

## SAFETY MEMO 15

To: Directors of Pharmacy/Heads of Pharmacy and Medicines Management, HSC Trusts

Cc: Dr N Morrow, Chief Pharmaceutical Officer, DHSSPS  
Mr J Brogan, Assistant Director Commissioning - Pharmacy and Medicines Management, HSC Board

From: Medicines Governance Team

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### RE: Risk of overdose with intravenous paracetamol

You will be aware that there have been a number of reports of accidental overdose of **intravenous paracetamol 10mg/mL solution for infusion** (Perfalgan®). Earlier this year a Fatal Accident Inquiry from Glasgow reported on a 19 year old patient, weighing 35kg, who received 1g intravenous paracetamol four times a day for 20 doses. The correct dose for a patient of this weight would have been 525mg four times a day. The patient subsequently died of liver failure due to paracetamol toxicity.<sup>1</sup> In addition there have been reports of infants and neonates receiving a ten-fold overdose due to confusion between the dose in milligrams (mg) and the volume to be administered in millilitres (mL)<sup>2,3</sup>. Patients have received duplicate doses when moving between theatre and the ward due to inadequate documentation.<sup>3</sup>

There are a number of learning points for healthcare staff:

- Because oral paracetamol is widely used, healthcare staff may perceive that they are familiar with paracetamol use by all routes<sup>1</sup>.
- There may be an assumption that the intravenous dose is equivalent to the oral or rectal dose in all patients<sup>1,3</sup>.
- Healthcare staff may not be aware that the strength of intravenous paracetamol is **10mg/mL**.<sup>2</sup>
- Healthcare staff may be unaware of the need to:
  - adjust the dose of intravenous paracetamol according to weight in patients who **weigh less than 50kg** whether they are children or adults.<sup>1</sup>
  - adjust the minimum dose interval to **six hours** in patients with **renal impairment**.<sup>1</sup>

### Recommendations

The Regional Medicines Governance Team recommends the following actions:

1. Trusts publish guidelines on use of intravenous paracetamol, including the following points:
  - a. The strength of paracetamol solution for infusion is 10mg/mL.
  - b. The dose of intravenous paracetamol is weight based.
  - c. The prescribed dose should be administered over 15 minutes.
  - d. Advice on safe methods of administration.

- e. Each patient's weight should be documented on the Medicine Prescription and Administration Record (Kardex).
  - f. Do not prescribe paracetamol by multiple routes for patients who weigh 50kg or less.
  - g. No other product containing paracetamol may be prescribed by any route at the same time as intravenous paracetamol.
  - h. Before prescribing or administering paracetamol check when the last dose was given. Where applicable this check should include a review of the anaesthetic record or emergency department flimsy.
  - i. Review the continued need for intravenous paracetamol and consider the enteral route as soon as possible.
2. Trusts consider using the 50mL vials in patients who weigh less than 33kg to reduce risk of overdose.

The dose regimen for intravenous paracetamol is as follows :

Patient weight	Dose and frequency	Maximum dose in 24 hours
Adults and children/adolescents over 50kg	1g every 4-6 hours	4g per day
Children 33-50kg, adults and adolescents less than or equal to 50kg	15mg/kg every 4-6 hours	60mg/kg (but not exceeding 3g)
Children weighing more than 10kg (approximately 1 year old) and less than 33kg	15mg/kg every 4-6 hours	60mg/kg (but not exceeding 2g)
Term newborn infants, infants, toddlers and children weighing less than 10kg (up to approximately 1 year old)	7.5mg/kg every 4-6 hours	30mg/kg
<b>Consult Summary of Product Characteristics (SPC) for further information including dose adjustments required for severe renal impairment, hepatic impairment and malnutrition</b>		

#### References

1. Sheriffdom of Glasgow and Strathkelvin 2011. Fatal Accident Inquiry into the death of Danielle Welsh. <http://www.scotcourts.gov.uk/opinions/2011FAI7.html> [Accessed 18 May 2011]
2. MHRA 2010 <http://www.mhra.gov.uk/Publications/Safetyguidance/DrugSafetyUpdate/CON087803> [Accessed 18 May 2011]
3. NPSA Signal <http://www.nrls.npsa.nhs.uk/resources/?entryid45=83757&p=2> [Accessed 23 May 2011]
4. Summary of Product Characteristics Perfalgan® <http://www.medicines.org.uk/EMC/medicine/14288/SPC/Perfalgan+10mg+ml++Solution+for+Infusion> [Accessed 23 May 2011].