

## WORKING IN A CINDERELLA DISCIPLINE

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We're all born of pregnancy, yet the area of perinatal research and medicine is a Cinderella discipline.

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The term perinatal, explains **Professor Louise Kenny**, consultant obstetrician and Professor of Obstetrics at University College Cork, covers the period from conception through to the baby's first few weeks of life. It's a period of time which is crucial for two reasons; the first of which is that the complications that occur during this period to mother and baby account for about 10% of the global disease burden which is 'absolutely huge' says Professor Kenny.

And secondly, as she observes, this period in the life continuum has not just attracted surprisingly little research attention, it also gets a fraction of the R&D funding directed to tackling other, similarly formidable disease burdens.

Contrast, for example, the approach of the scientific community to the HIV/AIDS virus and to

the potentially fatal condition, pre-eclampsia, which occurs in the perinatal period.

As a teenager in the early 80s, Kenny recalls, she began to hear the first, isolated reports of the deaths of gay men in the US from a then-unfamiliar disease – HIV/AIDS. Less than four decades later, she points out, science has effectively triumphed over this formerly lethal virus: "We now have a huge array of novel drugs that are effective with AIDS. It is now possible to say that if one has a timely diagnosis, lives in a high resource setting and has access to the right drugs, a person with HIV/AIDS can have a near-normal life expectancy.

"That disease was initially a death sentence, and now, just 35 years later – and with a massive amount of R&D funding they have tackled it."

PROF. LOUISE KENNY



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women with **pre-eclampsia**”.

However, she points out, in the same three-and-a-half decades, millions of women and babies have died of perinatal conditions such as pre-eclampsia (PE), a disease the world has known about for thousands of years – in fact, since the time of Hippocrates, the famous Greek physician who died in 370 BC.

Women are dying, says Professor Kenny, “because we don’t care enough and because there is not enough attention or sufficient R&D spend on this area.”

The dire situation as regards perinatal research is graphically illustrated by contrasting it with how we have effectively tackled AIDS, she says.

“That’s not to say that we’ve spent too much on AIDS – but that we haven’t spent enough on perinatal medicine!”

And this is where Louise Kenny’s passion comes in – and why she recently picked up an award. Professor Kenny, who is a director of INFANT, the Irish Centre for Fetal and Neonatal Translational Research, was named the Guaranteed Irish Science Hero for 2017.

The Cork-based scientist was selected for the award following a public nomination process and received it at the acclaimed INFANT Research Centre, a world-leading Science Foundation Ireland research centre based in University College Cork and at Cork University Maternity Hospital in Cork city. The centre is funded by a number of prestigious bodies – Science Foundation Ireland, the European Commission, the Health Research Board and the Wellcome Trust.

Along with her colleague and co-director, Professor Geraldine Boylan, Professor Kenny leads the pregnancy research at the centre.

The aim is to develop innovative technologies to improve the treatment and care available to mothers and babies, simply put – to make pregnancy safer and to improve health outcomes for mothers and babies worldwide.

The Manchester-born doctor is passionate about the need for more research into perinatal conditions.

“This is why I get out of bed in the morning,” quips Kenny, who says she has a particularly strong interest in pre-eclampsia.

The centre, she explains focuses solely on the short term, medium-term and long-term care of, and potential treatments for women with perinatal complications.

“It’s for our work in this area that we have received this award.

“My personal interest is pre-eclampsia, which illustrates the whole problem with perinatal medicine”.

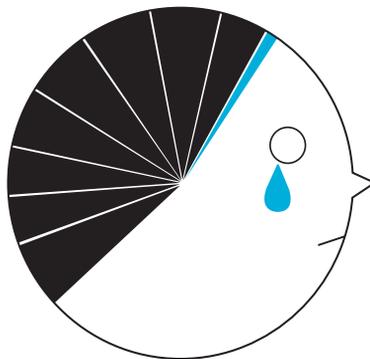
Only women get this disease, she points out. “It’s a leading cause of maternal death, and a horrible condition we’ve known about for millennia, yet in 2017 there is no screening, test, no real care

plan for women with pre-eclampsia. The only preventative strategy is aspirin – and the only cure is the delivery of the baby. Pre-eclampsia can typically occur any time after the 20th week of pregnancy and is marked by elevated blood pressure and, usually, protein in the urine.

Symptoms include a severe headache that won’t go away even with medication, swelling of the face and hands, difficulty breathing, gasping, or panting, nausea after mid-pregnancy, changes in vision, for example spots, light flashes, or vision loss and pain in the upper right belly which is often mistaken for indigestion or ‘flu’.

However, Professor Kenny and her team at INFANT are about to change all of that. The centre has developed a special test for pre-eclampsia, and researchers have just completed a long-running trial in which 4,000 women were tested. “We are currently carrying out data analysis on the study,” she explains. It’s expected that once the test is approved, every pregnant woman will have it at 15 weeks, and it will predict their risk of pre-eclampsia later in the pregnancy.

The other study which began recently, is a special diagnostic test to help in the diagnosis and management of pre-eclampsia.



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Researchers are currently recruiting subjects for that study across seven maternity units in Ireland, in areas such as Dublin, Cork, Belfast, Limerick and Galway.

“Our hope is that very early in a pregnancy, a woman will be able to have a test which is accessible and safe. This will be a blood test which will tell her with a degree of accuracy her risk of developing pre-eclampsia.”

If she is very low risk, Kenny explains, a pregnant woman can engage in routine ante-natal care, largely based around her midwife and in the community, which is much better for mums – and for the taxpayer who must shoulder the burden of Ireland’s over-stretched healthcare service!

Limited resources would then be freed up to focus increased monitoring of women who are shown to be at high risk. “Currently, in most western countries it’s a one-shoe-fits-all approach to ante-natal care,” Professor Kenny observes.

The second procedure being developed by researchers at the INFANT centre, is a new test based on a measurement of a hormone called Placental Growth Factor.

“What we are doing is measuring how effective this is in helping clinicians to diagnose and manage pre-eclampsia,” she explains.

These two projects are just some examples of the important research being carried out at the Centre, which is currently engaged in up to two dozen such studies at any one time in the area of perinatal health. The Guaranteed Irish Hero Award in Science is a recognition of work that is carried out very much as a team, Kenny emphasises:

“We have 100 people employed at the Centre – doctors, researchers, scientists engineers, midwives from a wide variety of backgrounds. This award is reflective of both a world-class team and an amazing mix of people. They are young; they work very hard and are very committed.

“This particular accolade really meant something to us, because it came as a result of a public vote so we must be doing something right!

“I have worked for my entire professional life in a Cinderella Discipline. It’s just pregnancies and babies, it is something that every human being has in common. This is how we come into the world.

“We all have skin in the game of pregnancy.”