware of "high risk" behaviour practiced by their patients, so blood/body substance precautions must be consistently used for all patients, (Ward, Wilson, Taylor, Cookson, Glynn, 1997) and (Alter M.J., 1994).

Measures of Control

Standard Precautions – Section 7.1 must be strictly adhered to and, in addition to this approach, the following specific measures:

"High Risk" Infection Sticker

Hepatitis B/C, HIV positive or presumed positive should have a special **YELLOW** luminous sticker with "**B.H**." written in red (in line with other "high risk" infections) attached to:

(a) Outside of case notes
(b) Inside of Nursing Kardex
(c) All request forms to the Laboratory Department, Physiotherapy Department, X-Ray Department, Pulmonary Function Department, EEG Department etc.
(d) In order to preserve confidentiality, it is not regarded as essential to note the precise infection risk in the case notes or on the sticker. All grades of staff should recognise the sticker and thereby take the necessary Blood/Body Substance Precautions.

Location

The Hepatitis B/C, HIV patient can be nursed in the open ward and other than observing blood/body substance precautions do not require any restrictions. However, if they are bleeding, have diarrhoea, are psychotic or require isolation for other reasons (e.g. open tuberculosis) then single room accommodation is indicated (Ayliffe, Lowbury, Geddes, Williams, 1993).

Laboratory Specimens

- Specimens to the Laboratory should be placed in special "bio-hazard" bags.
- Do not overfill specimen containers, by doing so it will cause leakage and become an infection hazard.
- For the same reason ensure that caps are tightly secured.
- Any specimen container having evidence of blood/body fluids are not acceptable in the Laboratory. The same applies to request forms.

Inter-Departmental Visits

- If it is necessary to transfer patients to other departments the receiving department must be informed of the risk so that the appropriate precautions can be taken.

- If the patient is likely to bleed/vomit, the accompanying nurse should bring along some tissues, bowl etc. and provisions for self protection.

- **NB:** Always notify Theatre, Endoscopy Unit etc. of "high risk" and these patients in as far as possible should be placed last on the day's list.

Refuse Disposal

- Disposal of clinical waste as per usual (yellow bag). All non-clinical acceptable in clear bags for the City Council.

- There are no restrictions for food disposal.

- **Sharps – Extraordinary care** must be exercised, to avoid injury with needles/sharps (Viral Hepatitis Prevention Board, 1994). See Section 13.4 – Guidelines for Safe Use/Disposal of Sharps.

Crockery/Cutlery

- No special precautions are necessary other than the usual machine washing at 80 degrees centigrade. In some situations where there is bleeding from the mouth or Respiratory Tract, disposables should be used.

Laying Out of Bodies

See Section 11 – Guidelines for Laying out "High Risk" bodies.

Terminal Cleaning of Room

See Section 12 – Cleaning/Disinfection Policy

See: Local Guidelines pertinent to Operating Theatre, Endoscopy Unit etc. are available on these specific units.

10.7 Viral Haemorrhagic Fevers

Introduction

The Viral Haemorrhagic Fevers are endemic in west and central Africa. Although never seen in this country, there is nevertheless (due to travel

abroad) the possibility that such provisional diagnosis might first be made in a Casualty Department or in a patient already in a general ward. The following action must be taken:

This is an emergency. A team to direct the emergency must be assembled immediately.

The patient must be isolated in a Single Room – Strict Isolation (**RED**). See Section 8.2 for details.

As a matter of urgency contact the Microbiologist and the Infectious Disease Consultant, who will arrange immediate transfer to a "Special" Unit.

The absolute minimum of staff may have contact with the patient e.g. one doctor and one nurse. The doctor involved in making the initial decision should only seek advice from the Microbiologist. In such circumstances no other medical staff should be invited to assist in confirming suspicions, to minimize the risk to health care workers.

Staff already involved in the case must not resume other professional duties and should remain, as far as possible, within the department, using a designated staff room. Instruments dressings, documents, clothing or any other item must not be removed from the area.

In consultation with Infection Control/Occupational Health arrange any necessary continuing isolation for **those** that have been in contact with the patient. Also, determine patient contacts and decontamination measures of room and equipment (Damani, N.N., 1997).

For full Guidelines see: NDSC Management of Viral Haemorrhagic Fevers in Ireland – NDSC Website – www.ndsc.ie.

10.8 Antibiotic Resistant Infections

Introduction

The problem of resistance to antibiotics has been aggravated by the misuse and overuse of antibiotics worldwide in the treatment of humans and animals and in agriculture. The effect of such usage is a general ecological selection of those bacteria that survive. In some parts of the world where there are inadequate supplies of antibiotics, partial treatments may be given. This fails to cure the disease and instead aids the emergence and spread of resistant bacteria (Journal of Infection Control Nursing, 1996).

The most effective way to prevent and curb resistance is prudent use of antibiotics appropriately and for the designated periods (as short as needed), thereby reducing their overall selective effects. This, to- gether with good professional practice and routine infection control precautions such as hand hygiene, constitute the major measures in controlling and preventing health care associated infection ie MRSA. Both in the hospital and the community (SARI) Topical antibiotics and unjustifiably prolonged courses of treatment and prophylaxis should be avoided (Sanderson, P.J., 1984). Equally important is the early detection of resistant organisms and prevention of cross infection.

Of this complex group this section will cover one of the more common resistant infections in this area.

10.9 Methicillin Resistant Staphylococcus Aureus (MRSA)

Staphylococcus aureus is one of the most common pathogens well known for causing skin/soft tissue infections. Up to 30% of healthy people carry Staph. Aureus in their nose/other moist areas. The majority of these are sensitive to antibiotics. MRSA is resistant to flucloxacillin and erythromycin, the most commonly used antibiotics to treat Staph. Aureus infection, but they are also resistant to other antibiotics, leaving only antibiotics which are very expensive. The consequences of not controlling MRSA in hospital leads to increased cost because of increased length of stay of patients in hospital/increased antibiotic costs (Damani, N.N., 1997).

As part of the remit under SARI **National Guidelines- Control and Prevention of MRSA in Hospitals and in the Community** were introduced in 2005. All staff members should be familiar with this document and use as an adjunct to MUH Guidelines which have been modified to suit the MUH.

The document is available

- **In** the Mercy Hospital Library
- **From** Health Protection Surveillance Centre,
  25-27 Middle Gardiner Street, Dublin 1.
  Tel. +353 1 876 5300
- **Fax** +353 1 856 1299
- **Email** info@hpsc.ie www.hpsc.ie

If any difficulties are encountered in obtaining a copy please contact infection control.

Measures of Control

Standard and Transmission Based Precautions. MRSA is spread by both airborne and contact routes.

YELLOW Isolation sign on the door.

1st Choice	Isolate in a singe room where possible
2nd Choice	Nurse together in a room specifically assigned to MRSA
3rd Choice	On an open ward, placed together in a specifically assigned area (cohort) adjacent to an open window if possible and a Hepa Filter Unit to segregate. (This is not an ideal location).

NOTE: For non-ventilated rooms, the use of the mobile Hepa Filter Unit is always recommended.

Keep the door closed at all times. Open the windows – if it is a room with a fan, open the window on the opposite side of the fan, not directly next to the fan.

An MRSA patient must NOT under any circumstances be placed near an immunocompromised patient.

The patient should be promptly discharged from the hospital if the clinical condition allows.

Routine Screening – Nasal Swabs on:

- All patients previously colonised.
- Transfers from other hospitals/nursing homes/long stay institutions.
- All international hospital transfers.
- All patients scheduled for open surgery.
- Repeated admissions for:
  Chronic Chest
  Leukaemia
  Cytotoxic Treatment
- All patients with leg ulcers/suprapubic catheters.
- Long stay patients – swab every three weeks.
- Screening during outbreaks is on the advice of Infection Control.

- Screening of staff will be carried out by Infection Control on the advice of the Microbiologist.

As soon as MRSA is identified, place small **PURPLE** sticker on:

- Outside of case notes
- Inside of the Nursing Kardex
- Front of Drug Sheet
- All department requests (as already outline in Section 5.1)

Do NOT write MRSA on sticker – insert only the date of isolation of MRSA on or alongside the sticker.

Staff

- The number of staff attending to the patient should kept to a minimum, if possible. Staff with skin lesions, eczema etc. should be excluded.

Sharing of Information

- The onus is on the referring Doctor to inform the admitting hospital of the patients MRSA status.

- Inform the Microbiologist/Infection Control Sister when a previously known MRSA patient is admitted to the ward.

- Staff including Care Attendants, Ward Porter, Physiotherapists, Phlebotomists, ECG Technicians, and Cleaners etc. should be informed by Department heads of the patients status. This particularly important at change of shifts – night shift included.

- Theatre staff, Endoscopy staff etc. should be informed and is so far as possible, these patients should be placed at the end of the days list.

- See Section above for tagging of charts.

Visitors

- Visitors should be advised regarding not sitting on beds and avoiding visiting other patients. Visitors must wash their hands on entering/leaving the room/area. Where possible restrict.

Gloves

- Gloves must be worn when in close contact with the patient/environment.

- Hands must be washed and dried properly before/after attending to an MRSA patient and always on leaving an affected area. An antiseptic e.g. “Hydrex” and/or the use of Mercy XL Cream. Hand washing is mandatory even when gloves are worn. Alcohol hand rub should also be on hand.

NB: Proper hand washing in addition to good antibiotic control is regarded as one of the most important means of preventing spread of MRSA and should be strictly adhered to by all grades of staff (Taylor L., 1978) (Reybrough G., 1986).

Aprons

- Plastic aprons should be worn where a lot of physical contact is involved. If used, they must be changed between patients.

Masks

- Not routinely necessary- do use for close chest physiotherapy, cough induced procedures, suctioning of ventilated patients.

- **NB:** Remember to dispose of protective wear in the “yellow” bag before leaving the affected area.

Environment/Equipment

- Where possible, keep all equipment in the patient’s room/area for their sole use – Stethoscope, Blood Pressure Devices etc.

- Where possible, an MRSA patient should be allotted their own commode (if in room without bathroom) of if communal remember to clean after use.

NB: As in the case of any isolation - **Do <u>NOT</u> overstock the room. Only take what is necessary to the bedside/room**.

Charts

- Case notes/Prescription Charts/Temperature Charts etc. should be kept outside of the room – paper cannot be decontaminated.

Refuse

- All refuse must be disposed of as clinical waste (yellow bag). Bags must be sealed before leaving the room/area.

- **NB:** The yellow bag **MUST** be kept within the room to confine the infection.

Linen

- "Used" linen must be handled gently to avoid scattering bacteria. Linen must be placed in an "alginate" bag, at the bedside, tied securely and removed promptly to the dirty utility area.

Crockery/Cutlery

- Do not require segregation – Machine Wash (80 Degrees C).

Cleaning

- Department Head/Senior Nurse should inform cleaning staff each morning/evening of the room/area needing special attention – separate cleaning cloths/equipment etc. These areas should be placed last on the day's schedule.

- Good housekeeping is what is necessary – furniture i.e. bed frames, lockers, bed tables, curtain rails etc. to be cleaned daily with detergent and water or with a hypochlorite e.g. Ajax.

- Particular attention should be paid Monitors, TV screens(screens seem to attract bacteria) drip stands, pumps, sinks, taps, shelves/ledges, lamp shades, refuse stands, hibiscrub/soap dispenser nozzles etc. Door handles/surrounds should be cleaned a few times and wiped over with an alcohol wipe on leaving the area.

- During the presence of MRSA particular attention should be paid to toilets/showers – this should be the case at all times.

- Frequent changing of patients clothing, towels, linen is recommended.

- Stethoscopes should be cleaned after each use with 70% alcohol wipes or ideally dedicate stethoscope.

Terminal Cleaning

- Disposable equipment and other refuse **MUST** be placed in a **YELLOW** bag, secured and removed from the area.

Linen and curtains to be placed in an "alginate" bag and sent to the laundry.

- Any equipment to be removed from the room **MUST** be washed before removing. Wash with detergent and hot water.

- NB: Remember to clean the Hepa Filter Unit. A Hydrogen Peroxide Decontamination Unit is desirable if possible.

NB: OPEN THE WINDOWS

For further details see Cleaning/Disinfection Protocol – Section 12. If in doubt, seek the advice of Infection Control.

Transfer of Patients with MRSA

Within the Hospital

- Keep to a minimum – only if necessary

- Notify receiving area of patient's status

- Ensure that transferring staff are aware that the patient is MRSA positive. Avoid close contact as much as possible with the patient. No need to wear gloves/aprons etc. when transferring MRSA on trollies /wheelchairs unless there is risk of bleeding/other leakage of body fluids. Hand washing is essential.

- Precautions for going to Theatre etc. (as already mentioned).

- Prompt attention in Out Patients/Casualty etc.

Discharge/Transfer to other Acute Hospitals/ Institutions/Nursing Homes /Community

- Notify the relevant Health Care Professionals when a patient is/was colonized/infected with MRSA is being discharged/transferred. It is not a reason to delay transfer but the discharge letter should include details of the status/treatment regime.

- MRSA is not a reason for refusing to accept a patient back to the referring hospital.

Death (of patient having MRSA)

- Usual precautions.

Health Care Personnel

- Screening programme ongoing (on the instruction of the Microbiologist).

- Staff with nasal carriage may continue to work in low risk areas. They will be treated with nasal Bactroban (t.i.d.) completing the tube and re-swab 3 to 4 days after completion of treatment. Ideally they should not work in ICU, Leukaemia Unit, Oncology or other high-risk areas, until a until at least having two days of the cream. They should not, even in low risk areas perform dressings/aseptic procedures until 24 hours after commencing treatment.

- Staff with hand carriage (if known must adhere to strict hand washing principles- soap. Alcohol gel, Prometic XL. Gloves should be worn and again affected staff should not perform dressings/aseptic procedures until rid of carriage.

- Repeat swabs should be sent to the laboratory after consultation with Infection Control.

Dressing Procedure for Infected Wounds

This includes all infected wounds but particularly wounds infected with resistant organisms.

- A separate dressing trolley should be used or otherwise these wounds should be placed last on the day's list.
- Do not uncover the wound until ready to carry out the dressing procedure.
- Ideally the person dressing infected wounds should refrain from dressing clean wounds.
- Gloves and plastic aprons should be worn.
- Prompt sealing of the pack containing the soiled dressings is important.
- Immerse the soiled instruments in the usual quix solution before transfer to CSSD.
- On completion, ensure thorough cleaning of the trolley with quix solution. Leave to dry and wipe over with alcohol – 70%.

NB: For patients – Do not apply Bactroban to wounds, tracheostomy sites etc. or do not treat nasal carriage of MRSA with Bactroban cream. Seek the advice of the Microbiologist.

10.9 (A) Mercy University Hospital Patient Decontamination Protocol for MRSA

Patients colonised with MRSA who are to undergo an elective procedure, have a prosthesis in situ or are in a clinical area where there is high risk of colonisation leading to invasive infection, eg ICU should undergo decolonisation. A risk assessment of other patients such as long stay patients or patients with chronic nasal colonisation should be carried out to determine if nasal decolonisation should be attempted in these patients. However, excessive use of nasal decolonisation agents should be avoided as this may select for resistance to these agents (SARI (2005) p.19).

This regimen should be commenced on the advice of the Infection Control Team only and in consultation with the Consultant. It is not a prescription.

Guidelines for administration of Prometic Body Wash & Shampoo	**Guidelines for the administration of Mupirocin Nasal Ointment 2% (Bactroban) as prescribed on drug chart**
Patients should bathe daily for 5 days with special attention to the known possible carriage s ▪ Wash skin thoroughly ▪ Apply body wash using clean cloth ▪ Wash whole body paying particular attention to the hairline, axillae, perineum, groin, feet and any patch of damaged skin. These should be at least 1 minute contact. ▪ Rinse skin thoroughly ▪ Wash hair with the agent twice during the 5 days ▪ After washing patient should have fresh change of clothes & bed linen	**Apply Bactroban 2% Nasal Ointment to the nose three times daily for seven days** ▪ Encourage patient to blow the nose to clear away secretions ▪ Unscrew cap & squeeze a small amount (pea size) of ointment onto a cotton bud ▪ Apply to the inside of both nares ▪ Close nostrils by pressing the sides of the nose together

- **Use Nasal Ointment <u>only</u> as prescribed**
- **Re- screen with swabs for MRSA after 24 hrs, 3 days and 5 days unless the patient is being discharged.**
- **Records should be kept of swabbing results**

Reference- Strategy for Control of Antimicrobial Resistance (SARI) 2005, Section B1. 24, P19.

10.10 Multiple Resistant Gram Negative Rods (ESBLs)

Introduction

Q. What does ESBL stand for?
A. Extended Spectrum Betalactamase

These are Gram-negative rods including Klebsiella, Citrobacter, Serratia, Enterobacter, Proteus spp, Pseudomonas aerogenosa etc and they have the power to become very resistant. These organisms can cause hospital wide problems because of their ability to acquire resistance to antibiotics. They are more widespread in the hospital environment as a result of broad-spectrum antibiotic usage/invasive techniques (Damani, N.N., 1997).

Wet environments in the hospital are the major reservoir of these organisms. They are spread between patients on the hands of health care workers (Loomes S, 1989).

Measures of Control (these measures to carry out in conjunction with Standard Isolation Precautions – **See Section 8.2 for details).**

If the infected patient is in a special unit e.g. ICU, Oncology, and Leukaemia etc. the patient should be isolated in a single room with Contact Isolation.

Precautions to prevent cross-infection to the highly susceptible patients (Ayliffe, Lowbury, Geddes, Williams, 1993).

- Compliance to hand washing procedures/wearing of gloves is essential. Patients should not be transferred between wards/hospitals unless absolutely essential. If essential, Infection Control should be contacted.

- Extreme care should be exercised with the handling of bed pans, commodes, urinals etc. Disposable are recommended, otherwise ensure proper cleaning/disinfection.

- Communal equipment may act as a source for these organisms, therefore ward equipment must be stored dry and soaking of instruments in disinfectant must be avoided. Ward equipment, where possible, should be sterilized.

- ❖ Insertion of urinary catheters should be carried out as an aseptic procedure. Urine drainage bags must be emptied by the tap, for which single use disposable gloves should be used and hands should be washed before/after the procedure. Do not break the circuit and reconnect. A separate jug/container should be used for each patient when emptying urinary drainage bags (see Catheter Care Booklet for further details).

NB: Excessive use of broad-spectrum antibiotics should be avoided. Antimicrobial prophylaxis for surgery should be restricted to a maximum of 24 hours (Damani, N.N., 1997).

Cleaning

- ❖ Extraordinary detail to cleaning is necessary in the presence of ESBLs- particularly sinks, taps, door handles, toilets etc.

- ❖ Ensure that then cleaners are made aware of the requirements.

- ❖ Cleaning in between usual schedules is necessary and staff themselves are encouraged to wipe over the environment with an alcohol wipe as often as possible.

"**Infection Risk "Sticker-**Highlight the outside of the case notes, inside of the nursing kardex and the drug sheet with a small round **red sticker.**

10.11 Vanocomycin Resistant Enterococci (V.R.E.)

Introduction

The incidence of nosocomial colonization/infections due to Enterococci spp (E. faecalis/faecium) has been rising steadily since the 1980's. At the same time these bacteria have acquired resistance to ampicillin, amoxicillin, aminoglycides, vancomycin and teicoplanin. Enterococci are founds in the gastrointestinal tract and female genital tracts and most enterococcal infections have been attributed to endogenous sources within the individual patient. However, recently it has been indicated that patient to patient transmission of VRE can occur either through direct/indirect contact via hands of personnel or contaminated patient care equipment/environmental surfaces (Damani, N.N., 1997).

Measures of Control

These measures are carried out in conjunction with Standard Isolation (YELLOW) Precautions **(see Section 8.2 for details).**
`

Isolate infected/colonized patients in a single room or if more than one cohort them with other patients.

Dedicated instruments should be used e.g. stethoscope, sphygmomanometer etc. Adequate cleaning/disinfection should be carried out.

- Extraordinary detail to cleaning is necessary in the presence of VRE particularly sinks, taps, door handles, toilets etc.
- Ensure that then cleaners are made aware of the requirements.
- Cleaning in between usual schedules is necessary and staff themselves are encouraged to wipe over the environment with an alcohol wipe as often as possible.
- Surfaces when cleaned should be disinfected with Milton 1:10. Remember to rinse off afterwards as Milton corrodes.

Protective Wear

Gloves

- Wear non sterile disposable gloves when entering the room of a VRE infected/colonized patient because VRE can extensively contaminate such an environment.
- When caring for a patient, a change of gloves may be necessary after contact with material that could contain high concentrations of VRE e.g. stools.

Aprons

- Wear a plastic, disposable apron on entering the room of an infected patient if substantial contact with the patient or environmental surfaces in the patient's room is anticipated.
- If the patient is incontinent/has an ileostomy of colostomy or wound drainage.

NB: Remove gloves/apron before leaving the room and place in YELLOW bag within the room.

Hand washing is mandatory before/after wearing gloves/aprons. Subsequently disinfect with Prometic XL Cream or an alcohol gel.

Additional Precautions

- Obtain a stool specimen or rectal swabs from roommates of patients newly diagnosed and apply isolation precautions as necessary.

- It is thought that stringent criteria should apply to duration of isolation because VRE colonization can persist indefinitely. Consult the Microbiologist.

- Because VRE patients can remain colonized for long periods it is important to highlight the case notes for identification/isolation on readmission (Boyce M., Maki G. Weinstein, R.A., 1996).- Small round **Dark Blue** Sticker

10.11 Norovirus (Winter Vomiting)

Introduction

Infection due to Norovirus is extremely common in the community. Noroviruses are highly infectious agents, capable of being spread directly from person to person by food, water and through the air. The virus is very resilient and can survive for long periods in the environment and on surfaces such as door handles, soap dispensers, towel fittings, toilets, lockers, curtains etc. Because of these features, noroviruses can cause widespread and intractable outbreaks especially where people are gathered closely together. Since it is a community infection, outbreaks in congregate settings such as hospitals are simply a reflection and a gauge of what is happening in the community.

Modes of Transmission

Person to Person spread by:

- Vomiting due to widespread aerosols

- Environmental contamination with subsequent indirect person to person spread.

- Faecal-oral route

- Vomit spread

Foodborne

- Any food can be a potential source if in contact with an infected food handler, particularly cold meats, salads, sandwiches etc.

Waterborne

- Water and Ice

Clinical Features

- Characterised by acute, rapid onset of nausea, vomiting and abdominal cramps. Vomiting is generally the principal symptom (although it may be reduced or absent).

- Prolonged diarrhoea may also be a feature, especially in children.

- May of other symptoms i.e. headache, muscle aches, chills and fevers.

Control Measures

Early control measures are vitally important principle methods being:

Location

- Contact/Droplet and Airborne Isolation Precautions in single rooms if available or, in an outbreak situation and depending on numbers affected cohort isolation in designated ward/area.

- Closure of the entire department and discontinuation of isolation will be on the advice of the Microbiologist and Infection Control Team.

Main Entrance to the Department

- Keep doors closed.

- Isolation Notice on the door.

- Place Protective Gear (as outlined below) at the door.

- Encourage the use of alcohol gel/Prometic XL Cream at entrances

Limitation of movement of staff and patients

- ❖ Designate staff to the affected patients and those designated staff should attend to all those patients needs i.e. receive/hand back meal trays etc at the door.

- ❖ When an area/department is in isolation, staff should be confined, in as far as possible, only to those working in the area and only to the necessary medical/other facilities.

- ❖ Likewise staff from affected areas should confine themselves to those areas. Visiting other departments should be restricted.

X-Ray, Physiotherapy, Speech Therapy etc.

- ❖ Patients affected/from affected areas should not be taken outside of these areas. The Medical Team should be contacted and if absolutely necessary, the X-Ray/other procedures should be carried out in the area itself.

Protective Wear

Outside the door place –

- o Aprons
- o Gloves
- o Masks (green)
- o Alcohol Gel

Inside the door a **YELLOW** Bag for disposal of protective wear

Hand Hygiene

NB: Proper hand washing and the use Prometic XL Cream and alcohol gel is encouraged.

Refuse

- ❖ Treat all waste as Clinical – YELLOW bag placed immediately inside the door and in the case of an outbreak, all refuse should be handed to the Maintenance transporter at the entrance door.

Linen

- ❖ Alginate Bag.

Visitors

- ❖ During an outbreak, all visiting should be restricted (this includes company representatives, medical students, etc. However this will be

reviewed daily and will be at the discretion of the Microbiologist but, it will always take into account in certain circumstances the human element.

- Children should, where possible, not visit during an outbreak.

- Visitors with a history of vomiting or diarrhoea should not visit a hospital (whether during an outbreak or otherwise) until at least 48 hours after their last episode of vomiting and/or diarrhoea.

Cleaning

- Immediate cleaning and decontamination of soiling is vitally important.

- Frequency of cleaning should be increased.

- Dedicated cleaning staff to the area.

- Clear instructions should be given to the cleaners by the Department heads.

- Milton 1:10 for disinfection.

Speaking to the Press

- Only Hospital Management.

Exclusion of ill staff for 48 hours after their last episode of vomiting or diarrhoea.

See NDSC Guidelines for further details, available on www.ndsc.ie.

11. Laying Out of Bodies with Communicable Diseases

Introduction

If a person known or suspected to be carrying a “high risk” pathogen dies in hospital, it is the duty of those with knowledge of the case to ensure that those who handle the body should be aware that there is a potential risk of infection, so that they may be protected by using the appropriate control methods. Making a known or suspected hazard known to those concerned is a statutory duty under the Health and Safety at Work Act, 1974 (Damani, N.N., 1997).

The precautions already described for handling infected patients do not become unnecessary with the patient’s death, (Ayliffe, Lowbury, Geddes, Williams, 1993).

Precautions to be taken

Blood/Body Substance Precautions

See Section 7.1 and in addition to this approach, the following specific measures:

The Ward Sister/Senior Staff Nurse on duty must take responsibility to inform the Porter and Undertaker that the patient has died of an infectious disease. The details of the actual disease are not disclosed. As a matter of courtesy, the relatives should be informed that the undertaker has been notified.

Usual “laying out” procedure, as described in “Care of the Dying Guidelines, Hospital Policy Book, but the following specific measures must be taken:

- Staff who perform last offices should wear the appropriate protective clothing.

A special “Cadaver Pack” is in readiness in Infection Control CNS office (opposite the Bacteriology Department) containing-

- Long sleeved gowns.
- Heavy duty gloves.
- Masks.

- Visors (if splashing with blood/body substances is anticipated).

- An inner lining bag (full length clear plastic bag) and an outer "Cadaver" bag.

This pack will be replaced by Infection Control as necessary.

- Do not handle the body unnecessarily.

- Do not pack any orifices – place a nappy securely underneath the body.

- Do not remove IV cannulae – cover the sites securely. Do not remove urinary catheters - place a nappy underneath the body and secure the catheter.

- When the usual laying out procedure has been carried out, place the body in the inner lining bag, bringing the bag from below upwards. Family and close friends should be encouraged to view the body at this stage. If this is so, for humanitarian reasons, leave the face exposed, remembering to cover the body. When relatives have left, secure the inner bag (this must now be left closed) and then place in the outer "zip up" Cadaver bag.

Post mortems should be avoided but, if necessary, a consultation is necessary between the Pathologist and Microbiologist.

For Terminal Cleaning/Decontamination of equipment etc. – **See Cleaning/ Disinfection Guidelines, Section 12.**

12. Cleaning and Disinfection Policy

12.1 Introduction

Inadequate decontamination has frequently been responsible for outbreaks of infection in hospital (Cefai et al, 1990 – Kolmos et al, 1993). Therefore, it is important that all hospitals should have a cleaning/disinfection policy. The aim of this policy is to remove visible soil/dirt and invisible organisms, making patients items/equipment safe, to prevent cross-infection and to protect personnel from the infected items and equipment (Damani, N.N., 1993). It is important to have a clear understanding of the terms and classification used in this process and to choose the most appropriate procedure for the items or surfaces in question.

Patient and Staff Expectations

The apparent level of cleanliness of the hospital environment is very important to patients and visitors perception of the general level of care. Patients expect to be cared for in an environment free from dirt and dust and if a ward is untidy or dirty, patients and relatives may regard this as poor quality care. Staff too, have a right to a clean environment in which to work, to ensure their health and safety and maintain morale. Cleanliness is now the domain of the domestic services staff but Department heads and nursing staff have a professional responsibility and a vital role to play in ensuring a hygienic environment for their patients. Cleaning today, due to levels of resistant bacteria in hospitals/institutions is now more important than ever before.

Team Approach

There are several ways in which nurses can contribute both directly and indirectly to the cleanliness of the care environment

- An environment that is tidy is much easier to clean.
- Careful planning of available storage space, so that equipment is put away and surfaces kept clear, facilitates the work of contract cleaners and care attendants.

Let us, as Nurses, have a look at our work area, for example, the utility or clinical room where much equipment and supplies are stored.

- Is it an easy area to clean, or could tidiness or storage be improved?

- ❖ Do we inform the cleaning staff of changes in the function of a room and are we aware of our own responsibilities for cleaning equipment such as drip stands, IV pumps etc.?

- ❖ Do we inspect the shower, toilets, commodes etc. or delegate responsibility to guarantee maximum hygiene (Nursing Times, 1997).

- ❖ Do we record our actions?

12.2 Methods of Decontamination

Cleaning

Disinfection/Sterilization should always begin with cleaning. Cleaning is a process which removes soil e.g. dust, dirt and organic matter, along with a large proportion of micro-organisms; a further reduction will occur on drying, as micro-organisms do not multiply on a clean dry surface. Thorough cleaning with soap/detergent and water is adequate for most surfaces in the hospital environment and is a prerequisite before disinfection and sterilization is commenced (Ayliffe, Coates, Hoffman, 1993).

Disinfection

Disinfection will destroy micro-organisms but not bacterial spores. Chemical disinfection does not necessarily kill all micro-organisms present but will reduce them to a level not harmful to health. Chemical disinfection should only be used if heat treatment is impractical or may cause damage to the equipment. Chemical disinfectants can be classified as chemical sterilants if they are used to kill bacterial spores as well as other viable organisms (which normally require prolonged exposure time). Disinfectants are normally used or inanimate objects only and not on living tissue. Chemicals used to kill micro-organisms on skin or living tissue are know as antiseptics (Damani, N.N., 1997).

Disinfection may be performed in three ways:

A. **Cleaning** (See Section 12.6 and 12.7).

B. **Heat Disinfection**
   a. Boiling in water at 100 degrees C for 5 minutes can be used to disinfect medium risk equipment. Instruments should be completely immersed and timing starts after the water has returned to boiling point. Boiling is not commonly used in Hospitals.

b. Pasteurisation – items are heated to between 65 and 80 degrees C to eliminate harmful pathogens, e.g. bed pan washer/dishwasher. Linen is also disinfected by machine laundering at temperatures of 65 degrees C for not less than 10 minutes or preferably 71 degrees C for not less than 3 minutes. With both options mixing times must be added to ensure heat penetration and assured disinfection. (Health Service Guidelines (95, 18)).

C. **Chemicals** (See Chemical Disinfection – Section 12.2).

Sterilization

Sterilization is a process that achieves the complete destruction or removal of all micro-organisms, including bacterial spores. Equipment and materials used in procedures involving a break in the skin or mucous membranes should be sterilized e.g. surgical instruments and products intended for parenteral use or for instillation into sterile body cavities. Requirements include routine biological, mechanical and chemical monitoring to ensure that all parameters of sterilization are met before using the instrument on or in the patient. Steam sterilization – 134 degrees C for 3-5 minutes or 121 degrees C for 15 minutes (Steam under 15lbs/sq inch pressure).

The choice of method of decontamination depends mainly on the type of material to be disinfected, level of decontamination required for the procedure and micro-organisms involved, (Damani, N.N., 1993).

12.3 Chemical Disinfectants

Before dealing with chemical disinfection, the following points should be emphasized:

- The Purchasing Officer/Hotel Services should consult with the Infection Control Team before ordering any new chemical disinfectants or cleaning agents that contain chemical disinfectants for the hospital (in turn the Health/Safety Officer).
- Before buying equipment, it should be known:
  - How the equipment may be cleaned (equipment which cannot be cleaned is unsuitable for hospital use).
  - How it may be sterilized, if needed (if there are doubts about sterilization, Infection Control should be consulted).

Users of Disinfectants should note:

- The correct disinfectant and concentration for particular tasks.

- The shelf life of the disinfectant when diluted.

- Materials which may neutralize the disinfectant.

- Materials which may be corroded by the disinfectant e.g. hypochlorite can be damaging to all materials, especially metals, if not careful. It should always be rinsed with water and the surface or equipment dried.

Use and Dilution of Disinfectants

There are a number of important factors that must be considered when using disinfectants:

- The correct volume of disinfectant and the correct volume of water must be carefully measured (as per manufacturer instructions). Pump dispensers are available from pharmacy for measuring of Hypochlorite solution. Containers or jugs used dilution must be washed well with soap and water, dried and inverted.

- Chemical disinfectant solutions must not be mixed or detergents added unless they are compatible. Always follow the manufacturer's instructions.

- All chemical disinfectants must be clearly labelled and used within the expiry date. They should be freshly prepared and stored in an appropriate container. Under no circumstances should they be prepared and stored in multi-use containers. Solutions stored in this manner may easily become contaminated with micro-organisms; using such solutions will therefore readily contaminate a surface rather than clean it, (Damani, N.N., 1993).

12.4 Control of Substances Hazardous to Health (COSHH) Regulations

COSHH Regulations, 1999, require employers to assess the risks presented by the use of hazardous substances in the workplace and to determine the control measures required to ensure they are handled safely. The COSHH Regulations incorporate codes of practice on general substances hazardous to health, carcinogenic substances and biological agents. Therefore, all users of chemical disinfectants must be aware of the correct way to use chemicals to protect them from injury. For chemical disinfection, the greater risk is from undiluted disinfectants. Concentrated disinfectants should be stored/handled with care and appropriate protective clothing such as gloves, aprons, respiratory and eye protection etc. should be used, where appropriate. For certain chemical disinfectants, proper ventilation is required and where necessary, the exposure of employees should be monitored (e.g. with Gluteraldehyde).

- Equipment used for sterilization/disinfection must be commissioned on installation, regularly serviced, maintained and tested in accordance with the manufacturer's instructions. Records must be kept to ensure that accepted standards of safety are achieved.

- Should chemical disinfectant come in contact with eyes/skin/mucous membrane, wash well with running water, report to Occupational Health (Bleep 6626 – Mon-Fri – 8 am – 5 pm). Out of hours report to the Casualty Department. Complete Accident/Incident Form as per Hospital Policy

12.5 Selection of Disinfectants

Where compatible with other requirements, disinfectants used should be bactericidal, active against a wide range of microbes and not readily inactivated. The manufacturer can supply information on the properties of the disinfectant, but independent antimicrobial tests by the laboratory are also required. As well as the antibacterial activity, the properties of the disinfectant should be considered in terms of acceptability. The Pharmacist, with the aid of relevant information should assess stability, toxicity and corrosiveness. Acceptability and cleaning properties should be assessed by the user. In conclusion, a few good disinfectants is all that is necessary for any Disinfection Policy (Ayliffe et al, 1993).

Detergents/Antiseptics/Disinfectants of choice in the Mercy University Hospital

Detergent (includes Wash Up Liquid, Cream Cleansers i.e. Jif etc., powder, i.e. Ajax)

If any other brand is introduced it **MUST** be trialled/passed by Infection Control. Detergent solution is used as a general purpose cleaner, to clean various items/equipment/surfaces throughout the hospital, for general purpose cleaning and to remove grease etc. pre dishwashing.

Ajax – highly recommended because of its hypochlorite content. Ajax is an abrasive scouring powder containing hypochlorite and used as a general purpose cleaner, in particular bathroom/toilet areas/wash basins/lockers/bed tables etc. It is particularly useful for cleaning MRSA affected areas. Note: It should not be used to clean mattresses, delicate chromes etc.

Jif – a scouring cream and suitable for general purpose cleaning.

Floor Cleansers

The Cleaning Supervisor recommends floor cleansers fro the different floor surfaces, in accordance with Infection Control Guidelines for cleaning/disinfection in the Cleaning Manual specific to the Contract Cleaners.

Soap

For social hand wash – Liquid soap dispensers (wall mounted) are recommended with individual disposable replacement cartridges.

The use of Prometic Body Wash is recommended and available from Pharmacy, particularly in instances of MRSA/other infections

Remember

- ❖ To frequently clean the nozzle
- ❖ Soap should never be added a partially empty soap dispenser – if containers are refilled, wash and dry between refills.

NB: Soap dishes/bar soap are obsolete as the moisture harbours micro-organisms and must not be used in the hospital.

Antiseptics

Hibiscrub (4% Chlorhexidine Gluconate) Hydrex (similar)

Hibiscrub is a rapid antimicrobial skin cleanser used as a disinfectant hand wash prior to carrying out aseptic techniques etc. It has a good persistent effect due to residue on the skin after rinsing and drying. It is recommended for use during outbreaks and routinely in special units e.g. ICU, Paediatric wards etc. It is particularly recommended in Isolation settings.

Savlon (Hibiset) contains Chlorhexidine 1.5% and Cetrimide 15%. It is an antimicrobial preparation with cleansing properties for general antiseptic properties.
Note: It is incompatible with soap. Its use in the hospital is limited to:

- ❖ Cleansing suction channels and outside of endoscopes.
- ❖ Adding to the bath water of patients with infected lesions to reduce contamination of the water and reduce deposition of organisms on the surface of the bath. Savlon should not be used with soap.

Remember: Cleaning of the bath is still necessary after an antiseptic bath additive has been used.

Betadine (Providone – Iodine 7.5%) is used as pre-operative scrub. Betadine is also used for pre-operative preparation of the skin at the operation

site. Iodine is the only antiseptic that has been shown to have a useful sporicidal action on the skin.

Disinfectants

Alcohols

(Ethyl alcohol 70% (ethanol) and 60-70% isopropyl alcohol (isopropanol) are effective and rapidly acting disinfectants and antiseptics with the additional advantage that they evaporate leaving the surfaces dry, but they have poor penetrative powers and should only be used on clean surfaces. They are active against mycobacteria but not against spores. Alcohol may be used for the rapid disinfection of smooth, clean surface e.g. trolley tops, probes and electronic/electrical equipment which cannot be immersed in disinfectants. It is commonly used for skin disinfection e.g. without additives for treating skin prior to injection (alcohol impregnated swabs). Recommended also, for wiping door handles on leaving an isolation room, after removing gloves. Remember it is flammable- it should never be placed near to a naked flame or on a window sill/other site in the sun.

Halogens (Chlorine releasing agents)

These are cheap and effective disinfectants which act by release of available chlorine. They are rapidly effective against viruses, bacteria, fungi and spores. They are particularly recommended for use where special hazards of viral infection exist. Dilute Solutions lose their activity and should be freshly prepared daily. They are readily inactivated by organic matter (e.g. pus, dirt, blood etc.) and may damage certain materials (e.g. plastics, rubber, some metals and fabrics). For that reason the manufacturer's directions should be followed for dilution and use. If used on surfaces that can be damaged ensure rinsing afterwards with water.

Chlorine Releasing Agents **include the following** -

Domestos (Strong alkaline hypochlorite solution) - Concentrated solutions are corrosive. Their use in the hospital is restricted to public toilets (used by Contract Cleaners only, for that purpose).

Milton (Hypochlorite solution containing 1% (10 000 ppm av CI2) and stabilized with sodium chloride. Chlorine releasing agents should not be mixed with acid, including acidic body fluids such as urine, particularly in a confined space - as it may result in the release of harmful chlorine gas. Milton has a wide range of uses and is particularly recommended for catering departments.

See Table 12.6 for recommended Milton Sterilizing Fluid

Presept Granules (NaDCC Granules are used to apply directly on spillage of

blood and are a convenient and effective alternative to solutions (Coates, 1988; Bloomfield and Miller, 1989)
See Section 7.1 - Procedure for dealing with spillage of blood/body fluids.

High Level Disinfectants

Cidex OPA

Cidex Ortho- phthalaldehyde Solution is Gluteraldehyde free and activity is more rapid. It is active in 5 mins against a wide variety of bacteria, fungi, viruses and mycobacteria. Cidex OPA requires no mixing, activation or dilution and can be used directly from the bottle. It is virtually odourless and non-irritant, e.g. Washer-disinfector St. Olivers and Operating Theatre for disinfection of endoscopes.

Peracetic Acid

This is a peroxygen compound with a wide range of antimicrobial activity – and better penetration of organic matter than glutaraldyhyde, although it is less stable and more damaging to instruments. Peracetic acid kills bacteria, fungi and viruses rapidly, mycobacteria in 20-60 mins, and spores in 3-10 hrs, depending on the product. It has a strong smell, but is not currently listed as an irritant. E.g. Perascope used in Theatre & St Johns for disinfection of endoscopes.

Peracetic Acid & Cidex OPA require the use of:

- Personal Protective Equipment, i.e. Nitrile gloves, gowns / aprons, respiratory masks, goggles should be worn during its use and visors should be worn when handling bulk solutions.
- Extraction
- Staff monitoring

Table 12.6 Summary of Methods for Cleaning & Disinfection of Equipment or Environment

Routine Procedure

Detergents include: Washing Up Liquid i.e. Fairy/Quix, Cream/Powder Cleaners i.e. Ajax, Jif, etc.

Washing up liquid is adequate in most situations but the use of Cream powder cleaner, in particular Ajax, should be encouraged (particularly with the upsurge in resistant organisms) as it contains hypochlorite. Its use is encouraged for the cleaning of toilets, baths, showers etc. Careful with its use on delicate chromes as it may tarnish.

Equipment for service/repair – must be cleaned/disinfected (if necessary) & a decontamination certificate completed - see decontamination certificate at end of this table

EQUIPMENT OR SITE	ROUTINE OR PREFERRED METHOD	ACCEPTABLE ALTERNATIVE OR ADDITIONAL RECOMMENDATIONS
Airways **Bag- Valve-Mask Device** (a) Bag & Valve (b) Masks (c) Reservoir Bag	Disposable- Single use **ONLY** To the Operating Theatre for low steam autoclaving **Laerdal-** To Operating Theatre for autoclaving in Low Pressure Autoclave **King Systems-** Disposable, single use **ONLY** **External Surface**- wash with detergent & H20. Dry. Wipe over with alcohol wipes.	
Babies Feeding Bottles		Separate Milton container for each baby General Stock -

Pre made up bottles	Wash separately in wash up liquid & rinse in readiness for collection. These teats are disposable	• Wash, rinse & steam sterilize on the ward • Separate Milton)container for each baby. • Milton dilution- 1:80
Baths	Clean after each use with detergent and water. **NB.** Taps and overflow.	**Infected Patients Patients with unhealed wounds or immunosuppressed Patients** – Wash well with detergent and H20. Wipe over with Milton 1:80. Rinse **NB**. For the above patients showering is the recommendation
Bath water	**Do not** add an antiseptic bath additive routinely.	**ONLY** for patients with infected lesions or staphylococcal dispersers on the advice of the Microbiologist or Consultant. **Savlon** is acceptable
Beds/Cots	Wash with detergent & H20 Dry properly.	**Infected patients- such as HIV/Hep B/Clostridia Difficile-** After thoroughly washing (as over) wipe over with **Milton 1:10** and leave for 3 minutes. **NB** Remember to afterwards rinse off with clean water as Milton may corrode the frame. **MRSA-** Wash with detergent & H20. Allow to dry. **NB. DO NOT WASH THE MATTRESS WITH AJAX.** See Section 12.7-Cleaning of Mattresses.

Bed Cradle	Wash with detergent & water. Dry.	If used for an infectious patient- wash with detergent & water & wipe over with **Milton 1:80** (if c.diff, ESBLs, or VRE etc. Milton 1:10. Always remember to wipe off
Bed Pans **Disposable** **Non – Disposable**	Place in Macerator. Close lid properly. **NB.** No cotton wool, nappies etc. as these damage the machine. Place in Bed Pan Washer/disinfector. Close lid properly.	Regular auditing of the efficiency of the Machine should be carried out by staff on the dept. If washer/disinfector is not available bedpans should be thoroughly cleaned with Ajax & H20. Soaked in Milton 1: 80 for 30mins. Remember to rinse.
Bed-Pan Rack	Wash with detergent and water part of routine daily cleaning.	
Bowls (Washing) **Washer/ disinfector Machine** **Manual Cleaning**	 Place in Washer/disinfector for full cycle. Store dry and inverted. Wash well with detergent & water. Dry thoroughly, store inverted.	**For Infected Patients-** In the absence of an automatic washer, after cleaning with detergent & water, disinfect with Milton 1:80 or Milton 1:10 for c diff, ESBLs, VRE etc. Rinse with clean water and dry. Individual bowl for infected patient.

Buxton Chairs	Wash with detergent and hot water. **Dry thoroughly.**	Use a disposable sheet for protection. After use on infected patients – after cleaning with detergent & water wipe over with Milton Solution 1:80 or 1:10 for high risk infections as already outlined **NB. Rinse off as Milton is corrosive**
Buckets	**Never** leave with stagnant (even clean) water residue. Wash with detergent and water. Dry and store inverted.	**From infected areas-** After cleaning wipe over with Milton 1: 10, leave for 3 minutes and store inverted. Dedicate the bucket to these areas.
Cleaning Equipment	As above - See also page - Section on Cleaning recommendations for Contract Cleaners.	(See colour coding section for cleaning equipment) for each area e.g. clinical, non-clinical, kitchen and sanitary area.
Commodes	Wash daily with detergent & H20. After each use the seat of the commode should be cleaned with a large alcohol impregnated.	If contamination has occurred, remove soil with tissue. Wash with detergent & water and wipe over with Milton 1:10. Rinse and dry.
Crockery and Cutlery	Machine wash (dishwasher) with temperature above 80 degrees Centigrade.	For dentals or patients who are bleeding from the mouth, use disposables where possible.
Computer Key boards	Clean with an alcohol wipe/special computer wipe on a regular basis.	

Curtains	Curtains should be washed every three months and when visibly soiled. Records should be kept.	They should also be washed after change of patients with MRSA (if patient was heavily infected or in for a considerable period) Clostridia Difficile, ESBLs, VRE , Winter Vomiting etc. R. Pneumococci etc. (Remember to place in an "alginate" bag in such instances). **NB. Remember to remove the hooks to avoid damage to the machines**).
Dental Cartons	**Disposables only.** Where possible patients can clean their own dentures.	**NB.** Label with patients full name, DOB. etc. as lockers, bed tables are constantly being moved. Likewise patients being transferred.
Drainage Bottles	Rinse & send to CSSD for sterilization	Disposable are the alternative
Drip Stands	Wash with detergent & water. Dry	When a drip is discontinued wash well with detergent and water. Store tidily in the appropriate place and wipe over if dusty before re-use. Regular routine checks/cleaning **Infection-** Clean as over & depending on the infection wipe over with Milton 1;80 or 1:10. Remember to rinse off promptly

Drains	**Inside Drains**- The practice of pouring disinfectant down drains to destroy odours is waste of money. Proper cleaning around the outlet with detergent and water is sufficient. **Outside Drains-** Drains require regular cleaning to remove fallen leaves and litter. A clean drain will rarely have a bad odour	Any problems- contact the Maintenance department.
Duvets	Duvets and covers should be laundered between each patient.	**Wipe Over Duvets** Clean with detergent & water **In Recovery**- as lack of time is a factor- wipe over with detergent wipes. This is non- alcohol & will not damage the material. High risk Infection, Body fluid contaminate- wipe over with Milton 1:10
Ear Phones	Wipe with detergent solution (wash up liquid) in between patients and wipe over with alcohol 70%. Change earpieces as necessary.	Replace foam after use in Isolation
E.C.G. Electrodes	Disposable leads	
Endoscopy – See Policy local to: **Endoscopes** (Gastroscopes) Broncoscopes Laproscopes Cystoscopes	**Endoscopy Unit and Operating Theatre- Cleaning/Disinfection See Endoscopy Policy- local to of Scopes**	

Floors	**Wards/Clinical Areas-** Vacuum **only**. Sweeping Brushes/Dust Control Mops should **never** be used in wards/Clinical areas due to their dispersal of dust. **Washing of Floors-** Wash with detergent (as per policy) and clean hot water	**Routine Chemical disinfectants** are **not** necessary as microbes return to original level quite rapidly. Disinfectants are only necessary for- **(a) Spillage of Blood** - **Presept Granules** **(b) Terminal Cleaning of Infected Rooms/ Areas-**
Flower Vases	Wash in hot detergent solution- Dry/store dry. **NOTE -** It is advisable to change the water in flowers fairly often as when water is stagnant/topped up it may encourage the growth of Pseudomonas.	Ideally flowers are not suitable for any patient areas and their use is not advocated in the hospital
Food Preparation Surfaces	Clean with detergent & hot water. Wipe over with Milton solution 1:100. If using Milton on stainless steel it is advisable to rinse over with clean water, in case of corrosion (after 3 minutes)	**See Catering Manual** for further details.
Furniture & Fittings/Ledges	Wash/damp dust with detergent solution	**Known infection** -Wipe over with disinfectant - See Section 12. Cleaning/Disinfection.
Food Bins (waste)	Emptied and washed daily with detergent solution.	Wash also the surrounding area if spillage has occurred. **NB.** Only food to be put in these bins- **NO Papers etc.** **Keep covered**
Humidifiers	Single use disposable	

Infant Incubators	After use, wash all removable parts and thoroughly clean with detergent solution (wash up liquid) and hot water. Dry thoroughly.	**Infected Patients-** After cleaning wipe over with Milton 1:80 or alcohol 70% Aerate the incubator before re-use.
Computer Key Boards	Should be regularly cleaned – evidence to denote the presence of bacteria on computer key boards in the hospital setting.	Clean with an alcohol/special wipe.
Linen	See Section 13, Table 13.2 Laundry Bag Coding system.	**Infected Linen-** Alginate Bags **Tea/coffee/mineral stained linen –** rinse under running (cold) tap or soak in cold water.
Mattresses	In between patients wash with detergent solution - wash up liquid **ONLY- not** Ajax or other cleaning agent as these agents will damage the mattress. Do **NOT** over wet, dry properly and leave for a while before re-dressing (to allow further drying.	**MILTON 1:10** for Typhoid, Dysentery, Clostridia Difficile Haemorrhagic Diseases, ESBLs, SARS, blood etc. Disinfection **not** necessary after MRSA**.** **NB.** Do NOT use alcohol on mattresses A regular programme of inspecting, **SEE SECTION 12.7 CARE/CLEANING OF MATRESSES -** for full details of cleaning the various types of mattresses.
Medicine dispensers/ spoons	Wash with detergent (wash up liquid) & hot water. Place in Milton 1:80. Remember to change Milton solution daily	Medicine cups should not be left lying on sinks, lockers etc.

	& record	
Mops	Ideally not recommended but if used must be detachable mop heads , changed daily and machine washed/dried.	
Pillows	Treat as mattresses.	
Pumps (IV Feeding Pumps)	Clean regularly & as necessary with detergent & water, dry.	
Razors	Patients should have their own shaving equipment or disposable razors **ONLY.**	Isolation – wipe over with Milton 1:80. Use Milton 1:10 for Blood, c. diff, ESBLs, SARS etc.
Receivers	Empty, rinse and wash/disinfect in automatic bed pan washer	In the absence of an automatic disinfector, wash in detergent and water. Disinfect with Milton 1:10. Rinse off.
Sluice /Slop hoppers	Wash daily with detergent (Ajax/Jif) and water, and as necessary to keep waste trap and overflow clean at all times (wearing household gloves).	
Sputum Containers	Use disposable **ONLY.** Fitted lids.	
Suction Bottles	Ideally use **disposable** liners. **Infected patients**- disposable liners. **<u>Glass Jars</u>-** Wash with detergent and hot water, taking care not to leave any residue at the end of the jar- leave to dry and send for autoclaving. Remember to wear disposable gloves.	

Telephones	The cleaning of telephones is on the agenda of the Contract Cleaners.	But, in addition should be wiped regularly by ward staff with an alcohol 70% wipe/special wipe
Thermometers	Genuis Tympanic Thermometers- **Use an individual disposable probe for each patient. Wipe over thermometer itself regularly with an alcohol swab**. DO NOT use alcohol on the probe itself (manufacturer's instructions)	**Isolated patients etc-** use an individual thermometer for each patient and store dry in the patient's individual container. Before and after use wipe with a sterile alcohol swab. In between patients wash in detergent (wash up liquid) and water and sterilize in Milton 1:20 for I hour.
Toilets	Wash well with detergent (Ajax or Jif etc.) and hot water, using a toilet brush to clean around the rim. Particular attention should be paid to the area underneath the seat and the pipes Pouring disinfectant routinely into the toilet bowl is waste. For the purpose of descaling particularly casualty - Three Way Life Guard, Domestos may be used. Ensure surrounds-walls/doors, floors etc. are seen to.	**High Risk Infections -** Wipe over with Milton 1:10, rinse off with cold water. **Blood/Body fluid soiling-** Wipe off using toilet tissue. Clean as already described. Disinfect as described. Ensure clean toilets, equipped with toilet paper, towels and soap at all times. Report any faults to Maintenance **NB. Scheduled checks/tick records to be in place**
Toilet Brushes	See Brush Section	
Toys	**Hard plastic**- Wash with detergent and hot water. If infected wipe over with alcohol 70% or Milton 1: 80.	Soft toys are **not** recommended for hospitals.
Treatment Rooms	Clean all work surfaces daily or as necessary with	

Work – tops **Floors** **Couches**	detergent and hot water. Disinfect work - top for drawing up injections by wiping with alcohol 70 %. **Vacuum only,** sweeping disperses too much dust. Wash daily using detergent and hot water. Disinfection is only necessary if spillage occurs and high risk infections-seek advice of Infection Control. Clean daily and as necessary, using detergent and hot water. Change sheets in between patients.	**High Risk Infections-** In addition to cleaning wipe over with Milton 1:10. Leave for 3 minutes **only** and rinse with clean water to avoid corrosion.
Trolleys **Theatre Trolleys-** **Linen Trolleys**	**Trolleys for Aseptic Technique** See Section 5.1. **All** theatre trolleys should be thoroughly cleaned using detergent and hot water. Dry Ensure that the first side of the mattress is dry before washing reverse side. NB. If trolleys become dusty/ soiled at any time they should be attended to (outside of the weekly clean). Procedure as for Theatre trolleys. Remember to clean the wheels and oil the wheels on a regular schedule.	**Blood** - Should trolley or mattress become contaminated with blood wipe off using paper towelling. Wash with detergent and water .Wipe over with Milton 1: 10, Leave for 3 minutes **only** and rinse over the surface with clean water to prevent corrosion. **NB.** Remember to wear gloves. **Risk Infections -** Follow the same procedure as above.
Urine Collection Jugs	Empty, rinse and wash/disinfect in automatic bed washer.	After emptying rinse well under running water (in sluice room). Clean, using detergent and

		hot water. Store dry and inverted. Wipe with Milton 1: 10, leave for no longer than 3 minutes, rinse under running water (to prevent corrosion). Infection- after washing place in Milton 1: 80 – 30 mins. Rinse
Wash Basins/Sinks	Wash with detergent (preferably Ajax/Jif etc.) and hot water, paying particular attention to around the tap area and drains.	**Extraordinary** attention to the cleaning of sinks/taps/outlets etc. - cover the entire area. This precaution is necessary due to the upsurge in Resistant Gram negative bacteria.
Wheel Chairs	**Weekly Routine-** Wash with detergent and hot water. Dry properly. Oil the wheels periodically and check that all attachments are safe/secure. **NB. - If soiled clean immediately after use.**	**High Risk Infection or blood spillage -** wash as already described and wipe over with Milton Solution 1: 10, leave no longer than 2 minutes and rinse off with clean water. **MRSA** – normal cleaning as described.
X- ray Equipment	Switch off, Damp dust with detergent solution (wash up liquid) **Do not** over wet. Allow to dry before use.	**High Risk Infections**- Wipe clean and disinfect with Milton 1:10. Rinse off.

12.7 Guidelines for Cleaning of Mattresses/ Pillows/Pressure Redistributing Chair Cushions

Introduction

- **The importance of a clean, dry bed suited to the individual needs of the patient is very important in terms of preventing Nosocomial infection (Ndawula 1991).**

- **All mattress stock in the hospital are encased in washable covers. It is important to note that whilst the proper cleaning of mattresses/pillows is vitally important, the unnecessary use of chemical disinfectants, harsh cleaning materials or even excessive water can shorten the life of the mattress.**

- **Rough handling of mattresses/pillows during bed making should be avoided.** TEARS, DO NOT HAPPEN, THEY ARE USUALLY CAUSED. **Mattresses should be carefully placed and stored in a dry, well-ventilated area.**

- **Auditing of mattresses/pillows will be carried out on a regular basis, but if at any time a tear or other problem should occur, it should be reported to the department head and/or Ms. M. Byron (CNS Wound Care)**

Note:

- **Phenolic disinfectants should** NEVER **be used on any type of mattress. Phenol can damage the waterproofing and allow moisture to penetrate leading to Pseudomonas aeruginosa etc. beneath the cover (Fugita, 1981).**

- **Likewise Alcohol can also damage the surface of all mattresses and for that reason are NOT used.**

The Aims of these Guidelines should be:

- To maintain the safety and integrity of these products
- To prevent cross infection between patient use

- To reduce harbourage of micro-organisms

Procedure for Cleaning

- **It is always advisable to read the manufacturers instructions for cleaning/disinfecting. This is particularly important, where from time to time new types of mattress/pillow may be purchased. If in doubt contact the company/Tissue Viability Nurse and/or Infection Control.**

All Types of Mattress e.g.

Standard Mattress e.g. Medifoam/Thermocontour/Transfoam/other

Foam Support Overlay (Propad).

- **These must be cleaned thoroughly (on both sides) on each change of patient using detergent (Quix) and clean water. Likewise the bed frame itself.** NB: **Dry properly.**

- **Only after cases of known/suspected infection e.g. Hepatitis B/C, HIV, Typhoid, Dysentery, Resistant Group D. Streptococci, Clostridia Difficile etc. or contamination with blood/body fluids wipe over with Milton solution 1/10- Take care to rinse with clean water afterwards as Milton is corrosive.**

- **Washable mattress covers should only be laundered if gross contamination occurs - and hypochlorite added to the final rinse. Extreme care should be exercised when removing/replacing covers to prevent tearing.**

NOTE - **Leave the mattress/pillow to dry properly before dressing the bed. Proper drying is as important as washing. Non adherence to this policy not only encourages bacterial growth but will also ruin the mattress/pillow.**

Alternating Pressure Overlays/Mattress Replacement

- **Place in bag provided by company and store for collection.**
- **Gloves should be worn if known/suspect infection.**
- **Details of contamination should be issued to the company.**

Autoexcell

- One Autoexcell mattress in the MUH. Clean according to standard guidelines.

12.8 Guidelines for Cleaning of Manual Handling Equipment

Cleaning/disinfection/laundering/maintenance of manual handling is the responsibility of designated ward porters.

Saturday- is the allocated day, where possible, for general cleaning.

Tuesdays, Thursdays- for laundering, but if any sling etc. becomes visibly soiled /contaminated send to the laundry at any time.

NB: Remember to clean/disinfect any equipment prior to investigation, inspection, service or repair. See Safety Action Bulletin- San (NI), July 21, 1995).

Hoists

- Wash weekly with detergent and hot water. Dry properly, and wipe over the entire surface with Alcohol 70%. Using disposable towels to apply. Remember to pay particular attention to areas around joints, screws, bolts, fixed straps etc.
- Immediate thorough cleaning with Ajax/detergent and water is necessary where contamination with blood/body fluids occurs. Wash and wipe over with Milton 1/10 and rinse off.
- Following use on i.e. Clostridia Difficile, ESBL, Resistant Vancomycin patients etc. wipe over thoroughly with Milton 1:10 that is after washing (as already outlined). Remember to immediately rinse off to avoid corrosion. Where possible allocate a separate sling to infected patients.

Handling Slings

- All handling slings and storage bags should be sent to the laundry on a weekly basis - half on Tuesdays and half on Thursdays. Wash at 60 degrees C. In the event of any sling becoming contaminated send to the laundry immediately. Remember to remove all rods from the slings prior to sending to the laundry and return the rods to the storage press.

- In the case of a known infectious patient/patients - where possible allocate a sling to the particular patient/patients e.g. to MRSA patients. Allocate a sling to MRSA cohort wards/areas and leave in the ward/area. Remember to weekly launder this sling. Wipe over with Alcohol 70% in between patients.

Blue Lifting Mats

- Where possible provide each patient with his or her own designated lifting mat. This is a must in infection risk patients e.g. MRSA/other resistant infections/Clostridia Difficile etc. Where this is not possible (but only for non risk patients should it be allowed) wash and wipe over with Alcohol 70%. Wash all mats thoroughly on a weekly basis.

- Follow the same procedure post discharge of a patient.

Pat Slide

Wash thoroughly on a weekly basis with detergent and water and wipe over with Alcohol 70%, using a paper towel.

Maxi Slide

- As for Pat Slide

Rollboard

- Wash thoroughly on a weekly basis with detergent and hot water. Wipe over with Alcohol 70% using a paper towel.

- In the case of infectious patients, encase the roller board in a plastic cover before use. These are single use covers.

NB. Scheduled cleaning check/ticked lists to be recorded and stored

12.9 Mercy University Hospital Interim Infection Control Guidelines for Cleaning/ Changing of- Nebulizers, Oxygen Face Masks, Nasal Prongs

Introduction

To date there are no established guidelines – National/European or other for cleaning/replacement of the above mentioned respiratory appliances. Guidelines are only in the process of being drafted.

Outbreaks of infection related to the use of respiratory- therapy equipment have been associated with contaminated nebulizers, which are humidified devices that produce large amounts of aerosols. When the fluid in the reservoir of a nebulizer becomes contaminated with bacteria, the aerosol produced may contain high concentrations of bacteria that can be deposited deep in the patient's lower respiratory tract (MMWR 1997). Pneumonias caused by Legionella sp., Aspergillus sp and Influenza virus are sometimes due to inhalation of contaminated aerosols (MMWR 1997). While aerosols are not created by oxygen face masks and nasal prongs, these latter also require scheduled cleaning and replacement.

Nebulizers

- **SINGLE** Patient use.
- Nebulizers should be rinsed daily (in the am) with sterile water- if necessary wash in warm water and wash up liquid but, **DO REMEMBER** to afterwards rinse with **STERILE** water (NDSC 2003) and **DO REMEMBER** to properly dry with clean paper towel.
- Change on a weekly basis or more often if necessary.

Oxygen Face Masks

- **SINGLE** patient use.

- Oxygen masks should be rinsed daily with sterile water or if necessary wash in warm water and wash up liquid. **DO REMEMBER** to afterwards rinse with **STERILE** water. **DO REMEMBER** to properly dry with clean paper towelling.

- Change on a weekly basis or more often if necessary.

Nasal Oxygen Prongs

- **SINGLE** patient use

- Not for washing or rinsing.

- Change three times weekly or more often if necessary.

Pulmonary Function Department and Intensive Care Unit have Guidelines local to their own areas.

12.10 Guidelines for Dealing with Spillage

Introduction

In the interest of Health & Safety spillage must be dealt with as quickly as possible and each staff member who discovers the spillage is obliged to take responsibility /follow the guidelines (however in the event of not being able to do so at the time, the relevant day/night nurse manager should be informed)

Depending on the nature of the spillage these guidelines vary, but, the common denominator is the immediate placing of cones on either side of the spill(or somebody to guard the area until they have been placed). The cones should be left at the site until the area is completely dry/safe. Cones are available in the cleaning stores on all departments and at reception for spillages in the public areas- hall, stairwells, back offices, corridors etc.

Noonan Cleaning Services Ltd. are available on Bleep 6690

Monday - Friday	**9 am – 8 pm**
Saturday & Sunday	**9 am – 11 am**

Spillage of water, milk, tea, coffee etc.

These may be dealt with by any staff member

- Ensure the safety of patients/staff/visitors/at all times. Depending on the area/size of spillage etc. it may be necessary to cordon off the area in a ward setting or in a ward setting to move away from the site.
- Wipe up the spillage immediately using water and detergent and dry.
- If cones are in place do not remove until the area is completely dry.

Blood/Body Substance Spillage (With the exception of urine)

- Blood/Body fluid spillage should be dealt with immediately
- Cordon off the area-placing cones to the back and front of spillage
- Wearing disposable gloves, spread Presept Granules over the spillage

- Cover the area with disposable towelling and leave for a few minutes.

Final Cleaning

- Wearing gloves, apron, mask if large spill) dispose of the debris as clinical waste (yellow bag).
- Wash the area thoroughly with detergent and water.
- Leave to dry before removing warning cones.

Spillage of Urine

Unfortunately acidic solutions such as urine may react with hypochlorite, as in Prespt/Milton etc. and cause release of chlorine vapour.

- Put on disposable gloves, apron
- Soak up spill with disposable towels
- Discard into a yellow bag
- Wash the area with detergent and water
- Milton may be used afterwards

Mercury Spillage

- Cordon off the area as already described.
- Contact the Reception Desk (5201) and arrange for the Reception porter to deal with the spillage.

A special kit is available at reception and the reception porters have been trained accordingly. This applies to both day/night spillages.

There are Local Guidelines relevant to specific areas and in the event of discovering spillage in i.e. any of the under mentioned please contact the relevant departments (who themselves will deal with the matter):

- **X-Ray Dept** – Radio Active Spillage
- **Laboratories** – Chemical Spillage
- **Oncology** – Urine spillage post radiotherapy etc.
- **Maintenance Dept**. – Chemical Spillage etc.

12.11 Infection Control
Mercy University Hospital, Cork
Equipment - Cleaning / Decontamination Certificate

Standard: All equipment for maintenance/service/repair either within the area or transferred from the area is pre-cleaned, decontaminated

Dept_____

Type of Equipment_____

Equipment Serial Number_____

Description of Cleaning _____

_____

Type/strength of chemical disinfectant used (if used)

_____

Additional information/ details (if any)_____

Signed _____

Date _____

Copy of Decontamination Certificated MUST be kept on file

12.12 Mercy University Hospital Infection Control Guidelines for Contract Cleaning of the Hospital Environment

Introduction

A clean environment is necessary to provide the required background to good standards of hygiene and asepsis and to maintain the confidence of patients and the morale of staff. Wet surfaces and equipment are more likely to encourage the growth of micro-organisms and to spread potential pathogens. Cleaning equipment and used cleaning solutions may be heavily contaminated with organisms and should be removed from patient treatment areas as soon as cleaning is completed. Thorough cleaning and proper drying will remove micro-organisms and the material on which they thrive. This will render most items free of infection risk and safe to handle.

- **Disinfectants should** ONLY **be used as part of the Hospital's Disinfection Policy and on the advice of the Ward Sister/Staff Nurse in charge, or Infection Control.**
- **Disinfectants, when used,** MUST **be properly diluted (measured accurately according to the manufacturer's instructions) freshly prepared for each task and disposed of promptly after use.**
- **Cleaning solutions and equipment** MUST **conform to Hospital Policy-**

These are the recommended cleaning agents for this hospital (as per the Disinfection Policy):

- Cleaning powder/cream- Ajax and Jif
- Hypochlorite (Milton) is the recommended disinfectant.
- Descaling agent (Domestos) is sometimes needed in toilets and urinals.
- Floor Maintainers chosen by the Contract Cleaning Co. but cleared with Infection Control in conjunction with Occupational Health.

From time to time some other agents may be required i.e. for the walls of the Aseptic Room i.e. an alcohol based agent, instead of water, to facilitate drying and prevent splashing. When agreed this will be incorporated into the area's own local policy.

Note: **Changes/additions to any of the above** MUST **be cleared by Infection Control in**

consultation with Occupational Health.

N.B. Cleaning Staff MUST report to the head of the department at the beginning of each cleaning schedule to agree any special requirements e.g. the precautions to be taken when infection is present - whether or not a disinfectant is to be used, if single use cloths etc. are to be used and what precautions are necessary for the protection of the cleaning staff themselves. If in doubt contact Infection Control.

Methods of Cleaning

Dry Cleaning

Sweeping brushes or Dust control mops re-disperse dust and bacteria into the air and should NOT **be used in patient areas or food preparation areas. To avoid dispersal during use the head should remain in contact with the floor during sweeping and should** NOT **be lifted at the end of each stroke. Vacuum cleaning is the accepted method for floors and upholstery.**

Wet Cleaning

- **For cleaning of floors, furniture, ledges, lockers, bed tables etc.) NB. Proper drying afterwards.**
- **After dry cleaning the sluice, bathroom, toilet floors should be wet cleaned at least daily using detergent, hot water, using preferably the "Flat" Mop system. This system is preferable to the deck scrub and cloth. Where used both the cloth and deck scrub MUST be clean and water changed frequently to prevent build up of bacteria. After vacuuming utility floors, ward and corridor floors should be wet cleaned with detergent & hot water again preferably using the "Flat" Mop system, particularly in "high risk" areas i.e. ICU, Oncology Unit, Leukaemia Unit, Pharmacy Aseptic Unit and Theatre.**
- **In the Theatre setting a mechanical washer may be used (in addition to the "Flat" Mop system) i.e. weekly or as deemed necessary by the theatre staff. This washer MUST be scrupulously cleaned and serviced.**
- **The use of disinfectants is reserved for terminal cleaning of rooms and other areas, only as requested by staff (such as infected areas, terminal cleaning of Furniture, ledges, shelves, pipes etc. MUST be damp dusted with a cleaning agent as above (never dry dusted in wards/clinical areas). If spray bottles are used solutions MUST be freshly prepared and spray bottles should be stored clean and dry. A disinfectant is only necessary for the same reasons as above.**

Care/Maintenance of Cleaning Equipment

- The design and maintenance procedure for all cleaning equipment should be cleared with Infection Control in conjunction with the Household Services so that unforeseen problems of organism dispersal will not be overlooked.
- Poorly designed or inadequately maintained mechanical cleaning equipment may increase the bacterial count of the cleaned surface or the surrounding air and should **NOT** be introduced into the hospital.
- All cleaning equipment should be examined at regular, scheduled intervals and cleaned when soiled. Worn or damaged equipment should be repaired or replaced.
- It may be permissible to use a "Flat" Mop System in more than one area (non- "high risk" areas, but as a general rule equipment should **NOT** be shared between wards.
- The Contract Cleaning Company **MUST** at all times supply their own cleaning equipment, including cloths, buckets, cleaning agents, disinfectant etc. The Company **MUST** provide household gloves and under NO circumstances are hospital disposable gloves to be worn by cleaning staff (with the exception of specific situations of infection risk, when hospital staff will advise).

Vacuum Cleaners

- Vacuum cleaners should meet the requirements of BS 5415.
- The inner bag **MUST** be checked before use and discarded when half full. **NB. NEVER** use a vacuum cleaner without using a bag and NEVER empty and re-use **the same bag.**
- **Bag exchange MUST** be made away from patient treatment areas with the minimum dispersal of dust.
- Filters **MUST** be checked at regular intervals (e.g. monthly) and changed if dirty/blocked.
- Vacuums **MUST** be kept in a clean condition, stored tidily and regularly serviced.
- "High Risk" areas e.g. ICU, Operating Theatre, Leukaemia Unit, Oncology, Aseptic Room etc. **MUST** have their own vacuum cleaner and should **NOT** under any circumstances be removed from the area.

Mechanical Washer

This MUST **also meet the BS requirements. Its use** MUST **be confined to Theatre** ONLY**. It** MUST **be properly cleaned/ maintained/ serviced.**

Dust Attracting Mops/ Ordinary Mops

As already stated, if used, it should only be for areas removed from wards, ward corridors, offices etc. and then only if absolutely necessary. Dust attracting mops if used for a period without replacement, will fail to retain the dust and may disperse it into the air. They should be replaced frequently. After use they should be hoovered and laundered frequently. If ordinary mops are used (MUST **be the detachable type head), the mop head** MUST **be hoovered after use and laundered.**

Pads for Buffing

These pads MUST be washed with detergent and plenty of hot water after use and left to dry. Ideally they should be laundered after use They MUST be replaced as necessary.

Buckets

Buckets should be washed with detergent and hot water after use and stored dry and inverted.

Cleaning Cloths

- A clean supply of cloths **MUST** be made available for each cleaning session e.g. clean for morning schedule/clean for evening schedule. **NB.** Cloths used **MUST** be removed from the Department on completion of each cleaning schedule and laundered. Wet, crumpled cloths lying around encourage the growth of bacteria.
- Cloths used for cleaning areas of infection **MUST** not be used in other areas. Ideally they should be single use.
- Cloths **MUST** be renewed when worn.
- NB. Colour Code

Colour Coding

- **Clean Utility/Clean Clinical/other clean areas --** Pink
- **Dirty Utility/Bathrooms/Toilets etc.----------** Blue
- **Isolation Rooms/Areas- Yellow Sign----------** Yellow
- **Isolation Rooms/Areas-Green Sign----------**Green
- **Kitchens---------- White**

These colour codes apply to cleaning cloths, buckets, scrubs, brushes/other

If "Flat" Mop buckets cannot be supplied in the specified colour coding then a suitable alternative i.e. stamped in green or yellow is necessary and staff educated accordingly.

Refuse

Clear Plastic Bags - For Corporation **Waste (papers, flowers, plastic bottles etc.)** NO **blood stained material, disposable gloves etc.**

Yellow Bags	Waste pertaining to hospitals. **NO** papers, wrappings, plastic bottles, flowers etc.
Black Bags	Cardboard **only**

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- **Do not** over fill refuse sacks. **Close** when three- quarters full. On the other hand **do not** waste bags by under filling or by placing an unfilled bag or bags, within another bag.

- Secure with the special, purpose made, coded plastic tie, by placing the serrated edge towards the bag and tie firmly. Replace the bag. The bags should be handled by the neck **only** and kept upright. Do **NOT** put your hand underneath refuse bags while lifting and bags should be held away from the body at all times.

- Refuse bags should be stored in a neat fashion within the designated area and the area should be cleaned regularly and kept dry.

NOTE - Should a syringe, needle/sharp of any type be noted on the floor, locker, bed-table etc. by a member of the Cleaning Staff it MUST be immediately reported to the Department Head. Under NO circumstances should the sharp be touched, or disposed of by the Cleaning Staff.

Cleaning of Isolation Rooms/Areas

(A) Cleaning of Rooms occupied by Infectious Patients

Yellow Card on the Door

Remember to report to the Department Head on arrival who will make staff aware of possible infection hazards, and will be instructed as to the procedure required. The Infection Control team are always available for advice. Nursing staff will, however, deal at once with contamination caused by infectious material. Extensive cleaning should not be necessary during the stay of any one patient, but the room must be cleaned daily and maintained scrupulously clean.

General Points

- The room/area should be last on the cleaning list.
- Separate cleaning equipment**-** **"Yellow"** coded bucket/separate cloths or in the case of the "Flat" Mop if yellow is not available, stamped in yellow, as an alternative.
- All equipment must be kept for this room/area and all the equipment used **MUST** be fully decontaminated after terminal cleaning of the room.
- The cleaner will be advised by ward staff of the necessary protective wear- i.e. plastic apron, disposable gloves, masks, etc. These together with disposable cleaning cloths (if used) must be placed in the yellow bag at the end of the cleaning before leaving the room/area. Non-disposable cloths **MUST** be placed in a bag and taken separately for machine washing.
- Special attention **MUST** be given to washing of taps, handles, fittings, phone and door handles etc.
- Hands must be washed before entering and leaving the room.

(B) Cleaning of Rooms occupied by patients who need to be protected from infection

Green **Card on the Door**

It should be remembered that in these instances the aim is to protect the patient from you and other patients. It is really the reverse to the immediate section above. If cleaner has flu, sore throat, infected finger or indeed illness of any sort they should NOT **enter such rooms. Cleaning of such rooms should be first on the cleaning list.**

Specification for Cleaning Wards/Bathrooms/Toilets/Showers

General Points

Hands **MUST** be thoroughly washed before/after wearing gloves (clean, disposable gloves MUST be worn. Plastic aprons **MUST** be worn and sometimes masks may be required (on the advice of the Ward Sister/Infection

Control Sister.
Cleaning as already outlined above but scrupulous attention **MUST** be paid to it, particularly the door handles.
Green colour coding – same principle as outlined for **"Yellow"** etc. (Green) It must be used for that room alone and after use cleaned and stored in the room. All equipment **MUST** be scrupulously clean before bringing into the room.

Refuse can be removed from the room and disposed of as per usual policy-papers, wrappings etc. in the clear plastic bag.
Door **MUST** be kept closed at all times.

NB: Refrain from talking too much to the patient, to avoid spreading bacteria in the air.

Terminal Cleaning of Room/Area

Terminal Cleaning of a room is indicated when an infectious patient has been discharged or transferred to another area. The Ward Sister/Infection Control, who will list the requirements/precautions, will request it. As a general rule the following procedure should be followed:

- Cleaning staff should wear a disposable plastic apron and disposable gloves.

- Terminal cleaning should commence only after the patient and his/her possessions have been removed from the room or the area. Ward staff will have the room ready for cleaning. Refuse will be bagged/secured, all items of equipment, linen, curtains etc. will be removed and the cleaning of the bed/mattress will be attended to.

- All equipment, including bed table, locker, chairs, sink, television, toilet/shower/bath etc. **MUST** be well cleaned with detergent or cleaning powder and hot water. In conclusion every part/item of the room including lower walls and (high wall washing on instruction of the department head/Infection Control) floors, ledges, windows etc. must be cleaned properly and disinfected with Milton on the instructions of the Department Head/Infection Control.

- Open the windows, to facilitate thorough drying of surfaces.

NOTE - If the patient is isolated in an open ward near a sink or near a window then the entire surrounding area up to the next bed, including the curtain rail, window etc. if applicable should be cleaned.

Some areas i.e. Operating Theatre, Aseptic Room etc. have special requirements and have specific guidelines local to their areas. These are

available on the Departments and the Department Heads will direct Cleaning Supervisors accordingly.

If spillage of blood/urine/any body substance occurs inform the nursing staff who will issue instructions to the cleaner before he/she proceeds to wash the area.

In the interest of Health & Safety, where even spillage of i.e. ordinary water occurs care MUST be exercised to drying the area properly.

REMEMBER!

- **The placing of the cones for spillage.**
- **The removal of cones when spillage is dealt with**
- **The cleaning of cones**

Additional Key Points for Cleaning of the Environment

- **Outside of the normal time allocated for cleaning - for example an area allocated for cleaning in the evening may be visibly soiled at 10am- Then it should be attended to when noticed.**
- **Cleaners should be encouraged to seek out areas that need cleaning, rather than following a routine, which concentrates, on areas that are regularly cleaned. The floors of the toilets are usually cleaned but it is not uncommon for faecal contamination of walls or doors to remain for several weeks.**

"High Risk" areas

"**High Risk" areas e.g. ICU, Operating theatre, Leukaemia Unit, Isolation Units, Aseptic Rooms etc. These are areas, which demand scrupulous cleaning. They MUST at all times have their own equipment, cleaning cloths, cleaning agents etc. Under NO circumstances should equipment be borrowed/loaned in these areas…**

Storage of Equipment

- **Cleaning equipment must** NOT **be stored on the back stairway of the hospital. These stairways serve as a fire escape. Neither should it obstruct fire doors. Store Room** MUST **be kept, clean, neat, tidy at all times.**

Vacuum all floor surfaces until visibly free of dust and debris. Pay particular attention to underneath beds, corners etc. Where possible staff will assist moving beds together to facilitate more thorough cleaning.

Bathrooms/Toilets/Showers

Particular attention should be paid to the cleaning of toilets, baths, showers, bidets etc. They should be maintained scrupulously clean at all times to maintain the good image of the hospital.

Areas Removed-

It is important that areas such as filing rooms, offices etc. are not forgotten. Proper dusting/polishing of shelves, desks, cleaning behind computers, emptying of bins etc. is carried out. This also applies to the Classrooms, Nurses Home, Out Patient's, Endoscopy, Physiotherapy, E.E.G, X-ray Departments etc.

Corridors/ Stairs

Proper attention to cleaning of all stairs in the hospital is very important, particularly attention to the corners, edges etc. Regarding the front stairs extreme care should be exercised in keeping in between banisters free from dust/fluff. All entrances require 100% attention to detail.

Telephones, Statues etc

These are areas which tend to be neglected but must be remembered.

Mirrors/glass

Mirrors and glass should at all times be maintained spotless, particularly the front hall mirrors, the glass in St. Anne's Ward, Lifts and mirrors of lifts/other.

Placing of cones

Cones should be placed as an alert in areas where cleaning is in progress, particularly when floors are being washed. It is advised that washing is carried out on one side of a ward/corridor at the time, to allow for traffic on the other side.

Flex, Plugs etc.

When vacuuming, scrubbing, buffing ensure that the flex of the machine is not stretching across the ward/corridor as it may cause an accident. Always use plug nearest the machine and on the same side if possible. If cleaning elevators

summon assistance to hold the lift.

Daily Service

REPORT to the Ward Sister/Department Head at the beginning of each schedule to receive specific instructions regarding any special requirements/precautions.

For general purpose cleaning Detergent/Ajax or Jif are acceptable cleaning agents. There is no need for disinfectant unless specified by the Department Head /Infection Control.

Empty bins and dispose of in the appropriate refuse bag (see Section on refuse). Clean and dry.

Wash lockers, bed tables, wardrobes, chairs, tables etc. (paying particular attention to the legs and underneath frames. Damp dust bed ledges.

NOTE- Take care when vacuuming not to bang paint work, wood etc. Do not use sweeping brush in ward/clinical areas. Do not use dust control mops in ward/clinical areas.

(See Section on Methods of Cleaning)

Wash floors with clean, hot water, preferably using "Flat" Mop system. Dry properly. **NOTE-** Take care to wash corners/edges properly and dry off properly, thus avoiding scum formation at the edges/corners.

When dry, spray buff floor areas using buffing machine and appropriate, clean buffing pad.

Bathrooms/ Toilets/ Showers

- Clean sinks, baths, showers, toilets, with a cleaning powder preferably, paying particular attention to area underneath seat covers and handles of toilets DO **NOT** let dirt accumulate in these areas.
- If the seat is obviously contaminated disinfect with a hypochlorite (made up according to the manufacturer's instructions). If hypochlorite is used the seat must afterward be rinsed with water and dried.
- Flush toilet and use toilet brush to clean inside of bowl. Pouring disinfectants down the toilet is considered waste- flushing removes bacteria more effectively than disinfectants. However, at times a de-scaling agent may be necessary i.e. a strong one for areas such as the gent's toilets, particularly the Casualty Department i.e. Domestos.

- Particular attention should also be paid to cleaning around taps, plug holes etc.
- Wash toilet brush/holder and store dry. **NEVER** store in any type of solution.
- Wash floors using detergent and hot water. If contaminated a hypochlorite in its proper dilution may be used.
- Remember to clean towel cabinets, sanitary bin surfaces, light switches,
- and chairs, spot wash walls, doors etc. if necessary.
- Empty bins. Clean.

NOTE:

Attention to detail is very important. Bathrooms, toilets, showers etc. MUST never be neglected. Spot check walls, doors, skirting while walking along corridors, stairways etc. Look out for the unexpected – spots on walls, gum on floors, marks on floor, cobwebs at entrance doors, cobwebs on lights etc. Seek out the hidden areas.

Report any broken tiles, wall cracks, non- functioning toilets etc. to Domestic Service Department

This is a guideline document for the Contract Cleaners from an Infection Control perspective. It is the responsibility of the firm to implement these guidelines, in conjunction with Household Services Guidelines.

No alteration can be made to this document without prior consultation with the Infection Control Team.

13. Waste Management

13.1 Introduction

The application of more stringent environmental standards and also the recognition of the importance of improved Health & Safety standards have placed renewed emphasis on the importance of proper management, handling, storage, transportation, treatment and disposal of healthcare waste. The Department of Health published a "Health Services Waste Policy" in 1994. The policy outlines the different disposal methods available and provides guidance for healthcare waste producers. Further studies showed that the best overall option was the treatment of healthcare risk waste by the use of shredding and disinfection at a small number of sites throughout the country.

The Joint Waste Management Board (JWMB) commenced in spring 2000 and consists of a contractor- provided service for the collection, transportation, treatment and final disposal of healthcare risk waste throughout Ireland. The Department of Health and Children published the working draft on the Segregation, packaging and storage guidelines for healthcare risk waste in 2002. This document provides guidance for a uniform system of managing waste, with the majority of healthcare risk waste now being processed using non-incineration disinfection technology.

The Mercy University Hospital prepared its own Health Care Waste Management Plan. It was drawn up in conjunction with the Southern Health Board document as the S.H.B. holds the contract for disposal of the Mercy University Hospital Waste. The plan proposes that –

The minimization of waste is actively pursued, and increased emphasis put on the use of greener products and recycling.

The criterion by which Health Care Waste is to be separated into Health Care Risk / Health Care Non-Risk is described.

The need to provide a safe working environment for those engaged in handling waste is addressed and ongoing training programs in place.
To facilitate the effective implementation of the plan and to comply with statutory obligations, appropriate records will be maintained.

See: Mercy University Hospital Waste Management Plan

13.2 Categories of Waste

Segregation at the point of origin, aided by suitable and consistent packaging is vital in enabling different forms of waste to be handled, transported and disposed of in a manner which is safe and in keeping with the nature of the waste. The first level of segregation involves the categorization of healthcare waste into “risk” and “non-risk” healthcare waste. The second level is between parts of the same waste stream which have distinctly different properties. Segregation should be done at the point of generation where the nature of the waste is best understood.

See Dept. of Health poster on the Segregation & Packaging of Healthcare risk and non-risk waste

See STG (Sterile Technologies Group) Booklet and Health Care Risk Packaging - 2005

Non Risk Waste

Non-risk or household waste – the majority of healthcare waste - is non-toxic, non-infectious and unlikely to prove a health hazard or give offence. There are no particular requirements for segregation, but recycling schemes may involve a degree of segregation. It consists of:

Domestic waste – normal household and catering waste
Confidential material – shredded confidential waste documents
Medical equipment – assessed as non-infectious
Potentially offensive material – assessed as non-infectious

Healthcare Risk Waste (Clinical)

Infectious Waste:

(a) Blood and items visibly soiled with blood.

(b) Contaminated waste from patients with transmissible infectious diseases.

(c) Incontinence wear from patients with known or suspected enteric pathogens/other infection.

(d) Other healthcare infectious waste.

Sharps:

Any object which has been used in the diagnosis, treatment or prevention of disease, which could cause a puncture wound or cut to the skin.

Anatomical Waste:

Microbiological cultures: specimens and potentially infectious waste from Microbiology, Biochemistry, Haematology, Pathology departments (Laboratory and Post Mortem Room) or Research.

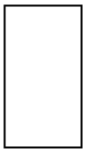
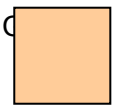
Toxic Waste/Chemical waste**:**

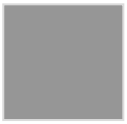
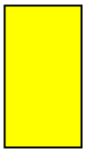
Discarded chemicals and medicines.

Radioactive Waste: Includes materials in excess of authorized clearance levels, classified as radioactive under the General Control of Radioactive Substances Order, 1993.

Table 13.3 Segregation of Healthcare waste – Non risk waste, risk waste and laundry disposal

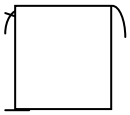
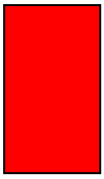
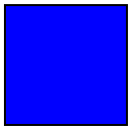
	DESCRIPTION	USE	Destination

	**Clear Plastic bag (large)**	**Non risk Domestic waste-** ❖ Wrappings, flowers, plastic bottles etc ❖ Oxygen face masks, clear tubing i.e. oxygen & ventilator tubing. ❖ Enteric Feeding Bags ❖ Non- contaminated gloves, aprons & masks ❖ Non- infectious nappies, disposable sheets etc. Common sense must prevail – wrap dry area of the item around the wet area.	**Corporation Landfill** Compacted before transit
	**White plastic bag (small)** Shopping Bag Type.	**Non risk Domestic waste-** To carry on E.C.G rounds etc. Empty into large Clear plastic bag	**Corporation Landfill**
	**Black plastic bag (large)**	**Non Risk Cardboard Waste** Fold cardboard before disposing in black bag If too large for black bag, fold and place in cardboard box. Secure with Black Tag	Rehab **Recycling**
	**Patient Property Bags - Green Plastic -** marked patient property	**Non Risk Patient Property**	**Home** - On patient's discharge.
C 	**Cardboard Box**	**Intact glass & Broken glass – NB. Broken glass**- boxed, securely taped and clearly marked "BROKEN GLASS for collection by Maintenance	**Recycling**

	**Waste Food container**	**Non risk - Waste Food Buckets** (kitchen) To waste food unit – ground, compressed and treated	**Corporation Landfill**
	**Battery Disposal container** Location**:** Clinical Waste Compound	**Non risk potentially hazardous - Batteries** To be stored separately on depts for collection by maintenance staff	**Recycling** by Return Batt
	**Fluorescent light disposal box** Location: Clinical Waste Compound	**Non risk potentially hazardous –** fluorescent lights	**Recycling** by Irish Lamp Recycling
	**Grey Wheelie Bin** Location: Bins throughout the hospital	**Marked confidential** For all confidential paper material /any paper	Rehab **Recycling**
	**Skip** Location: Clinical Waste Compound Yard	**Non risk discarded furniture & medical equipment assessed as non infectious** (Excluding electronic equipment)	**Landfill**
	**Yellow Plastic bag (large)**	**Healthcare risk waste** ❖ All blood stained or contaminated items including dressings, swabs, IV giving set (NB sharp removed), personal protective equipment i.e. aprons, gloves if infectious) ❖ Suction catheters, tubing and wound drains ❖ Incontinence waste- only if infectious (risk assessed)	**STG, Unit 12, Western Industrial Estate, Naas** Daily collection

	**Yellow Plastic Bag (small)**	**Healthcare risk waste** Similar contents to large yellow bag. Useful to accompany phlebotomy trolley.	**STG** (as already outlined)
	**Yellow <u>Sharp's Bin</u> (large)** (Red covers and clearly marked Sharps)	**Healthcare risk <u>Sharps</u>** Syringes/needles (discard syringe and needle as one unit), scalpels, IV cannulas, razors, stitch cutters, guide wires, contaminated glass etc.	**STG** (as already outlined)
	**Yellow <u>Sharp's Bin</u> (small)** **(**usually Red covers and clearly marked Sharps**)**	**Sharps**- Similar contents to large bin. Useful to accompany Phlebotomy trolley, IV tray, Out Patients Dept. etc.	**STG** (as already outlined)
	**Yellow <u>rigid bin</u> with <u>yellow lid</u>** **(Leak-proof)**	**Healthcare risk fluid waste –** material containing free fluids (contained), laboratory wastes, blood, plasma, histology waste NB Contaminated wastes should be disposed using an inner receptacle & liner	**STG** (as already outlined)
	**Yellow <u>sharps bin</u> with <u>Purple lid</u>** Stored in Cages in Clinical Waste Compound	**Healthcare risk <u>Cytotoxic</u> <u>Sharps</u>** Needles, syringes (syringe and needle discarded as one single unit), IV giving set and cannula (discard as a single unit), drug ampoules	**Abroad- Onyx** C1 Forms with Maintenance
	**Yellow <u>rigid bin</u> with <u>Purple lid</u>** **<u>(Leak-proof)</u>**	**Healthcare risk <u>Non-sharps Cytotoxic waste</u>** Discarded chemicals & medicines, pharmaceutical waste	**Abroad** (as immediate entry

	**(Leak-proof)**	Healthcare risk Anatomical waste and processed blood products where the volume exceeds 100ml	**Abroad**
	**Yellow wheeled Transport Bins (Large)**	**Transport & storage of Healthcare risk waste** Healthcare risk waste destined for two different disposal routes must never be mixed together in one wheeled bin. Bins should be locked and parked with brakes ON	Carriage of Healthcare risk waste
	Special Spillage kit - Front hall porter attends to spillage	Healthcare risk Mercury waste	Collected by Indaver, Ireland
	Drum for disposal		" "
	**Sharps container within Lead shielded container** - until rendered safe	Healthcare risk Radiological waste - See section on Radiological waste	**Xray Supervisor** Mr. Andrew Owen-
	**Clear Plastic bag with Blue Print -** (Autoclave Bags)	**Healthcare risk Laboratory Waste -** plates, urines, faeces, blood specimens etc.	**Autoclaved in the Mercy U. Hospital -** to render safe for collection by **STG**
	**White Canvas laundry Bag -** with draw strings	**Used Linen** (non-soiled, non- infected). **NB. <u>Do not</u>** overfill, **<u>Separate</u>** before placing in the bag	**Hospital Laundry**

		Avoid "foreign bodies" mixed with laundry	
	**Water Soluble (Alginate) Clear white plastic** Bag with **pink** strings to tie	**Infected Linen- soiled linen** Remember to tie immediately with pink string. Leaving the bag open defeats the purpose.	**Hospital Laundry-in Red Plastic Bag**
	Large **Red** Canvas Bag	**Closed "Alginate" Bags are to be placed in these Red Bags for transfer to the Laundry**	**Hospital Laundry**
	**Blue Bin** **Waste Oils from kitchen** Bins allocated in the Waste Yard	Collected by Maintenance And brought to bins	**Recycled- monthly collection**
=======	**Black Tags**	**Sealing of all Refuse Bags and Sharp Bins.** These coded tags indicate the source (dept) of the waste, to facilitate tracing.	Available from Stores

13.4 Guidelines for Safe Handling/Disposal of Healthcare risk Waste

All containers including wheeled bins should conform to basic UN requirements relating to manufacture, colour coding, labelling, filling, closure and traceability

- **Manufacturers** of all packaging should conform to approved UN standards.
-
- **Colour Coding** assists in segregation but is not a UN requirement. The basic colour for the body of each container is yellow.
-
- **Labelling** – All healthcare risk waste should be labelled with information about the contents and recommended method of disposal e.g. diamond shaped risk label including appropriate biohazard symbol and method of disposal. Black & purple lidded bins, destined for overseas incineration, should also be labelled as Mercy University Hospital waste.
-
- **Filling** – Containers must not be overfilled. In general rigid boxes should be no more than ¾ full while bags should be no more than 2/3 full (to aid closure of the bags). Wheeled bins must not be filled beyond the point where closure of the lid is obstructed or causes the contents to be squashed.
-
- **Closure** – It is essential that lids are fitted and closed in accordance with manufacturer's recommendations. Plastic bags should be tied with plastic tie. Wheeled bins should be locked during storage and transportation.
-
- **Traceability**
  - ❖ All waste packages must be tagged with the black plastic coded tag, which is traceable to the point of production.
  - ❖ Records of tags issued to particular locations should be retained for a period of not less than 3 years.
  - ❖ Departments should not borrow tags from other areas as the tags are individualized for each department.

The plastic waste bags should be secured in a foot operated, lidded bin or carrier frame and lids marked, i.e. Clinical Waste.

To avoid injury the bags should be handled by the neck **only** and kept upright and away from the body. **Do not** put your hand underneath waste bags while lifting.

Waste should be stored in a **neat** fashion within the designated area on each Department. The designated storage areas should be cleaned regularly and kept dry.

Central collection/storage areas **must** be secured from unauthorized access, elements, pests and rodents.

During transport and storage of waste, segregation must be maintained.

Bags **must** be removed from the Department daily or more frequently if necessary (particularly areas without adequate storage space), especially from isolation areas or during periods of infection on general wards. Frequency of collection should be arranged to ensure that storage areas are always cleared before becoming over-filled.

Double bag before leaving Isolation areas for high risk cases e.g. Viral haemorrhagic fever, Typhoid, SARS.

Standard precautions should be used when contact with blood/body fluids is likely (See Infection Control manual).

Maintenance staff should wear heavy-duty clothing/heavy duty gloves, appropriate footwear, a face visor/respiratory mask, as required when handling waste bags/bins etc (London Waste Regulation Authority, 1994).

Blood / Body fluids which are contained in a secure container e.g. enclosed suction systems, must be carefully handled and placed in the appropriate yellow rigid bin. Remember to close the bin properly.

The central waste store should be equipped with spillage kits and washing / cleaning / disinfection facilities for dealing with spillages.
Spillages should be treated according to the methods outlined in the Cleaning/Disinfection Protocol -See Section 12.

All accidents/incidents involving healthcare risk waste must be reported without delay to the Maintenance Supervisor, Initiate first aid immediately, and refer the casualty to the Accident & Emergency Dept.

The Occupational Health Nurse should be informed:

Monday – Friday 8 am – 5 pm (Bleep 6626)

- Record and report the accident through the normal accident reporting system - See Policy for Accident / Incident reporting.
- Report the incident to a member of the Infection Control Team for

assessment, investigation and advice if required. (Damani N., 1997)

Radioactive Waste

The policy for safe handling/disposal of radioactive waste in the Mercy University Hospital X-ray Dept. is in conjunction with the Radiation Protective Institute of Ireland (R.P.I.I). Any syringe/needle/item containing traces of radioactivity is placed in a sharp's bin, within a lead-shielded container. When full, the bin is sealed, dated (replaced) and placed in a second, similar container until the next replacement is required. This 2nd re-process renders it completely inactive and the bin can now be disposed of as per usual Sharps Policy. The full guidelines, which are local to the X- ray Department, are kept on the Department.

13.5 Guidelines for Safe Use, Handling and Disposal of Sharps

Introduction

Sharps are defined as any items which can cause laceration or puncture wounds and may be contaminated with blood/body fluids. Examples include syringes/needles, intravenous cannulas, scalpels, suturing needles, broken glass, sharp objects, jagged metal etc. Sharp instruments frequently cause injury to healthcare workers and are a major cause of transmission of blood-borne virus (PHLS AIDS & STD Centre 1999).

Studies have found the cause of sharp injuries to be associated with disassembly of devices E.g. IV cannulas; recapping of needles; transfer of used sharps to point of disposal; sharps not discarded after use or overfilled containers (Eisinstein & Smith 1992, Jagger et al 1988, Weltman et al 1995)

Under Section 9 of the Safety, Health and Welfare Regulations, 1993(No. 44) each employee must –

- Take reasonable care for their own safety, health and welfare and that of any other person who might be affected by their acts or omissions.
- Co-operates with the employer to enable the employer to comply with

statutory obligations.

GENERAL PRINCIPLES FOR HANDLING & USE OF SHARPS

Every healthcare worker has a responsibility to ensure proper disposal of the sharps they have used.

Avoid sharp usage or handling wherever possible.

Avoid rushing when handling needles / sharps wherever possible.

Before undertaking any procedure involving the use of sharps, assess the risk involved and what protection may be necessary.

Seek assistance when administering injections, withdrawing blood or administering IV therapy to difficult or non co-operative patients.

DO NOT leave sharps lying around on patient's lockers, bed tables, IV trays/ anywhere else posing a risk to patients, visitors or staff.

Always use the designated tray with sharps bin to carry syringes/ needles/sharps to and from the patient's bedside.

Ensure sharps containers are placed at points of use.

Extreme care should be exercised to avoid dropping sharps on the floor instead of in the sharps container.

DO NOT use needles if there is any suspicion e.g. a broken seal that may have been used previously.

NEVER place a needle / sharp in a refuse bag.

NEVER bend, break or re-sheathe a needle .Dispose of syringe/needle as one single unit.

Sharps **MUST NOT** be carried or passed by hand to another person; nor should they be placed in pockets and carried to locker / bed rooms etc

Please display Sharp Posters on your Departments

Use of Sharp Containers

Sharp containers should conform to British Standard 7320 and be UN approved for the packaging of sharps. Sharp containers MUST be correctly assembled and used according to the manufacturers instructions. The label on the side of the container MUST be signed by the person assembling the container and securing the container as well as attaching the black coded tag to the lid. These tags should not be borrowed from other departments for traceability reasons

Sharps containers **MUST** be kept in a location which excludes injury to patients, visitors and staff and is readily accessible to staff. Special care should be exercised to prevent children from having access to sharps/sharps containers.

NB: The temporary closure must be activated when not in use.

Sharp Bins **MUST not** be left on the ground- attach to wall, to trolley, in special tray or on mobile unit (for the ground).

Always have an empty sharps bin in readiness on the emergency trolley.

Cytotoxic sharps **MUST** be disposed of as a complete unit (including bag, administration set, cannula) in the special cytotoxic sharps bin - purple lid.

Sharp containers must **NEVER** be overfilled (3/4 to the marked line) since used sharps protruding from overloaded containers constitutes a very significant hazard to those who have to handle them.

- Sharps **MUST** be dropped in, not pushed down.

- **DO NOT** use sharp containers for any other purpose e.g. storage of ward items etc.

- Sharp containers **MUST** be securely stored on the ward / department while awaiting collection.

- Transport staff **MUST** be adequately educated in the safe principles of dealing with sharps. They MUST take special care and should wear heavy duty gloves when collecting sharp containers.

- The containers **MUST** be stored in a secure, locked, depot whilst awaiting collection, to prevent any unauthorized access.

- Sharps Bins **MUST** be clean

METHODS OF SAFE DISPOSAL

It is the personal responsibility of the person using a sharp to dispose of it safely, immediately after use. Where the specific clinical procedure prevents the user from doing so, the user still retains overall responsibility for safe disposal of sharps.

If a sharp has been accidentally dropped it **MUST** be recovered and disposed of properly. If the search is unsuccessful, the individual should ensure that other people using the area are informed, so that they can take due care. The person in charge of the area should be informed and a record kept until the sharp has been located and properly disposed of.

It is particularly important to consider cleaning staff. Cleaning staff should be made aware that under no circumstances, at any time should they handle a sharp. In the event of them finding a sharp of any description they should report it to the person in charge of the Department.

Scalpel blades from non-disposable scalpels MUST be removed using a forceps or surgical blade remover and placed in the sharps container. Non disposable sharps should be placed in a suitable, secure container to await decontamination (as soon as possible).

Glass slides, glass drug ampoules, razors, disposable scissors, IV cannulas etc. **MUST** be discarded into a sharps container.

The attached sharps from IV blood / solution administration sets **MUST** be cut off with scissors and discarded into the sharps container. The scissors **MUST** be cleaned properly using an alcohol-impregnated swab.

When syringes containing arterial blood are being sent to the laboratory,

needles **MUST** be removed (placed in the sharp container) and the nozzle of the syringe sealed by means of the luer rubber cap/blunt hub supplied.

14. Collection of Specimens for Laboratory Examination

Introduction

Hazards of infection, both to patients and staff, occur during the collection of specimens, during transport to the laboratory and during examination in the laboratory.

Faulty technique during collection may result in inadequate, misleading or delayed laboratory reports which may affect a patient's treatment, including management of infection. During collection, especially of urine specimens, the patient may become infected. The nurse may be infected by contamination of the hands/clothing or by inhalation of infected aerosol material during transfer to the containers. During transit the person carrying the specimen may be infected by contaminants on the outside of the container, or through leakage or breakage of the container. In addition the environment may become contaminated during these procedures and lead to an indirect spread of infection (Ayliffe et al, 1993).

Laboratory staff receiving unlabelled, potentially hazardous material (e.g. sputum from a patient with suspected pulmonary tuberculosis/blood from a patient with suspected hepatitis) are also at risk. To ensure correct investigation, specimens should be correctly labelled and accompanying request forms should contain appropriate and adequate clinical details. Specimens should routinely be transported in an upright position. High Risk specimens should be placed in dual compartment "Bio-hazard" plastic bags (Wilson, 1991). See also Section 10- "Special Risk Infection" Coding System

14.1 Information on Request Forms

The request form provides a very important source of information for the laboratory staff. It assists them in the identification of the causative organism. The request form should therefore always be completed accurately.

Of particular importance is an accurate indication of the site of the specimen. Some bacteria may form part of the normal flora in one site of the body and yet be pathogenic if isolated elsewhere. If the patient is receiving antibiotic therapy, antibiotic present in the specimen may inhibit the growth of bacteria in cultures and produce misleading results. The date and time of collection is also important. A relevant history, including symptoms of infection or suspected site of infection can assist in the interpretation of the results. For example,

information on the nature/frequency of vomiting and diarrhoea should accompany a specimen of faeces.

NB: Remember to include the ward/dept. on the form, and to place a label on both sides of the form. Otherwise the results cannot be returned to the ward/Dept.

Transport of Specimens

Potentially infectious material presents a hazard when it is being transported and care must be taken to ensure that risk to other people is kept to a minimum. Recommendations have been made by the HSAC (1991) for the safe transport of specimens, which include carriage in leak proof containers/boxes and a procedure for dealing with spillage. The member of staff who collects the specimen has a responsibility to ensure the following-

The specimen container is leak proof and securely sealed with no traces of blood/body fluid on the outside of the container and the specimen container should not be overfilled.

Secured in a Bio hazard marked bag.

Specimen is accompanied by a fully completed request form. (See 14.1 for details).

14.2 Collection of Urine Specimens

Faulty technique for the collection of both M.S.U. and C.S.U. can lead to contamination of the specimen and an erroneous diagnosis of urinary tract infection (Ayliffe et al, 1993).

Urine specimens easily support the growth of bacteria and their multiplication in specimens stored at room temperature can produce misleading results. The specimen should therefore be examined in the laboratory within 2 hours. Alternatively if delays are unavoidable, the specimen should be placed in the designated refrigerator in the laboratory. If refrigerated, it can be stored for up to 24 hours. Specimens should NOT **be left to lie around in receptacles, on ledges etc.** REMEMBER **to take Standard Precautions when dealing with urine.**

Catheterised Specimens of Urine (C.S.U.)

This procedure MUST be carried out under strict aseptic technique. NEVER disconnect the drainage tubing to obtain a sample, as any interruption of the drainage system poses a risk of infection to the patient. NEVER take a sample from the drainage bag (Ayliffe et al, 1993).

If clamping is necessary - clamp **ONLY** the drainage tubing. **NEVER** clamp the catheter.

Sterile gloves should be worn for this procedure and remember to wash hands before/after wearing gloves.

First disinfect the port with a sterile alcohol (70%) impregnated swab.

The sample may then be aspirated, using a sterile 5ml syringe and needle (inserting the needle at an angle, to prevent penetration of the distal end) and transferred to a sterile universal container. The needle should be removed for transfer of the urine, taking due care to prevent needle stick injury. **REMEMBER** to carry a receptacle for the syringe/needle.

Label the container/dispatch to the laboratory as soon as possible with the completed request form, indicating that it is a C.S.U.

Mid Stream Specimen of Urine (M.S.U.)

- **Ambulant patients should have a shower in preference to having a bath before collecting an M.S.U. For female patients confined to bed, thorough washing of the vulval area with mild, non scented soap, clean water and a clean cloth is all that is necessary.**

Explain the procedure clearly to the patient - mid stream urine to be collected, using a clean disposable carton (in the case of the female patient) and transfer to the universal container, taking care to avoid touching the inside of both containers during the process. NO MORE THAN 5 MLS OF URINE IS REQUIRED.

Label the container, complete the request form (taking care to enter M.S.U.) and dispatch to the laboratory as soon as possible.

Faecal Specimens

Faecal specimens should be collected from a bedpan using the integral scoop of the sterile stool container.

Gloves should be worn for this procedure and hands washed on removal

of gloves.

Avoid contamination of the outside/neck or cork of the container.

For bacteriological examination only, a small amount of faeces is all that is necessary. There is no need to fill a container.

14.3 Sputum

Specimens of saliva are of no value so it is important to ensure that the specimen is mucoid or mucopurulent. Encourage patients who are having difficulty in producing sputum, to cough deeply first thing in the morning. Alternatively the physiotherapist may be called to help.

Sputum specimens should be sent to the laboratory immediately as respiratory pathogens do not survive for prolonged periods (Wilson, 1995).

It is often difficult to obtain a specimen of sputum without contamination of the rim and outside wall of the container. Some protection can be given to staff handling the container if- after collection of the specimen the rim and outside of the container are wiped with a paper tissue to remove major contamination before putting on the lid. The tissue should be disposed into a clinical waste bag. Gloves should be worn for the handling of such containers, which should be placed in a dual compartment Bio- hazard bag, keeping the form separate from the container (Ayliffe et al, 1993).

14.4 Swabs

Swabs collected from infected sites should be transferred carefully to the swab container and inserted slowly to avoid contamination of the rim with infected material. The container should be held as near to the site as possible to avoid shaking infected material in the air. Send the swab to the laboratory as soon as possible.

Wound Swabs

Wounds should be swabbed before they are cleaned and the swab should be taken directly from the area suspected to be infected.

If pus is present it can be drawn up in a sterile syringe and transferred to a

sterile container. A tube of transport medium accompanies most type of swabs, this will prolong the survival of micro- organisms for several hour

It is extremely important to label the wound swab accurately, indicating the exact site from which it has been collected. This helps the laboratory predict the type of micro- organisms to expect in the swab and to identify the site of infection should the patient have more than one wound.

Bacteria isolated from a wound swab should not be considered as infecting the wound unless there is also evidence of an infection process occurring in the wound; for example pus, inflammation, erythema or fever. A swab need only be taken where the wound exhibits these signs of infection. This is particularly the case in cases of chronic wounds such as pressure sores or ulcers, where wounds may be colonized by several different bacteria with no adverse effect.

Other Swabs

Nasal Swabs- **The swab should be rubbed inside the exterior nares. One swab can be used to sample both nostrils.**

Perinasal swab of the naso-pharynx- **is required where whooping cough is suspected. The swab is fixed onto a long flexible wire and accompanied by charcoal transport medium.**

Throat Swabs - **should be taken by depressing the tongue and gently rubbing the swab over the pillars of the fauces. Care should be taken to avoid touching other parts of the mouth, which may contaminate the swab with other bacteria.**

Ear Swabs- **ears should be swabbed carefully ensuring that the swab is introduced gradually and not inserted very far. Medical staff, using a speculum should only undertake deeper swabbing**.

Vaginal Swabs- **Vaginal swabs should always be sent to the laboratory in transport medium. Investigation for some sexually transmitted diseases requires special transport media- Contact the laboratory for advice.**

Skin Swabs- **e.g. groin/axilla- usually to look for resistant strains of bacteria, which may colonize the skin, particularly methicillin resistant Staph aureus. Swabs should be moistened in transport media or sterile saline solution to improve the efficiency of sampling. One swab will suffice for both groins and one swab for both axillae.**

Chlamydia Swabs **(with instructions) available from Infection Control**

Procedure for Swabbing for MRSA

- Use swab in transport medium.
- Each swab should be gently rubbed on the surface to be swabbed. The swab should be rolled over several times during the swabbing so that the whole of the swab comes in contact with the surface being investigated.
- In order to standardise the procedure it is best to take a standard twenty seconds for each swab. In the case of a nasal swab i.e. where one swab is used per patient, ten seconds should be spent on each side of the nasal cavity

Blood Specimens

In addition to Hepatitis and HIV infection several other infections, including typhoid fever, can be acquired from blood specimens. Blood should always therefore, be regarded as potentially infected and care should be taken to avoid contact with all blood.

Blood Samples

Intact non-sterile latex gloves should always be worn when taking blood samples and hands should be washed after removal of gloves. Any cut or abrasion should be covered with a waterproof plaster.

Extreme care should be exercised to avoid needle stick injury on withdrawing the needle from the site and on disposal of the needle. Always carry the yellow tray (sharps bin insitu) to the bed side when taking blood samples. Never re-sheathe a needle.

When finger prick specimens are taken exercise the same precautions.

Blood Cultures

To identify bacteria in the blood, a sample MUST be taken very carefully to avoid contamination by skin flora. This is a completely sterile procedure. Hands **MUST** be washed, using Hydrex and running water, and sterile gloves **MUST** be worn.

Exercise the same protective precautions as already outlined (above).

Care should be taken to avoid contamination of the outside of the bottles.

Dispatch to the laboratory as quickly as possible. Complete the request form with accurate details including any microbial treatment that the patient is taking.

If in doubt or any queries contact the Microbiologist / Laboratory staff or Infection Control

Infection Control
Mercy University Hospital, Cork
Equipment - Cleaning / Decontamination Certificate

Standard: All equipment for maintenance/service/repair either within the area or transferred from the area is pre-cleaned, decontaminated

Department _____

Type of Equipment_____
_____

Equipment Serial Number_____

Description of Cleaning
_____

_____

Type/strength of chemical disinfectant used (if used)

_____

Additional information/ details (if any)_____

_____
_____

Signed _____

Date _____

Copy of Decontamination Certificated MUST be kept on file

Infection Control
Mercy University Hospital, Cork
Equipment - Cleaning / Decontamination Certificate

Standard: All equipment for maintenance/service/repair either within the area or transferred from the area is pre-cleaned, decontaminated

Department _____

Type of Equipment_____
_____

Equipment Serial Number_____

Description of Cleaning
_____

_____

_____

Type/strength of chemical disinfectant used (if used)

_____

Additional information/ details (if any)_____

_____

Signed _____

Date _____

Copy of Decontamination Certificated MUST be kept on file

CONSENT FORM

Date…….

Patient Number……

I, Name …….

Address…….

……hereby consent to.

Have a blood test For the HIV (AIDS) virus and/or serum Hepatitis B/C virus.
on

Name of Patient if patient not giving consent (for Parents/Guardians) …….. Please state your relation to the Patient……

Signature of……..
Patient / Parent /Guardian

Signature of Witness…….

I confirm that the reason why this test is necessary has been explained to the person who signed the above form for consent

Medical Practitioner

Signature……..

Name in Capitals…….

10.9 (A) Mercy University Hospital Patient Decontamination Protocol for MRSA

Patients colonised with MRSA who are to undergo an elective procedure, have a prosthesis in situ or are in a clinical area where there is high risk of colonisation leading to invasive infection, eg ICU should undergo decolonisation. A risk assessment of other patients such as long stay patients or patients with chronic nasal colonisation should be carried out to determine if nasal decolonisation should be attempted in these patients. However, excessive use of nasal decolonisation agents should be avoided as this may select for resistance to these agents (SARI (2005) p.19).

This regimen should be commenced on the advice of the Infection Control Team only and in consultation with the Consultant. It is not a prescription.

Guidelines for administration of Prometic Body Wash & Shampoo	**Guidelines for the administration of Mupirocin Nasal Ointment 2% (Bactroban) as prescribed on drug chart**
Patients should bathe daily for 5 days with special attention to the known possible carriage s ▪ Wash skin thoroughly ▪ Apply body wash using clean cloth ▪ Wash whole body paying particular attention to the hairline, axillae, perineum, groin, feet and any patch of damaged skin. These should be at least 1 minute contact. ▪ Rinse skin thoroughly ▪ Wash hair with the agent twice during the 5 days ▪ After washing patient should have fresh change of clothes & bed linen	**Apply Bactroban 2% Nasal Ointment to the nose three times daily for seven days** ▪ Encourage patient to blow the nose to clear away secretions ▪ Unscrew cap & squeeze a small amount (pea size) of ointment onto a cotton bud ▪ Apply to the inside of both nares ▪ Close nostrils by pressing the sides of the nose together

- **Use Nasal Ointment <u>only</u> as prescribed**
- **Re- screen with swabs for MRSA after 24 hrs, 3 days and 5 days unless the patient is being discharged.**
- **Records should be kept of swabbing results**

Reference- Strategy for Control of Antimicrobial Resistance (SARI) 2005, Section B1. 24, P19.