

**THE FERTILITY PROMISE**  
**THE FACTS BEHIND**  
***IN VITRO* FERTILISATION (IVF)**

A detailed illustration of a biological cell, likely an egg, surrounded by numerous sperm cells. The cell is depicted as a large, central, multi-layered sphere with a darker core. It is surrounded by a dense field of smaller, pinkish-red spheres, some of which are also multi-layered. To the left, several sperm cells are shown as small, oval heads with long, thin tails. The background is a gradient of purple and pink, with a dark purple triangular shape in the top right corner.

**Peter Hollands**

**Bentham Books**

# **Medicine Demystified**

*(Volume 2)*

## ***The Fertility Promise: The Facts Behind in vitro Fertilisation (IVF)***

Authored by

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## PREFACE

My inspiration to write *The Fertility Promise* has been my experience in assisted reproduction (or IVF) since it was first introduced to me at Bourn Hall Clinic in the early 1980's. I was lucky enough to be one of the first Clinical Embryologists in the world. I have seen IVF move from the initial ideas of Bob Edwards, Patrick Steptoe and Jean Purdy, being carried out in a little village in rural Cambridgeshire, to a billion-Dollar (or Pound!) industry being delivered on a global scale. Many things have changed in IVF during that time. IVF technology has moved on to a certain extent (but with no tangible benefit to patients but with definite financial benefits to clinics and manufacturers) and regulation to ensure optimum quality and safety of all fertility treatments is now routine in most countries. Regulation is extremely important in an area such as IVF to protect both patient and societal safety. Patient expectations, in terms of what a fertility clinic can deliver, have undergone an exponential rise. Unfortunately, the technology in IVF and the people working in IVF have not really met these expectations. Without a change in mind-set these patient expectations will never be met.

IVF has, in my opinion, stagnated in the past 25 years to the point where great change is needed to make further progress and improve the service provided to patients. There have been few effective innovations or new ideas and the live birth rate (which, by the way, is the *only* thing which really matters to all fertility patients) has not really changed since 1978. There are IVF clinics whose sole purpose is to maximise financial profit. There is little or no thought for the well-being of the patients involved or for their hopes, wishes and fears. There are some IVF clinics who deliberately mislead patients to ensure that their profit goals are met. This is not how medicine should be practised and is a very sad reflection on the current practice of IVF.

All physicians and healthcare professionals, in any speciality, have a duty of care to their patients which means that everything which is done to, or for, the patient is in the best interest of the patient. This is sadly not the case in the medical speciality of IVF which is a very sad and depressing reflection on the legacy which was left to us by Bob Edwards, Patrick Steptoe and Jean Purdy. It also means that fertility patients are not getting the care they deserve and need. This is a scandal on a global scale for which everyone involved in these poor practices should be ashamed.

In general terms, the highly vulnerable fertility patient will do anything to make their treatment a success. This is no different to any patient with any sort of problem but over the years I have seen this to be more pronounced in fertility patients. If I told a fertility patient to stand on her head for one hour every day and this will increase her chance of becoming pregnant then I am sure that this patient would do this. If I did this, I would be a very questionable healthcare professional because there is, of course, no evidence that standing on the head will improve fertility treatment outcome and it is therefore not in the best interests of the patient. The combination of vulnerable patients and corporate (sometimes even personal) greed leads us to the present situation in fertility treatment around the globe. There is hype, false promises, deliberately misleading information, false hope, false advice, false science and sometimes even deliberately false claims and marketing. This is destroying the reputation of IVF and seriously inhibiting those who seek to improve the technology with a true focus on patient care.

This book addresses all of these issues using clear, truthful, experienced and unbiased language so that fertility patients can see the true state of IVF. It is not easy reading. You may find some of it shocking. You may find some of it unbelievable but please remember that I

only describe what I have seen and know. I have no hidden agenda; my only agenda is to make fertility treatment better for patients. We can repair the damage which has been done to IVF and move forward in an ethical, truthful and professional way. In order to make these changes it will need co-operation from IVF clinics, the IVF equipment and reagent manufacturers, manufacturers of IVF related medication, the IVF regulators and anyone with a financial interest in IVF. These financial interests are often investors or financial giants with a clear vested interest in a fertility clinic or a group of fertility clinics. This is not intrinsically bad until financial interests overtake patient care, then we have a big problem. Staff who work in fertility treatments may well have to change the way in which they currently think to achieve progress. This means *everyone* in the clinic because if these changes in mind-set are not agreed upon across the clinic, then they will be ineffective. It will also need a clear understanding and critical analysis of IVF by fertility patients. This is a big challenge for fertility patients, because at present, it is very difficult for them to see who to trust. IVF patients need to move from being passive victims to becoming active, well informed people who have the knowledge and courage to challenge or question the activity or promises of their IVF clinic. If this book stimulates further debate and ultimate change, then it will be a success and IVF will become a trusted medical treatment once more. This is what I truly want to see, but at present, this is not where we are heading. We are heading towards more lies and profiteering in the name of IVF. The purpose for which IVF was invented, to give the opportunity of having a baby to infertile patients and not to generate excessive profit, will prosper. If not, IVF will continue to stagnate, patients will continue to be tricked and misled, and profits will continue to rise. I make no apologies for some of the hard truth and criticism of IVF in this book. I believe that the time is right for change and this book is the beginning.

#### **CONSENT FOR PUBLICATION**

Not applicable.

#### **CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

#### **ACKNOWLEDGEMENTS**

Declared none.

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## **DEDICATION**

This book is dedicated to my partner Louise Barrett for her love, dedication and support. I must also thank my cardiac surgeon, Mr Ian Wilson and everyone at Liverpool Heart and Chest Hospital without whom none of this would be possible!.

## CHAPTER 1

### A Bit of History

**Peter Hollands**

*(An Overview of the Historical Development of IVF from 1978 to the Present Day)*

*History will be kind to me for I intend to write it.*  
**Winston. S. Churchill**

**Summary:** This chapter introduces the basic history of IVF and fertility treatment and sets the scene for the detailed information presented later in this book. It provides an initial overview of IVF technology from the first birth in 1978 to today and the alternatives to fertility treatment such as adoption. It also considers the growing population of Earth and the possible stagnation of fertility services.

#### A CHILD IS BORN

On July 25<sup>th</sup>, 1978, a baby girl was born in Oldham General Hospital. This might not seem a terribly important event except, of course, for the parents and family who were welcoming a new baby into the world. This birth was, in fact, the start of a new era in science and medicine because that baby was Louise Joy Brown. Louise was the first ever baby to be born using technology called *in vitro* fertilisation (IVF).

1978 was an interesting year for other reasons, such as the introduction of the first email system and the first cellular mobile phone (which was the size and weight of a house brick). This communication technology has become pretty dominant in the 21<sup>st</sup> Century and has thankfully reduced in size and weight! It has also become important in the effective delivery of IVF. It was also the year that ‘Space Invaders’ hit the Earth and took over, Olivia Newton John and John Travolta were strutting their stuff in ‘Grease’ and the Bee Gees were ‘Stayin’ Alive’. On reflection, 1978 was a good year for me; I was studying in Cambridge and on a path which would lead me to being involved in the early days of IVF. I was destined to be involved in IVF for my whole career, along with my work in stem cell technology and regenerative medicine and being an academic in several Universities.

**Peter Hollands**

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Everything seemed a little more straightforward in 1978 than our complex, information laden lives in 2021, but it is often too easy to look back on the ‘good old days’ with rose coloured glasses. I know that it is important to live in the moment, not in the past. Despite this, we all naturally look back at what used to be, and this is perhaps part of what it is to be human and therefore very important. It is also how Historians make their daily bread!

## **CONTROVERSY**

The birth of Louise Brown following IVF resulted in a lot of controversy from many different people and organisations. Some people said it was just a coincidence and that Lesley Brown became pregnant naturally! Others threw their arms up in horror at the thought of ‘test-tube babies’, which was a terrible term invented by the newspapers. This is even more relevant when the importance of newspapers in 1978 is considered. Newspapers were very much more influential than they are today and what and how they wrote about any subject had a considerable impact on everyone. It is important to get one thing very clear from the start: The term ‘test-tube baby’ can and should be dismissed as irrelevant. IVF involves neither babies (these come much later in human development) nor test-tubes, so this term will not arise again in this book.

Controversy about IVF came from many directions, including from religious leaders, scientists, physicians, politicians and of course, some of the media harshly criticised the technology. Some surgeons (you know who you are!) claimed that IVF was nonsense, and that tubal surgery (re-opening of the Fallopian tubes by a surgical procedure) was the answer. It was not; tubal surgery has never worked. Vasectomy reversal is equally ineffective. Nevertheless, there were many people who had praise and admiration for the three pioneers who made this unusual birth possible. These three people were, of course, Bob Edwards, Patrick Steptoe and Jean Purdy. Jean Purdy was a nurse by training and became the second clinical embryologist (research assistant to Bob Edwards) in the world after Bob Edwards. Jean had fantastic attention to detail in her work and was critical in the development of the laboratory technology which enabled IVF to take place both for Louise Brown and in the early days of Bourn Hall Clinic. She worked with Edwards and Steptoe in both Oldham Hospital and Bourn Hall Clinic before her untimely death, resulting from malignant melanoma, in 1985. The ongoing legacy of Edwards, Steptoe and Purdy to the world is IVF and all of the related technologies. This admirable and essential teamwork should be admired and respected by everyone. It has to be said, however, that Jean Purdy has not been recognised for her important role in developing IVF until recently. She was on many of the early research papers as an author but interestingly was not an author on the 1978 paper in the medical journal, *The Lancet*, which



**Peter Hollands**

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Peter was trained at Cambridge University (Churchill College), and he completed his PhD under the supervision of Professor Sir Bob Edwards FRS, who was awarded the Nobel Prize for his work in IVF. Bob Edwards was the key inspiration for Peter to work in IVF, and Bob was his mentor and colleague for many years. Peter has worked as a Clinical Embryologist at Bourn Hall Clinic, the first-ever IVF clinic, and has been associated with IVF treatment for 40 years. Peter has also worked in IVF in Canada and Nigeria. He now lives in rural Cambridgeshire.