Time Lapse Imaging (TLI)

Nature provides a very stable environment for embryos in the Fallopian tubes and womb and we try to mimic that in the IVF lab. A high proportion (up to 70%) of naturally as well as laboratory developed embryos, mostly due to predetermined reasons have genetic abnormalities that make them non-viable resulting in failure of implantation or miscarriage. Hence embryo selection for transfer forms an important part of our day to day work.

What is done routinely?

During conventional treatment by in vitro fertilisation (IVF) or intra-cytoplasmic sperm injection (ICSI), embryos are kept in strictly controlled and heated incubators.

Until now, monitoring embryo development has involved removing the dishes in which they are growing from the incubator to examine them under a heated microscope. The dishes are returned to the incubator as quickly as is possible to keep the temperature and surrounding conditions constant and avoid any damage to the embryos. Changes and developments are happening constantly as an embryo grows. However in order to minimise disturbances, the embryos are assessed only four or five times throughout treatment and that too in brief “snap shots”.

In a glimpse of a few seconds, the embryologists assess the embryos and give them a score based on evenness and appearance of cells, presence or absence of fragmentation at that particular time. We choose the best of those available for transfer, sometimes also transfer more than one embryo but that increases the risk for a multiple pregnancy.

How does Time lapse Imaging help?

You would know the difference between watching a series of slides and a film. The same analogy can be used to understand the difference between convention and time lapse imaging. With the EmbryoScope™, we can record images every 10 minutes and view its development as a ‘video’, for as long as and as any number of times as we like without moving them from their stable, controlled environment.

A large screen provides a continuous view of embryos and the intuitive touch screen interface allows fingertip selection of individual embryos for observation at any time. These images are stored automatically within your file, capturing and recording information about the embryos’ development that is currently not available using standard incubator culture. For example, the EmbryoScope™ allows Embryologists to observe and record the exact time at which the embryo divides and to monitor in detail the way this happens.
What is the evidence?

It has been found that human embryos with high developmental potential:

- have uniform pattern of growth
- there are 2 forms of fragmentation, one which is definitive and seldom reverses (important) and another in which fragments spontaneously are resorbed (not important)
- fragmentation and unevenness of the cells can improve over time
- the course of hatching of a blastocyst can substantially differ between embryos

In this way, a hierarchical model is developed and those embryos that appear good looking in a “snap shot” evaluation, but have had abnormal growth pattern can be eliminated.

Does it help?

Using these systems, many organisations across the world have reported a 25-50% uplift in the clinical pregnancy rate. Below are the results from Liverpool Women’s hospital.

![](chart.png)

What do I do if I want to use this technology?

At present, there is no NHS funding and hence it can be only offered on a fee paying basis. Genesis Reproductive health would like to give an opportunity to all of our patients (NHS and non NHS) an opportunity to achieve a higher success rate. There are however a limited number of slots that will have to be reserved for 5-7 days for most patients.

- Hence all patients wishing to use this technology are requested to reserve a slot in the incubator and check by ringing Genesis office that this is the case before you start ovarian stimulation.
- We strongly advise that you also discuss the reservation policy with the nurse specialist at consultation. Patients with a very large number of eggs fertilized (>12) may have some of the embryos placed in conventional incubator so that everyone with a booked slot is able to utilize it.
- Very occasionally through unforeseen reasons you may not get to use the EmbryoScope™ although if booked in advance we shall do all that we can to prevent this from happening.

We will then need to program the cycles in such a way that your slot is available to you when required. Please ask your doctor for the current costs.

For further advice please speak to the doctor at your LCRM clinic appointment or ring for advice on 0113 206 3103/63186/63190.