

Rapid over infusion of Parenteral Nutrition

In September 2017, the national patient safety team at NHS Improvement issued Patient Safety Alert [NHS/PSA/W/2017/005](https://www.nhs.uk/alerts/nhs-psa-w-2017-005) – Risk of severe harm and death from infusing total parenteral nutrition too rapidly in babies.

The alert outlined the critical nature of ensuring that parenteral nutrition (PN) is infused at the correct rate and, following a search of the National Reporting & Learning System, outlined the three main types of error identified where the rate of infusion had been incorrect.

- Incorrect set up of the lipid and aqueous components of PN – resulting in the lipid component being run at the rate set for the aqueous component and vice versa.
- Incorrect infusion rate entered into the administration pump
- Miscalculation of volumes when fluid or pump related changes were made

Organisations were asked to ensure that an action plan was underway to reduce the risk of harm to babies through the administration of PN.

Following the death of a premature baby; this update has been prepared to bring to your attention an additional error type that can result in rapid over infusion of PN.

In this case, a new bag of PN was hung and attached to the patient, **before** the giving set had been attached to the pump and **before** the previous bag had been taken down. The second bag was then taken down, but the member of staff involved forgot to attach the giving set to the pump; as a result, the PN bag was running as free-flow. The significance of this was that the baby, instead of receiving the aqueous component at a rate of 2mls per hour, received 150mls in 1 hour.

The rapid infusion produced significant clinical consequences, including severe hyperglycaemia, severe metabolic acidosis and severe bradycardia, resulting in the baby suffering a fatal cardiorespiratory arrest.

The lessons learnt by the organisation included;

- Remove old bag before hanging new bag
- All fluids must have the giving set attached to the pump **before** attaching to the patient
- Consider the use and number of octopus extensions in use and the potential for error

Organisations are asked to consider the error above and ensure that current policies and practice could not allow this error to happen.

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