

Prostaglandin Care Bundle

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BACKGROUND

Prostaglandin E1 (PGE1) is used in neonatal units to maintain patency of the Ductus Arteriosus for infants born with a duct dependant cardiac abnormality. It is a complex medication with many side effects (Meeks et al, 2009). It is also a drug which is not used on a regular basis in local neonatal units.

Drug errors or near misses are a significant contributor to clinical incidents on the neonatal unit, (Chuo & Lambert 2007) thus demonstrating the importance of established safety procedures and guidelines.

The introduction of care bundles helps to standardise safety practices in the administration of medications in the neonatal unit (Boxwell, 2010). A bundle is dependant on all elements being delivered at the right time, consisting of a number of interventions that every patient should receive collectively during one clinical episode of care (McCarron, 2011)

“A Care bundle is a structured way of improving processes of care and patient outcomes” (Boxwell, 2010)

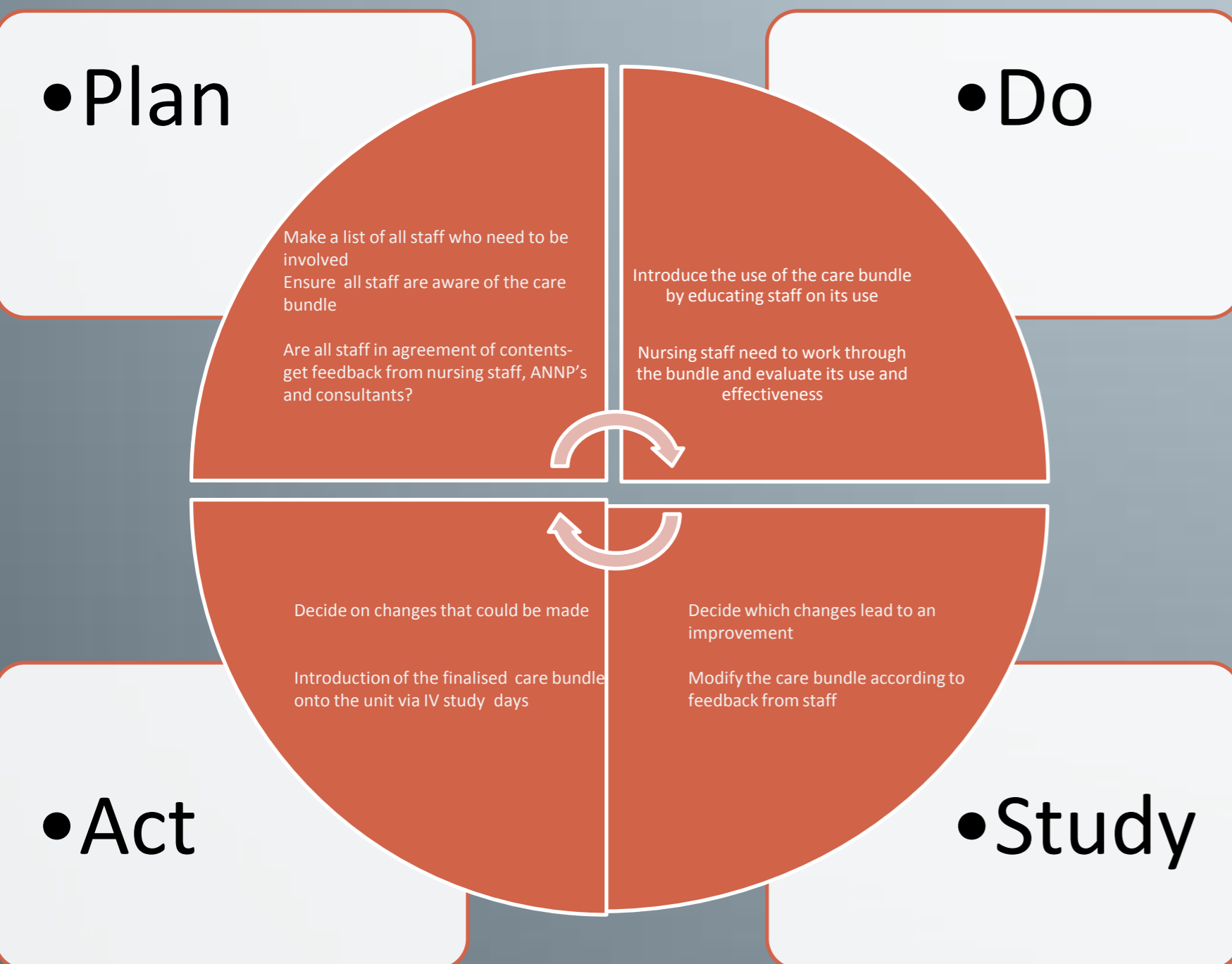
Prompt for the preparation and administration of intravenous Alprostadil/ Dinoprostone (Prostaglandin E1)

- Please use this prompt each time a dose of Alprostadil/ Dinoprostone is prescribed and administered.
- Both members of staff are to use the prompt.

AIM

The aim is to reduce the potential for medication error with the introduction of a Prostaglandin Care Bundle. This will also ensure consistency with patient care, quality of care and patient experience. It will also provide a tool for continuous audit.

Developing the care bundle



Clinical baby-checks pre-administration. Please check all these factors before commencing Alprostadil / Dinoprostone	
Please ensure the following:	
1. Adequate ventilation of the infant	Y / N
2. Blood gas taken Is the baby NBM?	Y / N Y / N
3. CXR	Y / N
4. Has the baby got central access Has the baby got peripheral access	Y / N Y / N
5. Has the baby got a suspected duct dependant cardiac condition?	Y/N
Administration	
5. Has it been prescribed correctly following the 5 R's: <i>Right Drug, Right Time, Right Dose, Right Route, Right Patient?</i>	Y / N
6. Is the patient's current working weight recorded on the prescription chart?	Y / N
7. Has the correct dose been prescribed based on the weight? <i>Each checker to calculate dose separately.</i>	Y / N
8. Has the prescription been signed by the prescriber? <i>Consultant decision</i>	Y / N
9. Is this the correct medication?	Y/N
10. Is the prescription in nanograms/kg/minute?	Y/N
11. Has the correct volume been drawn up? Each checker to calculate dose independently	Y/N
During administration of Alprostadil/ Dinoprostone please remember	
<ul style="list-style-type: none"> • Monitor arterial blood gases at initiation of therapy and thereafter at consultants request • To observe the baby continuously • Continuous monitoring of heart rate, respiratory rate, • If not intubated ensure baby has an apnoea monitor in situ • To monitor the baby's blood pressure 2-4 hourly • To observe for signs of clinical deterioration 	

Reconstitution
Prostin VR – 500 micrograms (mcg) /ml Ampoule <ul style="list-style-type: none"> • Dilute 1 ml with 9 mls of 0.9% sodium chloride (or 5% Dextrose) to make a 50mg/ml solution • Take 1 ml of this and dilute to 50mls (total) to make a 1 microgram (mcg)/ml solution • You will have 50 micrograms (mcg) in 50 mls
Prescribing formulary 500 mcg in 500mls $0.3 \times \text{weight} = \text{rate in mls per hour}$ $\times 1000$ to convert to nanograms $= 5$ nanograms per kg/min
Nursing calculations $\text{Dose micrograms} \times 1000 = (\text{nanograms})$ $\text{Divide by volume to be diluted in (total)}$ Divide by weight $\text{Divide by 60 (per minute)}$ Multiply by rate

Addressograph

Outcome

By the introduction of this Care Bundle practice will become standardised, prevent complications and reduce adverse incidents, therefore improving both the quality of care and patient outcomes.

Meeks M, Hallsworth M, Yeo H, 2009. Nursing the Neonate. Wiley-Blackwell
 Chuo J & Lambert G, 2007. Intralipid medication errors in the neonatal intensive care unit. Journal of quality and patient safety 33(2) 104-111
 McCarron K, 2011 Nursing made incredibly easy, 2011-volume 9 issue 2 30-33
 Beyea 2007. Distractions, interruptions and patient safety. Aorn journal 86 (1) 109-112
 Boxwell G, 2010. Neonatal Intensive Care Nursing. 2nd ed, Routledge
 Institute for Healthcare Improvement what is a bundle? IHI 2009 available at http://www.IHI/Topics/Criticalcare/Intensive_Care/Improvementstories/whatISABUNDLE.htm
 Institute for innovation and improvement Plan, Do, Study, Act (PDSA) available at http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/plan_do_study_act.html