Exercise 1

Generating study ideas from
clinical and publication scenarios

Questions to ask: considering whether a study is justified

- Is clinical decision I'm about to make evidence based?
- Where's the evidence?
- Is it valid (is it robust and does it apply to my patients?
- Is this a clinically important question - will it change my practice

Questions to ask: considering whether a study is justified

- Is the study interesting enough to sustain effort?
- Is it feasible in my setting - access to patients and resources?

For the following scenarios, consider major issues and most appropriate design architecture

Major design / execution issues, optimal study architecture

You see an 8mm polyp on sonohysterogram, in a patient approaching IVF. Should this be removed pre-treatment?

Major design / execution issues, optimal study architecture

A 35 year-old woman with 3 years of unexplained primary infertility has a 9cm intramural fibroid.

Should this be removed pre-treatment?

What if she'd had 2 prior pregnancy losses?

Major design / execution issues, optimal study architecture

A patient going through IVF has a serum progesterone level of 1.6ng/ml on day of hCG. Should she proceed to retrieval and embryo transfer or is her chance of live birth too low to justify this?

Major design / execution issues, optimal study architecture

You are planning an IVF stimulation and wonder

if recombinant FSH is as effective when used alone

rather than in combination with LH

Plan for groups: spend time discussing…

- Major issues and architecture for each scenario
- How big is the gap between “thinking about a question” and undertaking / executing a study

Exercise 2

Designing a study comparing
slow embryo freezing
vs vitrification

You plan a study of vitrification vs. slow freezing for embryos

List your inclusion and exclusion criteria

Prior to define inclusion and exclusion criteria

important questions need to be answered

What is the background knowledge

regarding the comparison

between vitrification and slow freezing?

What type of studies have been performed

regarding this comparison

(case series, prospective comparisons,

RCTs, meta-analyses)?

Was there a difference between the two methods?

(statistically significant, clinically significant)

How large was this difference?

What are the shortcomings of these studies

that the study we plan should avoid?

Are we going to study patients or embryos?

or

What is the primary outcome?

Is it survival after thawing

or

is it the probability of pregnancy?

If pregnancy is the primary outcome

and embryos are randomized from each patient

using both methods,

then this means necessarily

that a single embryo transfer is being performed

Will inclusion criteria be applied

before ovarian stimulation or at the day of freezing?

Considering the above, we can start thinking about inclusion and exclusion criteria

These will select the suitable patients

for the study we wish to perform

those who will have embryos for cryopreservation

in case of patient randomization

or

those who have at least two embryos of similar quality

in case of embryo randomization

The study needs to be feasible

There should be patients who are willing to participate

(in some study designs for such a comparison

a single embryo transfer should be necessary)

The cost of he study should be realistic

If the criteria we define are very strict,
then it is likely that internal validity is increased
but it is also likely that external validity is limited
and vice versa

List your inclusion and exclusion criteria

Exercise 3

- Planning a systematic review of smoking and IVF

Define and refine the question

- Population: Smoking in women, men or both?
- Intervention/exposure: Current or past smoking?
- How will exposure be quantified – pack-years, cigarettes per day?
- Comparator: Never smokers? Ex-smokers? Both?
- Outcome: Live birth, clinical pregnancy, miscarriage?

What informs inclusion / exclusion criteria?

- Methodological quality
- Elements of question - PICO

Turns out very little evidence available for systematic review…

- Please consider optimal design of primary study assessing impact of smoking on IVF outcomes