Report of the Human Fertilisation and Embryology Authority annual conference, Monday 15 December 1997, Royal College of Physicians, London.

REPORT OF THE

HUMAN FERTILISATION & EMBRYOLOGY AUTHORITY

ANNUAL CONFERENCE

MONDAY 15 DECEMBER 1997

ROYAL COLLEGE OF PHYSICIANS, LONDON

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11.45-12.30

CLONING IN MEDICINE AND RESEARCH

Dr Ian Wilmut, Roslin Institute

Techniques used in the cloning of Dolly

Nuclear transfer:

- Remove chromosomes
- add donor cell into perivitelline space
- check by Hoechst dye fluorescence
- Electroporation to fuse and activate

The Roslin Institute's team has examined the stage of cell cycle necessary for both donor and recipient cell. Evidence suggests that the universal recipient is s-phase and G_1 is universal donor.

For sheep nuclear transfer - cultured for 6 days in ligated oviduct of sheep. Morulae or blastocysts are transferred. Ultrasound carried out to confirm pregnancy after 50 days. Gestation in sheep 150 days

- 14% of morulae/blastocysts transferred
- 24% of foetuses were lost (this is a high loss compared to a v. low rate of miscarriage in sheep)
- 2% live births. Out of 5 animals 3 died. Incomplete development - GU tract and CV abnormalities

Very inefficient system!

'Large offspring syndrome'

The team have noted certain attributes in animals born using this technique:

- Increased birth weight - threatens life of both mother and lamb
- prolonged gestation (profound differences in development)
- Increase in perinatal mortality

The syndrome is associated with the culture of embryos (3 days)

Cause?

- culture of zygotes
- nuclear transfer?
- inappropriate uterine environment
- high urea in diet?

Results using different types of donor cell:

	Embryonic	Foetal	Adult mammary
No. of morulae/blastocysts	32.7%	27.3%	10.5%
No. transferred	87	40	29
No. live lambs	4	3	1 (Dolly!)

One third died, showing no evidence of abnormality.

Applications

Based on the assumptions that:

- efficiency of the procedures increases
- other donor cell types?
- assume no large offspring
- repeatable in other species...

Possible applications are

a) Embryo multiplication
b) genetic modification
c) cell based therapies

a.) Embryo multiplication

Approximately 50% of phenotype is due to environmental influences, so there will be the same genes, but not the same person (cf. identical twins). Also the result is a baby not an adult copy!

These procedures are currently being developed for use in agriculture.

b.) Genetic modification

By gene targeting or gene therapy can make any change to any gene; study the role of that gene and regulation of the gene expression

Roslin Institute has now produced Polly (Science 19/12/97) where a gene has been added.

Germline therapy in humans?

Correct a disease, e.g. CF

c.) Cell-based therapies

Undifferentiated cells in blastocyst
e.g. Parkinson's - take undifferentiated cells and then culture so as to differentiate to normal nerve cells for replacing defective cells.

2-3.30

ICSI PANEL AND DISCUSSION

Chair: **Professor Allan Templeton**
Speakers: **Dr Ann Chandley**
Professor Inge Liebaers

An extended report is given here

Dr. Ann Chandley

Awareness of ICSI treatments and the incidence of chromosome anomalies in children born as a result started in 1995 following the publication of a paper in the Lancet by Peter In't Velt which suggested that there appeared to be a higher incidence of chromosome anomalies in these children. There followed a series of reports refuting his findings. However, a group of scientists in Western Australia reanalysed data from Belgium[1] and suggested there was a higher incidence of major birth defects when their criteria for classification were applied.

Dr Chandley presented results from a forthcoming Human Reproduction paper by Tarlatzis and Bili. The paper includes world-wide data accumulated by an ESHRE 'Task Force' from 101 centres from 1993-1995. It shows that the incidence of congenital malformations in children born after ICSI using ejaculated, epididymal and testicular sperm is not above that for the general population.

A crucial debate centres around the definition of major and minor malformations. Chromosome anomalies have been studied both post and pre-natally. It was found that the incidence of structural and numerical abnormalities is slightly raised. These data reflect the experience of 25 centres who succeeded in obtaining follow-up data.

More data need to be accumulated before any real conclusions can be drawn. Of the 101 centres that took part, prospective data was supplied by only 17 centres. 46 centres were attempting to accumulate data by contacting specialist genetic centres. Data on microdeletions of the Y-chromosome were not included in the report. A separate report published by Professor MariJo Kent-First provided data on 32 father/son pairs. That report showed that in one case a microdeletion on the Y-chromosome of the father was transmitted to the son. In two other cases microdeletions found in the sons were not found in their fathers.

More research and a more systematic approach to data collection and good follow-up was required.

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[1] Bonduelle et al (1996) Human Reproduction II: 1558-1564.

Professor Inge Liebaers

Professor Liebaers of the Centre for Medical Genetics, Free University Brussels presented data from a prospective study on ICSI patients and their offspring, begun in 1991 and still ongoing, at the Brussels Centre for Reproductive Medicine.

Before treatment begins the patient's medical history is taken and a physical examination and karyotyping is carried out. Counselling is offered if there is a known genetic indication. During pregnancy, pre-natal diagnosis is offered, but not all patients take up service. Pregnancy is usually monitored by ultrasound. Following pregnancy, data are collected on the outcome and the birth. Follow-up studies are carried out on children born as a result of ejaculated, epididymal, testicular and cryopreserved ICSI embryos at 2 months, 1 year, 2 years and thereafter.

The karyotypes of 347 men presented for ICSI with ejaculated sperm and 411 women showed that anomalies were found in 4.93% of men and 1.7% of women. This showed that the incidence of abnormal karyotypes in couples presenting for fertility treatment is higher than in the general population. The incidence of couples with a high risk of producing children affected by CF (0.15%) was increased compared to the natural population (0.04%). This was explained by selection of patients for ICSI with CBVAD.

Data were provided on 1513 pregnancies (71% singleton, 27% twins, 2% triplets) with 1987 children born. 1699 were born as a result of ICSI with ejaculated sperm, 91 from ICSI with epididymal sperm, 118 from ICSI with testicular sperm and 79 from cryopreserved ICSI embryos. Data presented on the rate of follow-up showed that information was received on 98% children born at birth, 84% at 2 months and 61% at 1 year.

Prenatal diagnosis of 1082 children showed that 1.66% of karyotype anomalies were *de novo*. These included autosomal chromosomal abnormalities (0.83%), being structural (0.36%) and trisomies (0.46%), and sex chromosome anomalies (0.83%). The incidence of both structural and sex chromosome anomalies were higher than that in the natural population. Inherited anomalies (0.92%), both balanced (0.83%) and unbalanced (0.09%), were also detected as expected. The sex chromosome anomalies were discussed in detail and included a 45X(1), 46XX/47XXX(1), 47XXX(2), 47XXY(4) and 47XYY(1). Four of these pregnancies were terminated. The breakdown of autosomal trisomies and structural anomalies were discussed in relation to patient age (30-41y). A balanced translocation (robertsonian), which was paternal in origin, was inherited in one instance. This anomaly resulted in a trisomy 21 foetus which was terminated. The uptake of pre-natal diagnosis was 54%, with as mentioned above an abnormal karyotype found in 2.6% of these cases. Initially, uptake of prenatal diagnosis was 80-85%, but this is now reduced. The maternal age of the patients was 35.5 y (20.6-44).

Neonatally, details on term, prematurity, birth weight, length and head circumference were collected. A breakdown list of the major malformations[2] found in singletons, twins and triplets was presented. The incidence (2.3%) was not different to that found in the general population.

Professor Liebaers concluded by suggesting that:

- A complete medical history be recorded and karyotyping be carried out for all patients referred for ICSI.
- CF testing should also be carried out in males with CBVAD and in the partners of males with CBVAD.
- Yq deletion testing should be done in males referred for ICSI due to non obstructive azoospermia or OAT with less than 1 x 10^6 spermatozoa/ml.
- Other genetic causes of infertility such as myotonic dystrophy, Kallmans syndrome, immotile Cilia syndrome and androgen receptor defects should be kept in mind and eventually looked for, and that sperm chromosome analysis will teach us more about male infertility.
- She stated that there is an increase in multiple pregnancy rates with ICSI, as with regular IVF, and that in general no more than two embryos should be transferred.
- Prenatal diagnosis should be offered to all women pregnant after ICSI, and certainly to all couples where one of the partners is carrying a structural chromosomal abnormality, where the risk of an unbalanced offspring is increased.
- The incidence of *de novo* chromosomal aberrations following ICSI is 1.66%. Professor Liebaers thinks that this is not due to the ICSI procedure, but to increased chromosome anomalies in the spermatozoa of the patients selected for treatment.

This study showed no increase in major malformations compared to the general population or general IVF registers, but unfortunately a case control study is lacking. Professor Liebaers suggested that more data should be collected and that meanwhile correct information based on the yet available data should be given to patients.

DISCUSSION

Q/C*: While information was provided on the incidence of anomalies in children born as a result of ICSI, is there information available on the incidence of anomalies from terminations?

Inge Liebaers: Advised that while information was available from stillbirths and ultrasound, there was no comparable information from pregnancies established after natural conception. She suggested that a study could be carried out.

Q/C: What about the miscarriage rate?

Inge Liebaers: 25% with positive serum do not reach term.

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[2] Defined as those malformations which cause functional impairment or need surgical intervention.

* Questions or comments given by unidentified speaker unless person named.

Q/C: Have studies been carried out to confirm that the cytoskeleton is not disturbed as a result of the ICSI procedure?

Andre Van Steirteghem: Anyone that is trained to carry out ICSI knows that the oocyte is orientated and is injected at a precise point so as to avoid the meiotic spindle.

Inge Liebaers: The ICSI technique does not lead to abnormalities. If the aberrations found were due to the microinjection procedure such sex chromosome anomalies and translocations would not be found.

Q/C: Are data available on the incidence of Y-deletions?

Inge Liebaers: Data reported in the range 3-15%

MariJo Kent-First: Has found in her study of father/son pairs that for infertile men the selection criteria used are very important. For unselected patients the microdeletion incidence is 10%, in selected patients the incidence is generally 25-30%. In a separate study, the incidence was found to be 18-22% dependent on the criteria used.

Allan Templeton: What patients should be selected by clinics for microdeletion analysis?

Q/C: Patients with non-obstructive azoospermia and low sperm count should be selected.

Rob Forman: The uptake of karyotyping is low. He suggested that the reason for this was cost.

Inge Liebaers: Reiterated that men referred for ICSI should be given adequate counselling.

Q/C: 30-35% of men with mild oligospermia have microdeletions and have had children naturally.

Inge Liebaers: Are there different types of microdeletions?

Ann Chandley: A phenotype/genotype discrepancy exists and a lot more research needs to be done. Dr Pauline Yen in the U.S. has identified a crucial region of the Y-chromosome at interval 6B where active copies of the RBM gene family lie. David Page has carried out a very complex study where 7-18 genes have been identified on the Y-chromosome which are active and transcribed only in the testes.

Q/C: Are Y-deletions responsible only for infertility?

Ann Chandley: So far the evidence would support this. If infertility is transmitted from father to sons it has been proposed that ICSI can be offered to sons of these infertile men. However it must be asked if the problem of infertility is being perpetuated. She pointed out that this is an ethical issue.

Inge Liebaers: If patients have been counselled and are aware that they will transfer the problem to their male offspring, the option of PGD is available to them.

Simon Thornton: Men with normal sperm counts can have microdeletions. Therefore if screening is offered to all men and microdeletions are found these men may be classified wrongly as being infertile.

Ann Chandley: The incidence of microdeletions in men with normal sperm counts is rare and does not cause concern. She also said that the PCR technique can be problematic and advised caution when using this technique for analysis.

Q/C: Are the relevant genetic counselling services in place?

Ann Chandley: Said that all the relevant literature is available and does not envisage a problem.

Ann Chandley: Are de novo abnormalities paternal in origin?

Inge Liebaers: Yes, confirmed by DNA fingerprinting

Allan Templeton: Is this related to paternal age?

Inge Liebaers: No

Q/C: Queried the integrity of the data presented by Professor Liebaers. Are we under-reporting?

Inge Liebaers: Reiterated that follow-up data was received in 84% of cases at 2 months and in 60% of cases at 1 year old. However, follow-up is complicated by patients that are treated outside their country.

Andre Van Steirteghem: Pointed out that data submitted to the ESHRE study is ongoing but follow-up data on children are only received in 15% of cases. He also pointed out that data from the UK is not submitted to the ESHRE study.

Q/C: Suggested that ICSI data could be compared to existing data available on infertile men.

Inge Liebaers: reiterated that lots of projects need to be done, but large numbers are required.

Q/C: Does the HFEA plan to carry out follow-up studies?

Allan Templeton: There are several problems to be overcome, including the limits of the HFEA's remit and the cost implications. However the issue is being actively discussed at the moment.

Q/C: Pointed out the ESHRE study is large therefore why do we not have enough information?

Ann Chandley: The study is large, but only 17 centres have provided follow-up data and more is needed.

Q/C: Highlighted that the incidence of anomalies was higher in testicular sperm than ejaculated sperm.

Allan Templeton/Andre Van Steirteghem: Pointed out that this was not significant as there were too few numbers to compare.

Q/C: Should patients be referred to a geneticist prior to treatment?

Allan Templeton: The ACGT (Advisory Committee on Genetic Testing) is looking at the implications of genetic counselling re. ICSI and PGD.

Inge Liebaers: Pointed out that close collaboration between the infertility clinic and the genetics lab is essential in these matters.

Simon Thornton: Advised that Alastair Sutcliffe is co-ordinating a follow-up study and called for collaboration.

Q/C: Advised that the child should be taken in to account.

Inge Liebaers: Problems in follow-up do not arise until much later in the children's life.

11.45-12.30

WORKSHOP - LICENSING AND AUDIT

Chair: Julia Tugendhat
Other panellists: Dr David Thorne
Katy Lloyd

The following points were raised:

One delegate asked for the current position on the licensing of research projects which involved the transfer of lysed embryos to other centres. The query was connected to an application.

The team replied that the HFEA had no remit over the third party centre, as no licensable activities were taking place. The main concerns of the licence committees were in respect of the information given to patients, and the analysis of the resulting data.

Another delegate suggested that Ethics Committees could have a role in checking the adequacy of patient information before applications are submitted.

Another delegate raised the problem of accounting for unreported abandoned cycles if the only record is not in the patient's IVF notes, but in their general medical notes. This was supported by other delegates. Further, abandoned cycle rates vary considerably between centres, although one would expect it to differ relatively little. One person suggested that some centres might be reducing the rate by selecting patients carefully under-reporting abandoned cycles, and asked how the HFEA could audit this practice effectively. There was concern that some centres were under-reporting cycles which had begun as IVF, but were converted to GIFT or IUI.

The team advised that such practices were being discovered as a result of the inspection and audit programme.

It was also suggested from the floor that this year's change in emphasis in the Patients' Guide from live births per treatment cycle to live births per egg collection might help reduce the incentive to under-report.

A clinician delegate said that his practice was to put the patient first. He would tell the patient at the outset that the treatment eventually used could be IUI, GIFT or IVF, and would depend upon the circumstances at the time. He stressed that this was not done to avoid reporting the cycle, but in the interest of the patient, which he felt was not served by deciding at too early a stage which treatment would be most appropriate.

An HFEA Inspector complained that she had recently attended a focused inspection where she had not been advised of the focus beforehand. She asked that inspectors be informed.

She was advised that this will be reflected in the licence committee minutes included in the inspection papers, unless the focus is at the discretion of the Executive. In the latter case the focus may be decided on the day of the inspection, unless other issues have arisen in the interim. Where the focus is decided on the day inspectors will be consulted.

A number of delegates requested that centres be told the focus of the inspections in advance. There was a strong feeling from the floor that this should be normal practice. The strength of feeling was acknowledged by the chair, and delegates were advised that this would be considered.

One delegate expressed her own concern that inspections needed to be longer in order to do justice to the centres inspected, and that counselling was not addressed often enough or in sufficient detail during inspections. She felt that there should be a counsellor at all full inspections, and referred to a recent inspection where the counsellor had told her that in several past inspections no-one had asked about counselling in any detail.

There was also a request from the floor that the Person Responsible at a centre should be sent a copy of the licence committee minutes relating to their centre.

A delegate said that her unit was a small unit which had had the same personnel since it was first licensed, and had had relatively few changes in protocols and patient information. She felt that inspections now were prone to nit picking, and that changes were being suggested for change's sake. There was support from the floor for this. The chair said that it was hoped that the new programme of focused inspections would remedy such problems.

There was a request for further guidelines on transport IVF.

11.45-12.30

WORKSHOP - MULTIPLE PREGNANCY AND POLICY ON NUMBER OF EMBRYOS TRANSFERRED

Chair: Jane Denton and Dr Brian Lieberman

Brian Lieberman

A look at data from the HFEA and from Office of National Statistics shows that:

- The live birth rate and the multiple pregnancy rate increase with the number of embryos transferred.
- Three embryos were replaced in 54.9% of the 30,354 cycles of IVF reported between January 1995 and March 1996.
- The clinical pregnancy rate is increased if more than one embryo is replaced. The rate per cycle was 8.4 % (278/3306) after a single embryo, 20.2% (2097/10376) after two and 26.6% (4346/16672) after three.
- Where there are four or more embryos available the live birth rate from 2 embryo transfer is similar to that for 3 embryo transfer. The significant difference is the multiple birth rate which rises from 6.6% to 9.2% per treatment cycle for 2 and 3 embryo transfer respectively (the corresponding live birth rate rises from 23.4% to 24.4% respectively).
- Miscarriage, stillbirths and infant mortality are all the more common with multiple pregnancies. Whilst the perinatal mortality rate (PMR) for singleton IVF births is similar to the general population, there is almost a six fold increase for twin births and more than ten fold increase for triplets.
- Children born from multiple pregnancies are more likely to suffer from disability.
- All but one of the 12 clinics with IVF live birth rates in excess of 20.0% (1997 Patients' Guide) had a multiple birth rate greater than 30.0%, with triplet pregnancy rates as high as 12% (median 3%).

Jane Denton

Even where healthy children are born there are other complications arising from a multiple birth. The parents, particularly from triplets and higher order births, find that they are very tired and do not have time to interact with each child as they would like. However, there is a difficulty for infertile patients in believing that there is a real risk of multiple pregnancy - getting pregnant at all seems almost impossible.

DISCUSSION

Q/C* - Many patients knowing the risks choose 3 embryo transfer.

BL - the ethos of the clinic is helpful here in encouraging more patients to consider the 2 embryo transfer as an option. Written information about multiple births should be available and patients should have time to consider. We have threefold responsibility:

- the patient's treatment - to get the highest live birth rate we can
- the potential child's welfare - to get the lowest multiple birth rate we can
- the community interest - to get the lowest number of live births because of the cost of healthcare for twins and triplets.

We need more follow-up studies and we must also remember that it is not just IVF - fertility drugs are also responsible for a large number of multiple births.

Q/C - You have placed a big emphasis on triplet pregnancies. Is not the real issue twins? Surely we should consider 1 embryo transfer. Are the indications for 1 embryo transfer getting better?

BL - yes, but we need to go down this path together. We shouldn't attempt to try for 1 embryo transfer yet - even though it might make sense, because we need general consensus within the profession about what is best practice.

Q/C - Are the triplets and twins a result of uniovular or multi ovular pregnancies? Do we know?

Q/C - I don't think we should be considering single embryo transfers now. Poor results are obtained. There would also be more frozen embryo transfers which don't get such good results. I think we must think of the cost to patients.

Q/C - I agree that 2 embryo transfer is better than 3 for women in the 20-37 year age range. What about patients of 40 or more? Surely we should transfer 4 embryos to this group of patients? We don't have the data now, but our pre-1988 data shows improved results for these women and very few multiple pregnancies - no triplets and only three sets of twins. Surely we are harming these patients by not putting back four? Also interesting - young patients under 27 years also seem to do less well on two embryo transfer.

Q/C - Can I comment on your data? You were transferring four embryos when you had four and three embryos when you only had three. You can't do that. As the HFEA data has shown you must make a comparison with the same type of women. You need to compare the live birth rates where women with more than four embryos put back three or four embryos out of choice and then compare the results.

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* Questions or comments given by unidentified speaker unless person named.

Q/C - 2 embryo transfer - certainly should encourage this for patients under 38 years.

Elizabeth Bryan (MBF) - twins are a problem, but healthy twins can be coped with. It is triplets where the physical and emotional problems are worse.

BL - I think the clinics who are getting good results - live birth rates of over 20% - should lead the way in this area and their example would encourage others to follow suit.

11.45-12.30

WORKSHOP - REVIEW OF THE PATIENTS' GUIDE

Chair: John Williams (Chair, HFEA Information Committee)

John Williams said that the HFEA had decided that the Patients' Guide needed to be re-examined in terms of accessibility, relevance and helpfulness to patients.

There was some concern that the data in the Guide was too out of date, and one delegate suggested that the reporting period to which the data refers to should be displayed more prominently, perhaps on the inside front cover.

Another comment was that data for the next reporting period should be made available in some form during 1998. Otherwise patients wanted have to rely on data in the present Guide which would become increasingly out of date.

Although not a statutory requirement, it was suggested that data on unlicensed treatments, such as GIFT, should also be included as patients frequently viewed the Patients' Guide as the ultimate, and perhaps only, source of information on fertility treatments. Another suggestion was that mixed IVF/GIFT cycles should be included, either as part of the IVF data or in a separate section. Unlike GIFT, details of these treatments are collected by the HFEA.

It was suggested that the reason behind abandoned treatment cycles should be made explicit - they were not all a result of OHSS, failure to collect eggs or failure to create embryos.

One delegate questioned whether the presentation of data in a way which could be interpreted as a league table made clinics tend towards refusing treatment to 'unfavourable' patients in order to raise their position in the 'league'.

On a similar theme, a delegate with no affiliation to clinics or patient groups was in favour of including clinic data, but was concerned that GPs might refer patients for IVF treatment much sooner than needed because they referred to the Patients' Guide. The delegate from ISSUE agreed that some patients can be unnecessarily referred for IVF treatment too early. Another delegate took exception to the view that clinics might be exploiting patients in this way, and considered that clinics were capable of 'downgrading' infertility treatment, if necessary.

Another delegate commented that the workshop and proposed consultation would be revisiting questions considered during the consultation process for the first edition of the Guide. He suggested re-examining the original comments given then. For example, during the first consultation it was suggested that clinics should be placed within bands of adjusted live birth rates, rather being given individual adjusted live birth rates, to counter the interpretation of the Guide as a league table.

The Guide does not state which patients were refused treatment at individual clinics. It was pointed out that some patients referred to clinics by their GPs were then refused treatment because of such policies. An ISSUE representative said that they listed clinics' policies, and suggested that the HFEA produce a Patients' Guide jointly with ISSUE and possibly other patients' groups.

Counselling provision was not well represented in the Guide. It was suggested that this could be improved by including the financial cost of counselling as well as by expressing the number of counselling sessions as a proportion of the number of treatment cycles.

The delegate from BICA welcomed the inclusion of a definition for Ovarian Hyperstimulation Syndrome (OHSS) in the glossary, and suggested that the Guide inform patients about the risk of other side effects of fertility treatment such as an increased risk of ovarian and breast cancer in later life as a result of repeated stimulation of the ovaries. Delegates from other clinics considered that information on side effects should be provided by the clinician in the course of consultation. After all, OHSS and multiple births were definite negative consequences of fertility treatment and clinics have to provide this information to patients. If concerns over breast cancer arose, then clinics would have to report it. The general view was that side effects could not be assigned to fertility treatments on the basis of unverified studies and that strong scientific evidence would be required before they could be mentioned in the Guide.

4-4.45

GENERAL QUESTION AND ANSWER SESSION

Ruth Deech - Chairman
Jane Denton - Deputy Chairman
Suzanne McCarthy - Chief Executive

A delegate asked why the HFEA was not leading the way on follow-up studies. Mrs Deech replied that the HFEA's jurisdiction was statutorily restricted. It recognised the usefulness of having information about the development of children born from licensed treatment, and has considered how it might encourage and assist in such studies and has liaised with a number of professionals and academics working in the field to consider how this might best be achieved.

On a related matter, there was a proposal that the HFEA should ask centres for much more detailed information for its database, such as the quality of embryos and the levels of FSH. Mrs Deech said that this issue would be borne in mind as the register was redeveloped.

A delegate raised the issue of parental responsibility. Graham Miles, the HFEA's legal adviser, answered stating that there is a distinction between legal parenthood and parental responsibility, and that clinics should advise unmarried couples receiving licensed treatment (or indeed having children through any means) to seek legal advice about this. A Scottish delegate pointed out that the 1989 Children's Act covers only England and Wales.

A delegate flagged up the fact that the reporting structure meant that clinics are unable to mix IVF/ICSI embryos in treatment. Another delegate suggested that electronic exchange of information from clinics to the HFEA should be explored and used. Regarding the latter point, Mrs Deech explained that the HFEA's current advice was that this would not be advisable for security and confidentiality reasons.

A delegate enquired whether there would be a move by the HFEA towards allowing a maximum of 2 embryos transferred. Mrs Denton replied that the issue was being kept under active consideration, which was partly why there had been a workshop on it.

Another delegate proposed that the maximum number of children born from an individual donor should be reviewed. Mrs Deech said that the current maximum of 10 had been arrived at after substantial discussion and that there were no plans to change it.

A delegate asked what data was available on the relative efficacy of GIFT and IVF. This was related to a clinic's desire to have its mixed GIFT/IVF cycles included in the Patients' Guide. Brian Lieberman, HFEA Member, said that a proper randomised sample was needed. Another delegate said that studies had shown that GIFT is *at best* as good as IVF. John Williams, chair of the HFEA Information Committee, explained that there

were difficulties in providing data of mixed IVF/GIFT cycles in the PG, but this could be considered during the forthcoming review of the Guide.

Someone asked whether the HFEA would be contributing to the surrogacy review and what it would say. Mrs Deech said that the HFEA would be responding, but could not at this stage say what would be in its response.

A delegate said that more patient organisations should be invited, suggested having a patient speak at the next conference. Several delegates agreed with this.

A delegate asked whether it would be possible to publish a short report of the Annual Conference and regional meetings. Suzanne McCarthy said that a short report of the highlights of this conference would be produced, and that the HFEA would consider producing summaries of its regional meetings.