

## **A Tale of Two Safeties**

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In 2019 4.5 billion passengers flew on 38.9 million scheduled flights. In the same year there were 289 fatalities as a result of airline crashes.

William Thompson, later to become Lord Kelvin, is probably the greatest scientist to have been born in Ireland. As well as having a significant impact on theoretical physics, contributing to advances in thermodynamics, electricity, and geophysics, he was also responsible for practical achievements, the most notable being laying the first trans-Atlantic telegraph cable. However he was not always correct; he said that "heavier than air flying machines are impossible" which, as the 4.5 billion passengers that flew in 2019 can confirm, is wrong. An incidental observation on Lord Kelvin's fallibility is that he argued against Home Rule for Ireland. Whilst he was wrong about the possibility of air flight his observation does underline that what we now regard as routine can also be seen as improbable, bordering on the unnatural.

In 2019 there were 138 million births worldwide that resulted in 295,000 maternal deaths and 7.5 million perinatal deaths.

In Ireland there were 59,352 babies born in 2019 which resulted in four mothers dying and 335 perinatal deaths.<sup>1</sup> There were more perinatal deaths in Ireland than deaths from air travel worldwide. Without any doubt many of these perinatal deaths were unavoidable, but not all were inevitable.

Is it possible that there is a different attitude to safety and risk in air travel than in childbirth? "We have got to get out of the mind-set of saying- no matter how hard we try, we will have accidents- and into- we will not have accidents" Federico Pena, US Transportation Secretary said in 1995, speaking of air travel. A practical example of this attitude can be seen from the air travel industry's response to the Tenerife air disaster.

The worst ever civilian air disaster was in 1977, when two aircrafts collided on the runway in Tenerife resulting in the deaths of 583 persons. The investigation, which started the following day, identified that the Tenerife stopover was unscheduled for both flights and in a small, overcrowded airport.

Bad weather and poor communication were also contributing factors. Improvement to infrastructure, equipment, communication, and team working has insured that such a similar incident has never happened again. All runway incidents are now reported and investigated.<sup>2</sup>

This quick and effective approach to safety improvement might usefully be compared to the issue of impacted fetal head at Caesarean Section.

The issue of impacted fetal head at Caesarean Section was described in 2019 by NHS Resolution as an “Emerging Problem”.<sup>3</sup> They also say that difficult delivery of the head at section has a “High Incidence that has not previously been reported by us”.<sup>4</sup>

NHS Resolution “is an arm’s length body of the Department of Health and Social Care – We provide expertise to the NHS on resolving concerns and disputes fairly, *Sharing Learning for Improvement*, and preserving resources for patient care”.<sup>5</sup> Within the NHS Resolution, there is the early notification scheme which is “A National program for the early reporting of infants born with potential severe brain injury following term labour”. The Early Notification Scheme requires Trusts to inform NHS Resolution of babies that have been diagnosed with grade three Hypoxic-Ischaemic Encephalopathy (HIE), or required Therapeutic Hypothermia, or had seizures, or decreased tone. This became a requirement of Maternity Trusts since April 2017.

On September 19, the Early Notification Scheme published a review of its first year results. They were notified of 746 babies that qualified for consideration, from a total of 639,984 births.

Problems associated with second stage sections have been recognised as a growing problem in recent years.<sup>6 7</sup> Considering that the first landmark legal case in England (Whitehouse vs Jordan 1980) concerned an impacted head delivered at Caesarean Section interest in this “evolving problem” could not be described as precipitous.<sup>8</sup> Much of the discussion about this case was on the issue of how the baby’s head could become impacted. Many of the factors that were present in the 1970 birth of the Whitehouse baby are now being recognised and tabulated – first time mother, long labour, delivery out of hours, and failed forceps conducted by a non-consultant doctor. There is an irony that the circumstances around the original birth injury case in 1970 could be considered “emerging” in 2019.

Whilst intrapartum fetal death and hypoxic brain damage rates have improved, the problems remain stubbornly refractory. Why? Undoubtedly, part of the reason is that the natural process of childbirth has inherent risk, and some adverse outcomes are unavoidable. By contrast, in the entirely unnatural process of human air travel any fatality is considered excessive and probably avoidable. The fact that some peripartum adverse outcomes are undeniably inevitable has confounded the discussion and classification of these adverse events into what is preventable and not preventable. An additional confounder is that whilst an air fatality is immediately evident, the damage caused to a surviving baby by intrapartum events may not be fully recognised for many years.

A point made is that if avoidable brain damage at birth cost as much as air accidents the problem would have been solved long ago. The compensation cost of the Tenerife accident came to less than 500 million Euros (adjusted for inflation) and the replacement cost for the two aircraft would be less than one billion Euros – possibly 1.5 billion Euros in total.

This figure, although large, is dwarfed by the fact that the NHS has set aside 83 billion Pounds Sterling for future claims, 50% of which is for maternity. Another argument states that avoidable neonatal brain injury is so rare that individual units could not have the experience necessary to prevent all avoidable cases. In Ireland, on average, the courts decide that approximately 15 babies suffer from avoidable brain damage each year, about one in four thousand births. By contrast, there is one fatal air crash for 3.7 million flights making avoidable brain damage at birth one thousand times more likely than a fatal air crash.

In describing impacted fetal head in 2019 as an “evolving issue” when it was a factor in the much publicised 1970 birth that heralded an era of Obstetric litigation suggests a certain lack of urgency in recognising and solving the problem. “Safety is our number one priority” is a frequently articulated sentiment of the airline industry. Whilst it is implicit in Maternity care it is less clearly voiced. And less effectively actioned.

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