Critical appraisal – Randomised controlled trial questions

Runciman et al. 2008

Introduction	
Are the aims clearly stated?	Yes
Methods	
Is the study design suitable for the aims?	Yes
Which population was studied?	Cows from 17 seasonal dairy herds – enrolled if calved more than 6 days and had a condition that placed them at risk of endometritis.
Were the treatments randomly allocated? If yes, how was the randomisation done?	Attempted, although allocation of every second cow is not a truly random allocation. Every second cow allocated to treatment group
Were the groups comparable prior to intervention?	Yes, particularly in relation to calving date, age and at-risk condition.
Was the person who administered the interventions blinded?	Not stated, but would be impossible due to nature of administration
Is it clear what measurements were carried out in the study?	Yes
Were the correct measurements chosen? Do they reflect (or are they strongly related to) the outcome of interest?	Yes Yes
Were previously established validated methods	Yes, with regards to body condition score, and

used to make the measurements? (e.g. Glasgow pain score, International Units etc)	visual vaginoscopy
What outcomes were measured?	Hazard ratio for pregnancy (other outcomes recorded but not relevant for our clinical question)
Are the outcomes clinically relevant?	Yes
Were the outcomes assessed blind?	Not stated
Are the statistical methods described?	Yes
Was the statistical significance level stated?	Yes – $P<0.05$
Was the sample size justified?	Carried out a sample size calculation
Was ethical approval obtained?	Yes – University of Melbourne
Are the methods described in enough detail that you could repeat them?	Yes
Results	
Were the basic data adequately described?	Yes
Do the numbers add up? Are all subjects accounted for?	Mostly, however some figures are unclear (for example table 3) Mostly, however treatment numbers in table 3 do

	not equal the initial total of treated animals (623).
Was the statistical significance (p value) stated in the results? Is this consistent with the methods? (It should be stated in the sample size or power calculation)	Yes Yes
Were any side effects of the intervention reported if applicable?	No
What were the main findings/key results?	Pregnancy risk of treated discharge positive cows was 2.09-fold (P=0.013) compared with control cows
Discussion and conclusion	
What do the main findings/key results mean?	Cows diagnosed with endometritis via visual vaginoscopy were more likely to become pregnant when they received intrauterine cephapirin than those that received no treatment
Are the negative findings discussed? How are the negative findings interpreted?	Yes Cows with prolonged VV status after calving might be suffering from infections which are harder to cure, and therefore might not be cured by a single application of intrauterine antibiotic.
Does the discussion reflect the results?	Yes
Interpretation	
What are the clinical implications of this study? Are the subjects in the study similar to those in the BET/your own?	The use of cephapirin is likely to improve pregnancy rate in cows that are suffering from clinical endometritis Some animals in this study are examined an extremely short time after calving, so not all results are applicable to our study population. Also important to note is that the animals within this

	study are from an “at-risk” population, which have already been selected as they have had a condition making endometritis more likely, so caution should be taken when interpreting these results.
General	
Who funded this study?	Not stated, but Intervet Australia provided product support