

Yorkshire and Humber Neonatal ODN Clinical Guideline

Infection Control Practices on Neonatal Units within the Yorkshire and Humber Neonatal ODN

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This clinical guideline has been developed to ensure appropriate evidence based standards of care throughout the Yorkshire and Humber Neonatal ODN. The appropriate use and interpretation of this guideline in providing clinical care remains the responsibility of the individual clinician. If there is any doubt discuss with a senior colleague.

A. Summary page

There are 3 levels of infection control- red, amber and green. See full guideline for full details.

Green (infants with no known colonising organisms of concern)

These require standard infection control practices ie universal precautions

AMBER	RED	RED*
Moderate risk	High risk	Airborne pathogens
Barrier precautions	Barrier precautions	Barrier precautions
Nurse in incubator, can come out for breast feeding/kangaroo care	Nurse in isolation room with door closed or some organisms nurse in incubator with additional precautions (unit specific)	Nurse in incubator, cannot come out for breast feeds/kangaroo care or nurse in isolation room with door closed
Amp C producing organisms (e.g. Serratia sp)	Admission from outside neonatal network until reassured by screening swabs	Group A streptococcus (until 48 hours treatment completed)
CPE low risk area	CPE colonisation	RSV/enterovirus/respiratory viruses
CMV infection	CPE high risk area	Varicella virus infection (in baby)
HSV if skin/mouth lesions	Extended spectrum Beta lactamase producing organisms (ESBL)	
MRSA in parent	MRSA colonisation	
Listeria sp	PVL producing staph aureus	
Other multi-resistant organisms	Readmission from home pending risk assessment regarding respiratory viruses/other screening	
Rotavirus	Resistant Pseudomonas (to 2 or more antibiotic classes)	
	VRE/GRE colonisation	

B. Full guideline

Control of infection is a crucial part of neonatal intensive care. The patients are more prone to infection and infections will contribute to their long term morbidity and mortality.

Hand hygiene is the single most important factor in minimising the transmission of organisms.

2. Aim

To help standardise and ensure safe practice across the neonatal ODN while maintaining patient flow and therefore the function of the ODN.

To create pathway for communication of infection control concerns across the Y&H neonatal ODN.

3. Areas outside remit if applicable

Management of infants infected with specific organisms

4. Core guideline

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4.1 General Infection control measures

Units should have local policies regarding the following:

- Hand hygiene (the 5 moments of hand hygiene, see appendix 1)¹
- Care bundles for insertion and maintenance of central lines with early removal²
- Avoidance of antacids³
- Use of antifungals in high risk infants⁴
- Skin care bundle⁵
- Early use of expressed breast milk with oral/buccal use⁶
- Minimising use of antibiotics and use of narrowest spectrum⁷
- Environmental cleaning policies, awareness of high risk areas for cross contamination (e.g. milk kitchen) + regular audits to monitor compliance⁸
- Water outlet flushing⁹
- Cleaning of multiple use and shared equipment with suitable bactericidal/fungicidal agent⁸

Visitors, families and new staff (including visiting professionals) should be introduced to the policies and assisted in adhering to them.

4.2 Baby zone

Creation of the “baby zone”(also known as) “baby’s world” or “baby’s bubble” helps protect the infant further.

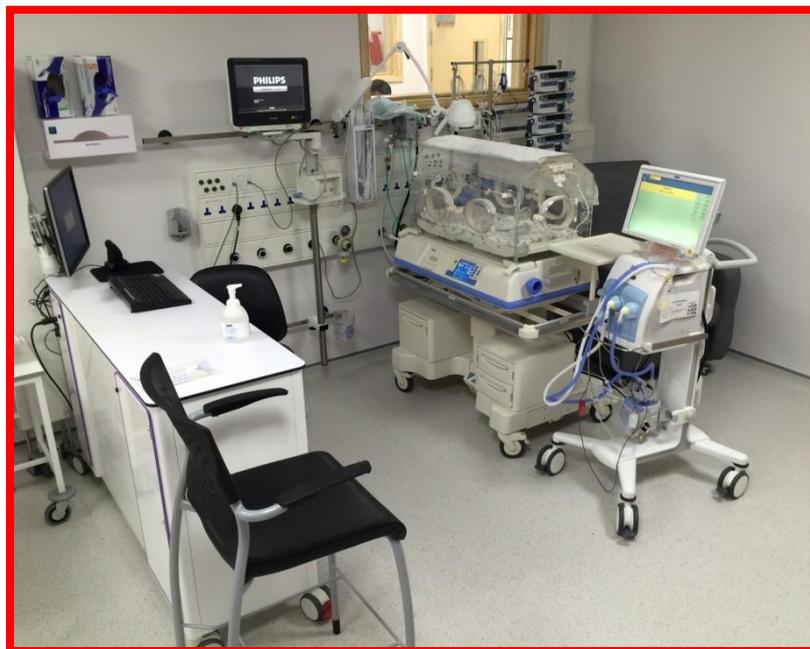
The area includes the infant’s incubator, monitor, observation chart and surrounding area (see photo for example of area covered). By decontaminating hands before and after entering this “zone” the spread of organisms is reduced. Note this is in addition to undertaking hand decontamination prior to touching the infant within their incubator.

There should be easy access to hand-gel / gloves within each area.

The area within the “baby zone” should be as clutter free as possible to allow ease of cleaning. General / shared items should not enter this area without adequate decontamination before and afterwards.

Ideally access to the “baby zone” should be restricted to essential personnel, i.e. minimise “passing traffic”

See appendix 2 for parent information leaflet/poster example.



With Acknowledgement to Bradford Royal Infirmary Neonatal unit for providing the above picture.

4.3 Communication regarding infection concerns

To aid the flow of infants within the neonatal network while maintaining safety units should notify the network team and Embrace if they have concerns regarding an infection/colonisation “outbreak”. This includes;

- Any infant colonised or infected with CPE
- 2 or more infants with the same pathogenic organism within a 2 week period (i.e. excluding coagulase negative staphylococcus unless unusual antibiotic resistance pattern seen).
- Any local infection control concern regarding an outbreak

Notification should be via the network email address Y&HNEOCOTS@sch.nhs.uk

The network team may then contact units for further details/cascade information depending on the infection/level of concern.

Embrace should be notified if after transfer any infant subsequently develops an infection/is colonised with an “organism of concern” to allow them to deep clean equipment and undertake contact tracing if necessary.

For infants known to be infected or colonised with an organism of concern, full information should be documented clearly within the “Badger” transfer letter. Embrace must also notified to allow the receiving unit to be aware and for Embrace to initiate the correct cleaning protocols.

Although it is important receiving units are fully aware of babies requiring “Red” or “Amber” measures this should not usually delay or prevent transfer. Adequate infection control can be achieved for amber, and some red via isolation within incubators and meticulous attention to the infection control practices outlined in this guidance

4.4 Screening

All infants should be screened for MRSA on admission and weekly.

Transfers from outside the Y&H neonatal network should have CPE swabs (see section 4.8).

Other swabs may be performed based on local advice/practice.

4.5 Levels of concern;

There are 3 levels of infection concern;

4.5.1 Green

This is for infants with no known colonising organisms of concern. It must be remembered that there may be organisms that have not yet been identified and therefore hand hygiene and universal precautions must be maintained.

4.5.2 Amber

This is for infants with known colonisation of organisms of moderate concern (see 4.6 for list).

While maintaining excellent hand hygiene should suffice as these pathogens are not airborne, the use of barrier precautions will help raise awareness and reduce the risk of spread of these organisms.

Some units may choose to treat all infants transferred into their trust as amber, despite no known concerning organisms. In this situation, an incubator will act as sufficient isolation- these infants do not require isolation within a side room. All laboratories within the network meet national standards therefore negative swab results from referring hospitals can be considered valid.

Amber precautions entail;

- Hand decontamination prior to touching anything in the “baby zone”
- Hand decontamination to elbow prior to touching patient
- Use of aprons and gloves when touching patient
- Hand decontamination after touching patient/baby zone
- Consider location in nursery which will minimise passing traffic
- Avoid moving patient around nursery where possible.

Notification should be displayed to alert staff/visitors of a baby within this category (see appendix 3 for example).

4.5.3 Red

This is for infants colonised with high risk organisms. These are either multi-resistant organisms or those at high risk of spread and causing significant harm.

Some of these organisms, marked * are airborne, therefore the baby should only be taken out of their incubator for breast feeds/kangaroo care if they are in an isolation room with the door closed.

Red precautions entail

- Isolation of baby in incubator or isolation room with closed door (depending on organism/local unit policy).
- Hand decontamination prior to touching anything in the “baby zone”
- Hand decontamination to elbow prior to touching patient
- Use of aprons/gowns and gloves when touching patient
- Hand decontamination after touching patient/baby zone
- If there are a number of patients with the same organism, it may be appropriate to cohort nurse them together.
- Individual trolley with aprons/gowns /gloves/hand-gel outside isolation room / patient area.
- For infants with organisms marked * (i.e. those at risk of airborne spread) to remain in their incubator or within an isolation room with the door closed

For infants being maintained within an incubator within the main nursery;

- Consider location in nursery which will minimize passing traffic
- Avoid moving patient around nursery where possible.

Notification should be displayed to prompt staff of a baby within this category (see appendix 3 for example).

4.6 Organisms

Note this list is not exhaustive and further advice may be required from the infection control team within trusts.

AMBER	RED	RED*
Moderate risk	High risk	Airborne pathogens
Barrier precautions	Barrier precautions	Barrier precautions
Nurse in incubator, can come out for breast feeding/kangaroo care	Nurse in isolation room with door closed or some organisms nurse in incubator with additional precautions (unit specific)	Nurse in incubator, cannot come out for breast feeds/kangaroo care or nurse in isolation room with door closed
Amp C producing organisms (e.g. Serratia sp)	Admission from outside neonatal network until reassured by screening swabs	Group A streptococcus (until 48 hours treatment completed)
CPE low risk area	CPE colonisation	RSV/enterovirus/respiratory viruses
CMV infection	CPE high risk area	Varicella virus infection (in baby)
HSV if	Extended spectrum Beta	

skin/mouth lesions	lactamase producing organisms (ESBL)	
MRSA in parent	MRSA colonisation	
Listeria sp	PVL producing staph aureus	
Other multi-resistant organisms	Readmission from home pending risk assessment regarding respiratory viruses/other screening	
Rotavirus	Resistant Pseudomonas (to 2 or more antibiotic classes)	
	VRE/GRE colonisation	

ESBL- there is a variety of resistance patterns seen within this category and it may be appropriate to “down grade” these to amber on local microbiology advice.

Units may decide to “down grade” babies who were colonised with MRSA but who have had adequate decolonisation treatment and a sufficient number of negative swabs following this. This should be agreed locally.

Babies colonised with multi-resistant Gram negative organisms (CPE, ESBL and others) cannot be reliably decolonized and should remain in the same category for the duration of their neonatal stay.

Communicable illness within the infant’s family need discussion with local infection control/microbiology teams (e.g. chicken pox, pulmonary TB, C difficile, respiratory viruses, gastroenteritis).

4.7 MRSA in parents

Parents colonised with MRSA can be viewed in the same way as “visitors” within a trust i.e. encouraged to observe careful hand hygiene for the benefit of both the neonatal unit as a whole but also their own infant who is at increased risk of obtaining MRSA colonisation throughout their stay on NNU.

Consider decolonizing parents (consult local infection control for further advice).

Parents with historical MRSA may be treated as “green” category; other local policies may deem them to be of “amber” category throughout their stay.

4.8 Carbapenemase Producing Enterbacteriae (CPE)

These are gram negative organisms know to be resistant to carbapenemases (meropenem).

Currently the Yorkshire and Humber Neonatal ODN has no neonatal units that are endemic for these organisms, therefore transfers from units within the network can be viewed as coming from a low risk area (amber). If this situation changes, units will be notified via the network (see communication section).

It may be reasonable to request multiple negative CPE swabs if a baby is admitted from a unit with known CPE colonisation prior to transfer (this does not currently involve Y&H).

Babies who have been transferred from a high risk area can be moved to “green” category once swabs for CPE deemed negative.

Infant’s positive for CPE will be deemed red for their entire neonatal unit stay.

4.9 Readmission from home

In some instances it may be necessary to readmit a baby to the neonatal unit after discharge home. This should be minimised wherever possible due to the added risk of community infections, particularly respiratory viruses. These infants should be categorised as “red” until appropriate screening has been undertaken and is reassuring.

5.0 References

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10. Appendix 1- Leeds teaching hospitals neonatal unit

11. Appendix 2 WHO

12. Appendix 3- Jessop Wing Neonatal unit

Acknowledgment to the Neonatal Infection Control Group

Dr. Kenneth Agwuh, Consultant Microbiologist, Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust. Dr Kaviti Sethi, Consultant Microbiologist, Leeds Teaching Hospitals NHS Trust. Louise Crabtree, Lead Nurse, Yorkshire and Humber ODN. Dr Elizabeth Pilling, Consultant Clinical Lead, Sheffield Teaching Hospitals NHS Foundation Trust. Dr Sam Wallis Consultant Neonatologist, Bradford Teaching Hospitals NHS Foundation Trust. Dr Liz Mckechnie Consultant Neonatologist Leeds Teaching Hospitals NHS Trust., Louise Brighthouse-Johnson Sister, Bradford Teaching Hospitals. Karen Mckie Sister Doncaster and Bassetlaw Teaching Hospitals

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“With circulation and contributions from all neonatal network hospitals and infection control teams in the Yorkshire and Humber Network”.



The Yorkshire and Humber
Neonatal
Operational Delivery Network

Baby's Bubble

What is it?

Baby's Bubble is an invisible barrier around each babies space that ensures the baby is within a safe and clean space. This helps to prevent infection and protects your baby. This bubble includes everything in and around your baby's space including your baby's equipment and paper work.

What can you as parents do to help?

- Always wash your hands with soap and water when you enter the 'bubble'
- Take outside coats off and leave them in the lockers provided
- Ensure all of your visitors wash their hands with soap and water
- Don't be afraid to challenge any member of staff if they haven't washed or gelled their hands appropriately

Why is it so important to protect your baby's bubble?

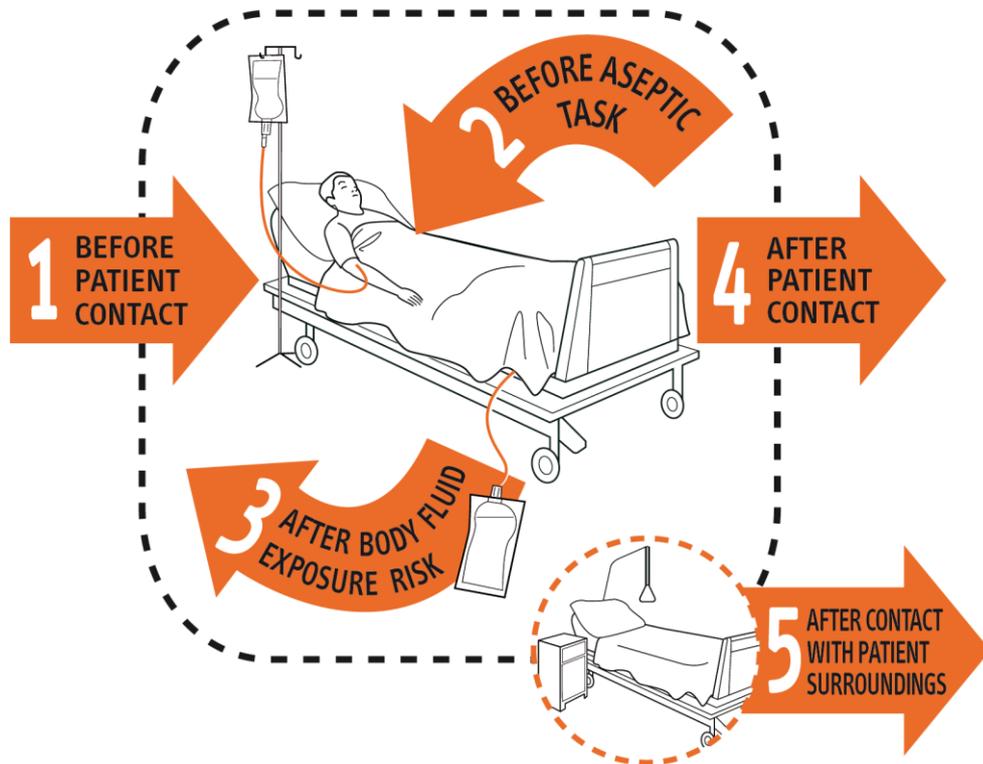
- Babies born too early and those who are sick are very fragile and vulnerable to infection
- Washing your hands effectively helps to prevent the spread of infection
- Babies who acquire infections have longer stays in hospital and need more antibiotics



With Acknowledgement to Leeds Teaching Hospitals Neonatal unit for providing the above poster.

Your 5 moments for HAND HYGIENE

Design: monodialogue network



1 BEFORE PATIENT CONTACT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2 BEFORE AN ASEPTIC TASK	WHEN? Clean your hands immediately before any aseptic task WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4 AFTER PATIENT CONTACT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5 AFTER CONTACT WITH PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient WHY? To protect yourself and the health-care environment from harmful patient germs



WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.



October 2006, version 1.



I am currently needing some extra care

Appendix 3 ¹³



Please contact my
nurse **before**
opening my
incubator or
touching my
charts/equipment

With Acknowledgement to Jessop Wing Neonatal unit for providing the above poster.