

## Neonatal Exchange Transfusions in NSW

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**Summary** Describes the circumstances and clinical environment in which neonatal exchange transfusions should be performed.

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**Author Branch** Statewide Services Development

**Branch contact** Bart Cavalletto 9424 5814

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## NEONATAL EXCHANGE TRANSFUSIONS IN NSW

### Background:

Exchange transfusion is a critical therapeutic procedure in babies with, or who are likely to develop, neurotoxic levels of bilirubin. Historically it was one of the most common procedures performed in neonatal services. Three factors have led to exchange transfusions becoming less commonly performed, namely, the effective prevention of rhesus iso-immunisation with prophylactic Anti D for rhesus negative mothers; foetal intrauterine transfusions; and, the recognition that well babies born at term with physiological jaundice can tolerate higher levels of bilirubin than previously thought<sup>1</sup>.

The effect of these changes is that, even in tertiary centres, exchange transfusion has become an uncommon procedure, and is now a rare event in non-tertiary centres. This means that outside tertiary centres, clinicians have limited opportunities to gain the necessary experience in performing a vital procedure that can have significant complications.

Sometimes the need for exchange transfusion can be anticipated in advance enabling sufficient time to arrange transfer of the baby to a tertiary neonatal centre. However, many of the cases of severe neonatal hyperbilirubinaemia now occur in unpredictable situations (eg glucose 6 phosphate dehydrogenase deficiency and ABO incompatibility). This may result in babies presenting to any level of neonatal service with bilirubin levels already in the neurotoxic range. In this situation, the delay involved in transfer to a tertiary neonatal centre will create an unacceptable increased risk of neurological injury. Consequently, there may be circumstances where exchange transfusion may need to occur outside a tertiary centre.

### Selecting a hospital for an exchange transfusion:

1. Pregnancy and birth care should be planned in a tertiary centre for pregnancies where there is a known risk that the baby will, or may, need an exchange transfusion. For example in Rhesus sensitised mothers.
2. When a baby presents to a non-tertiary service with a neurotoxic or potentially neurotoxic bilirubin level, that service **MUST** discuss the clinical situation with the on-call neonatologist at a level 5 or 6 tertiary neonatal centre. If transfer of the baby is contemplated, that discussion should occur via the NSW newborn and paediatric Emergency Transport Service (NETS) Clinical Coordination Centre: 1300 362500. That discussion should address the time available to transfer the baby to that level 5 or 6 tertiary neonatal centre for an exchange transfusion. These services include Royal Hospital for Women, Liverpool, Royal North Shore, Royal Prince Alfred, Nepean, Westmead and John Hunter Hospitals, The Canberra Hospital, Sydney Children's Hospital and Children's Hospital at Westmead.
3. Central to the discussion should be the availability of appropriate blood for an exchange transfusion and if blood is not available at the referring centre,

a decision will need to be taken on whether it will be quicker to move the blood to the baby or the baby, closer to where blood is available.

4. If transfer is possible, this should take place as a matter of urgency, allowing exchange transfusion to occur in a appropriate facility;
5. If transfer is not possible, then exchange transfusion will need to occur at the hospital at which the baby presented. The contacted neonatologist can then advise on procedure. The discussion should also canvass general treatment advice for hyperbilirubinaemia.

### **Treatment thresholds and procedure:**

This Guideline does not direct the treatment thresholds or procedures to be used for exchange transfusion. These should be directed by the policies and procedures in place at facilities where exchange transfusions will take place.

All hospitals caring for newborn babies should review and update local policies and procedures for Neonatal Exchange Transfusion on receipt of this Guideline.

Useful resources for the development of local policies are as follows:

1. American Academy of Pediatrics, Subcommittee on Hyperbilirubinemia. Management of hyperbilirubinemia in the newborn infant 35 or More Weeks of Gestation. **Pediatrics**, July 2004; 114: 297 - 316.  
<http://aappolicy.aappublications.org/>
2. Royal Prince Alfred Hospital Department of Newborn Care Protocols.  
<http://www.cs.nsw.gov.au/rpa/neonatal/default2.htm>
3. Auckland Hospital Neonatal intensive care Unit Guidelines Jaundice and Exchange Transfusion <http://www.adhb.govt.nz/newborn/Guidelines.htm>

Robyn Kruk  
**Director-General**