

Supplementary Material

Focus Group Presentation
(online version)

Note: This presentation reflects interim results and interpretation at the time of the presentation. For the final results and conclusions see the main report.

MANCHESTER
1824

The University
of Manchester

Central Manchester and Manchester **NHS**
Children's University Hospitals
NHS Trust

Toward Single Embryo Transfer?

Online Forum
Discussion with Members of
Infertility Network UK

Facilitated by Dr Linda McGowan

*toward***SET?**
Predictive models &
Patient perspectives

AIMS and OBJECTIVES of this Online Forum

- To give an overview of the project
- To discuss draft guidelines regarding single embryo transfer
- To show results from the analysis of datasets
- To listen to your comments and questions

Background

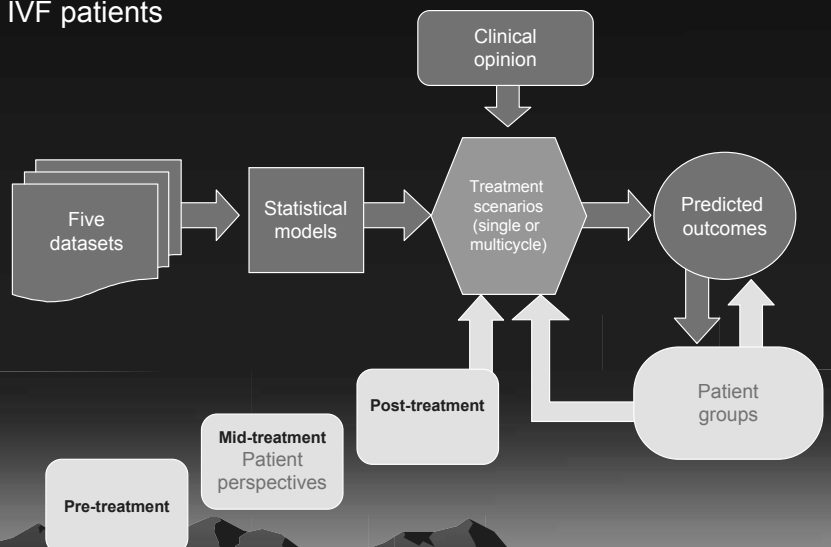
- The decision to transfer one (SET) or two (DET) embryos in an IVF treatment cycle is complex and based on several factors e.g. couple's prognosis, the freezing and quality of surplus embryos for future transfer and the finite number of NHS-funded (or privately affordable) cycles
- What are the views of patients?

Why SET?

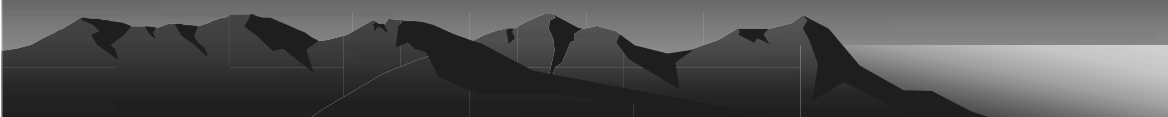
- 1 in 4 IVF pregnancies results in twins ($\times 10$ higher than conventional pregnancies)
- Twin pregnancies have higher risks for mothers
- Twin babies have greater risk of prematurity, low birthweight and abnormalities
- May lead to longer term problems – developmental, social, financial

Overview of *toward*SET? Study

A multidisciplinary approach combining high-level statistical modelling of routine clinical data and in-depth consultation with IVF patients

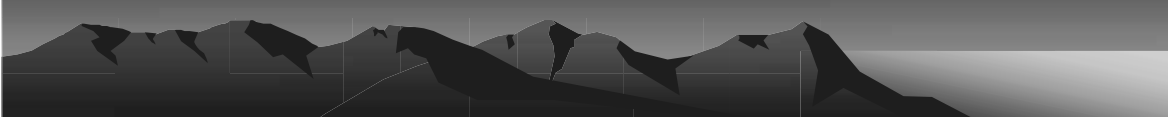


Patient interviews

- In-depth interviews conducted with 27 patients (12 couples and 15 women)
 - All patients undergoing (or about to undergo) IVF treatment
 - Interviewed at 3 key treatment stages – pre-treatment, in treatment, post treatment
 - Mixture of NHS and private treatment
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MAIN THEMES

7 main themes:

- Views on single embryo transfer policy
 - Views on multiple birth
 - Sources of information
 - Individual risk assessment
 - Experience of treatment
 - Consultation process
 - Views on randomised controlled trials
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Human Fertilisation and Embryology Authority (HFEA)

- Introduced a new policy that aims to reduce centres' IVF multiple birth rates. The policy aims to lower the average national multiple birth rate from its current rate of 24% (of all live birth events following IVF/ ICSI) to 10% over a number of years
- From 1 January 2009, all licensed treatment centres need to have in place a documented multiple births minimisation strategy which will set out how they intend to reduce their annual multiple birth rates and to ensure that they do not exceed HFEA-set maximum figure

Questions regarding policy initiatives?

- Initial thoughts?
- What do people think about this policy?
- What sort of advice and/or education would people need to encourage them to choose SET?

Please post any responses directly on to the forum

*toward*SET?

First results from statistical modelling

Steve Roberts & Mark Hirst
University of Manchester

*toward*SET?
Predictive models &
Patient perspectives

The *toward*SET? collaboration data

- 12,500 cycles from 9000 couples analysed (from clinic data bases)
- Data collected 2000–2005
- 5 UK centres
- Private, fee paying and NHS

What factors predict IVF success ?

- Main factors:
 - Age
 - Embryo quality
 - Number of embryos available
- Less important:
 - Centre
 - Diagnosis
 - Previous birth
 - Previous unsuccessful attempts
- Minor importance:
 - Lifestyle (smoking, BMI, alcohol) – but less than the above factors

...and same factors predict twin risk

What the next slide shows...

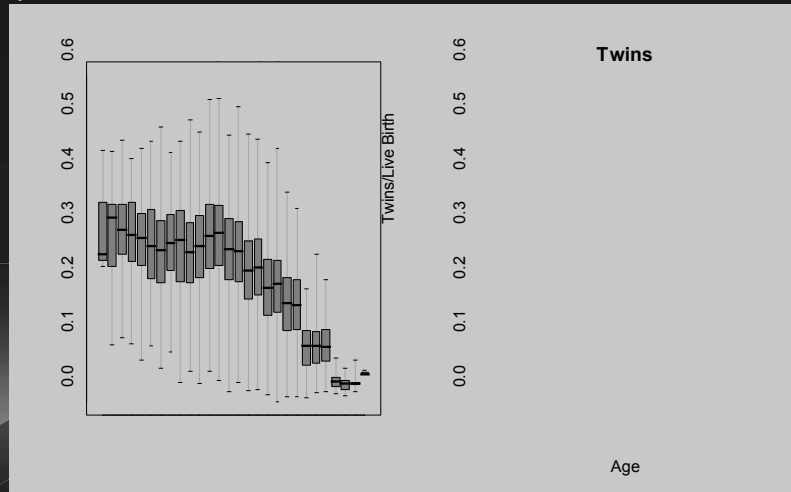
- The next slide shows the effect of age on outcome in IVF treatment (all fresh cycles in our dataset with two embryos transferred)...
- Not surprisingly, the rate of treatment success (IVF resulting in a live birth) decreases with advancing age.
- Twin risk (the chance of twins if you have a successful treatment) shows a similar decline with age

Age – the main factor?

The figure shows the effect of age on outcome in IVF for fresh DET cycles...

Not surprisingly, the rate of treatment success (IVF resulting in a live birth) decreases with increasing age, and the twin rate and success rates show the same pattern

Coloured boxes indicate the range of outcomes for most patients of a given age, and the 'whiskers' indicate the extremes



Any comments or questions?

- *Please post any comments and/or questions on the forum*

The balance...

- If we accept that twin rates should be reduced, then we need to do fewer double embryo transfers and more single embryo transfers
- This must lead to a lower success rate in each SET transfer
- But in SET the risks of a twin pregnancy to both mother and babies is virtually eradicated



What the next slide shows...

- The next slide puts some numbers on the potential loss in success rate
- Considering just the first ('fresh') transfer there is an appreciable drop across the board in success rates with SET compared with DET
- Later slides show some of the things that can be done about it and how they may help offset this loss

Implications of SET for one cycle

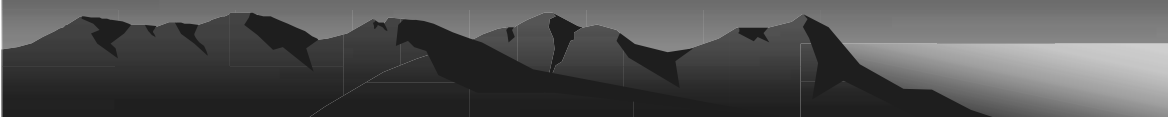
- If all DET transfers in our cohort had been SET, per-transfer birth rate in fresh cycles would go down from **24%** to **17%** (selecting 'best' embryo)

	Average 30-year- old	Average 35-year- old	Average 40-year- old
2 embryo birth rate (per transfer)	30%	25%	10%
Twin rate (per live birth)	28%	22%	13%
Calculated SET birth rate	21%	16%	6%

Diagram annotations: A box highlights the 24% (30% + 28%) and 17% (21% + 22%) values. A callout box with arrows indicates that the 22% value is 'About 1/3 fewer' than the 33% (25% + 28%) value, stating 'About 1/3 fewer across the board'.

Implications of SET

- So if all** transfers were SET, per-transfer birth rate would go down from 24% to 17% (selecting 'best' embryo) – this loss of 1/3 is also what is seen in clinical trials
- There is a slightly greater loss in older patients compared with younger ones, but there are no patient groups who would not have a reduced per-transfer success rate



So what can be done to maintain IVF success rates with SET?

- Selecting patients with highest twin risk for SET
- Further full cycles for those who have SET
- Embryo freezing and further frozen embryo transfers
- Better embryo selection – e.g. blastocyst transfer
- Other improvements in treatment – which are happening all the time

Any comments and/or questions so far?

Please post any responses directly on to the forum...

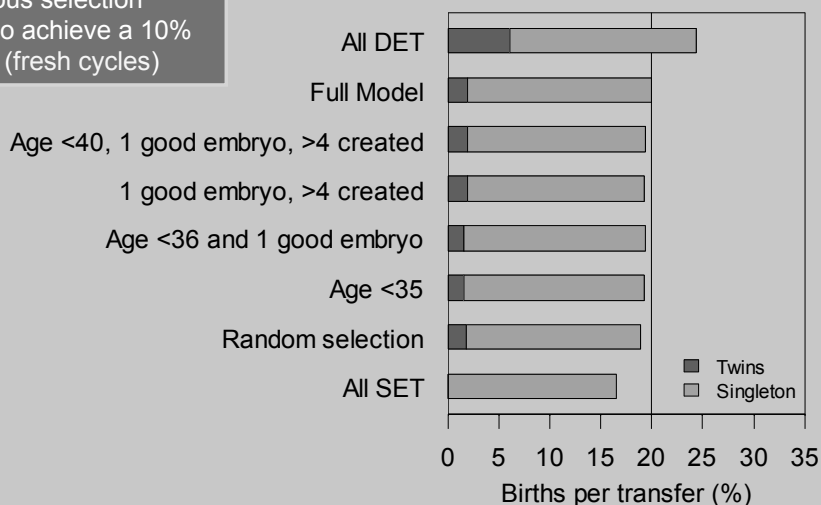
...The next slides will look at two approaches to maintaining success rates: patient selection for SET and embryo freezing

What the next slide shows you...

- The next slide shows that if single embryo transfer is targeted to specific groups (for example, women aged 35 and under with at least one good-quality embryo to transfer) then the overall loss in success rate (a live birth) can be limited somewhat
- The examples shown include selection of younger patients, those with a good embryo, and those with a lot of embryos (i.e. a chance for further frozen transfers) along with random selection and selection using a statistical model including many patient characteristics

Targeting SET can mitigate loss in per-transfer birth rate...

Outcomes for SET, DET and various selection policies to achieve a 10% twin rate (fresh cycles)



Excluding monozygotic twins

Comments or Questions?

- Initial thoughts?
- Do you think that if patients viewed data like this it would have any effect on their (potential) decision making to have one or two embryos implanted?
- Was seeing this data useful?
- How should clinics reduce their twin pregnancy rates?
- *Any other questions, comments or queries (please post directly on to the forum)?*

What about freezing embryos?

- The analysis indicates that with good cryopreservation techniques adding just one frozen transfer to a fresh SET cycle (i.e. 2 treatments) can give similar overall outcomes to a DET transfer (1 treatment) but very few twins
- This has been seen in a few small clinical trials, but not conclusively demonstrated

What about freezing embryos?

- The analysis indicates that, if all available embryos are used, then replacing them one at a time (an average of 3 cycles) can give similar overall success rates to transferring them two at a time (an average of 2 cycles)
- Also a second fresh SET cycle (including a second stimulation and egg retrieval) would more than compensate for the loss in success from DET

Comments or Questions?

- What do you think about additional cycles to compensate for loss in success from SET?
- What about the extra treatments?
- What about freezing embryos?

Please post any responses directly on to the forum

Are you OK?

Please remember if you feel upset (*not our intention at all*) by any of the issues raised in this presentation you can:

- Speak to/leave a message on the forum for **Diane Arnold** on the **I N UK Professional Advice Line**
- And/or it might help to share your experiences with others who have undergone a similar treatment programme by either contacting one of the **I N UK volunteer helpliners** or by utilising the **I N UK forums/chat rooms** on their website

Thank you for your time –
much appreciated!

