

HUMAN FERTILISATION AND EMBRYOLOGY AUTHORITY PRE-IMPLANTATION DIAGNOSTIC TESTING (“PGD”) EXPLANATORY NOTE FOR LICENCE COMMITTEE

1. Preamble

The Licence Committee of the Human Fertilisation and Embryology Authority has produced this explanatory note to set out its approach to the statutory criteria of “risk” and “seriousness” which it is required to assess when considering applications to undertake PGD. This explanatory note should be read in conjunction with the Licence Committee’s PGD Decision Tree.

The approach set out in this explanatory note was approved by the Authority on 8th September 2010 and the explanatory note was adopted by the Chair of the Licence Committee on 28th October 2010.

This explanatory note is effective from 1st November 2010.

2. Introduction

- 2.1 The Authority has delegated the function of considering PGD applications to the Licence Committee. The Authority has adopted a condition based approach to the approval of applications which means that the Licence Committee will consider applications to perform PGD for an abnormality without reference to the particular circumstances of any individual or family.
- 2.2 Once the Licence Committee has approved an application to perform PGD for a particular abnormality, any licensed PGD centre in the UK can offer PGD for that abnormality. However, centres will still need to assess, on an individual family basis, whether a particular request for PGD is appropriate. The Code of Practice provides guidance on how such decisions should be made.
- 2.3 When considering PGD applications, the Licence Committee will take into account material provided with the application, including evidence from the applicant, peer reviewers and, where available, from patient groups.

3. The Statutory Requirements

- 3.1 Paragraph 1ZA of Schedule 2 (Annex A) sets out the statutory criteria which the Licence Committee must consider before deciding whether or not a PGD application should be granted.
- 3.2 These criteria include the requirements that:
 - a) there should be a particular risk that an embryo may have a gene, chromosome or mitochondrion abnormality; and

- b) there should be a significant risk that the person with abnormality will have or develop a serious physical or mental disability, a serious illness or any other serious medical condition.

4. Particular Risk

- 4.1 When considering whether or not there is a particular risk that an embryo may have an abnormality, the Licence Committee will take into account whether or not the abnormality is heritable and if so, what the mode of inheritance is.
- 4.2 This is an objectively measurable criterion. For example, if a genetic abnormality is “autosomal dominant”, there will be a one in two chance of an embryo carrying the abnormality. However, if the abnormality is “autosomal recessive”, there will be a one in four chance of an embryo carrying that abnormality.

5. Significant Risk and Seriousness

- 5.1 When considering the significance of the risk, the Licence Committee will take into account the penetrance of the condition.
- 5.2 The penetrance of a condition is an estimate, in percentage terms, of the likelihood that someone with the abnormality would develop the condition in question. Penetrance is a statistic which represents the accumulation of available studies of the incidence of that abnormality in groups of people who are described with the relevant gene mutation.

The options are:

- full penetrance (100% - i.e. it is a certainty that a person with the abnormality will develop the condition in question) or
 - incomplete penetrance, which is usually presented as a range of percentages (e.g. 40 – 60%) i.e. only a subset of people with the abnormality will develop the condition
- 5.3 When assessing the seriousness of the disability, illness or condition, the Licence Committee will take into account the following factors:
- a) *Age of onset.*
Is the condition congenital or does it manifest later in life? If it does manifest later, at what stage (childhood, early adulthood, later)?
 - b) *Symptoms of the disease.*
What are the symptoms of the condition?
Is the condition potentially fatal, life threatening or life limiting?
 - c) *Whether the condition is treatable*
 - d) *What type of treatment is available for those conditions that can be treated*
What is the extent of the treatment available? How invasive is the treatment or likely treatment?
 - e) *Effect of the condition on quality of life*

This will include any evidence about the speed of degeneration in progressive disorders and the extent of any physical and /or intellectual impairment.

f) *Variability of symptoms*

Symptoms associated with the same condition can vary from family to family (and from individual to individual), and can range from the mild to the severe.

Where the condition has variable symptoms, the Licence Committee will take account of:

- o what the range of variability is; and
- o whether the range suggests that some forms of the condition are so mild that they might not meet the 'serious' test.

5.4 Where a condition has a range of penetrance (e.g. 40-60%), the Licence Committee will base its decision on the highest penetrance figure.

5.5. Where a condition has variable symptoms, the Licence Committee will base its determination of how serious the disability, illness or condition is, on the worst possible symptoms.

6. Reasons

6.1 The Licence Committee will give reasons for the decisions it makes. The reasons will set out clearly the matters that the Licence Committee took into account in deciding whether or not to grant the application to perform PGD.

ANNEX A

1ZA

(1) A licence under paragraph 1 cannot authorise the testing of an embryo, except for one or more of the following purposes--

- (a) establishing whether the embryo has a gene, chromosome or mitochondrion abnormality that may affect its capacity to result in a live birth,
- (b) in a case where there is a particular risk that the embryo may have any gene, chromosome or mitochondrion abnormality, establishing whether it has that abnormality or any other gene, chromosome or mitochondrion abnormality,
- (c) in a case where there is a particular risk that any resulting child will have or develop--
 - (i) a gender-related serious physical or mental disability,
 - (ii) a gender-related serious illness, or
 - (iii) any other gender-related serious medical condition,

establishing the sex of the embryo,

- (d) in a case where a person ("the sibling") who is the child of the persons whose gametes are used to bring about the creation of the embryo (or of either of those persons) suffers from a serious medical condition which could be treated by umbilical cord blood stem cells, bone marrow or other tissue of any resulting child, establishing whether the tissue of any resulting child would be compatible with that of the sibling, and
- (e) in a case where uncertainty has arisen as to whether the embryo is one of those whose creation was brought about by using the gametes of particular persons, establishing whether it is.

(2) A licence under paragraph 1 cannot authorise the testing of embryos for the purpose mentioned in sub-paragraph (1)(b) unless the Authority is satisfied--

- (a) in relation to the abnormality of which there is a particular risk, and
- (b) in relation to any other abnormality for which testing is to be authorised under sub-paragraph (1)(b),

that there is a significant risk that a person with the abnormality will have or develop a serious physical or mental disability, a serious illness or any other serious medical condition.

(3) For the purposes of sub-paragraph (1)(c), a physical or mental disability, illness or other medical condition is gender-related if the Authority is satisfied that--

- (a) it affects only one sex, or
- (b) it affects one sex significantly more than the other.

(4) In sub-paragraph (1)(d) the reference to "other tissue" of the resulting child does not include a reference to any whole organ of the child.

Document control

Doc Name:	PGD Explanatory Note for Licence Committee
TRIM ref/Doc No:	2010/06841
Latest Version No:	1.1 (version approved by Licence Committee on 28/10/10)
Release date:	28/10/10
Approved by:	David Gomez
Next review due:	N/A
Total pages:*	4

* Excluding control sheet

Version/revision control

Version	Changes	Updated by:	Release date