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## Promoting good practice in newborn temperature regulation: Dr. Alok Sharma's story

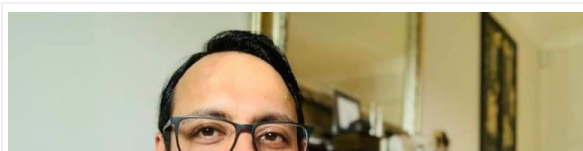
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### Prelude

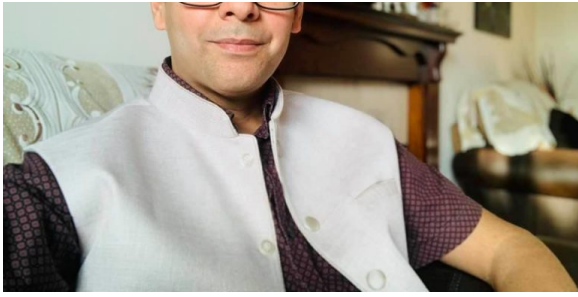
The mother was in preterm labour and the baby was about to be born at 24 weeks. As a consultant neonatologist at Southampton University Hospital, this was not an unusual situation for Dr. Alok Sharma. What was perhaps unusual at the time was how Alok was preparing to deal with this preterm birth. Normally babies born at this gestational age are intubated and ventilated immediately but this time, Alok wanted to avoid this. He had noticed time and again that while resuscitation measures were carried out the baby's temperature plummeted and caused further health deteriorations. For a while now, he had suspected that keeping a baby warm after birth, even though other resuscitation measures are ongoing, was not only possible but also a central element in ensuring good health outcomes for babies. In the case at hand, Alok instructed his team carefully and together, they focused on keeping the baby warm as they started breathing and other resuscitation measures. The changed strategy paid off – the baby was born and resuscitated without ever needing to be intubated, all the while never becoming cold and even being able to have a brief cuddle with mum.

### Multicultural background

This preterm birth experience was a decisive point in how Dr. Alok Sharma approached the management of temperature simultaneously with other aspects of resuscitation. This approach is borne of more than 20 years of experience in neonatology across several countries and cultures. Alok himself was born preterm at 31 weeks and growing up, was greatly inspired by his mother, herself a paediatrician after training relatively late in life. She worked for almost 20 years in Papua New Guinea and since nannies were in short supply then, Alok was often with his mother when she did her shift on the paediatric ward. Through this, he gained first-hand experience from his mother of the dedication and passion that was needed to do this job. Already then, Alok could sense from his mother the fulfilment she garnered from working with babies and their families to make their lives better.



Having trained in India and the UK, Dr. Alok Sharma has been a consultant neonatologist in Southampton for the past 12 years. His experience of working in extremely poorly resourced settings informed his perspective on



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family-centred care, temperature management and his passion on how to improve these outcomes. In 2003 in India, 50% of babies born under 32 weeks were dying. In many cases, there would only be 2 nurses and 1 doctor to take care of 30 babies. Alok realized during this time that when preterm babies get cold, there is an increased risk of infection, bleeds into the brain and a whole host of other problems (bowel, brain injuries that lead to developmental problems later in life etc).

Family-integrated care is a relatively new concept in the UK, but years ago when working in India, Alok recalls that this approach to involving parents from the start in the care of their baby constituted daily practice. Parents helped keep the babies warm using heaters and, more importantly, were even instructed at times to measure their child's temperature. This practice lightened the load for the medical staff on the ward while also ensuring that warning signs for a baby's changing health status were caught early. What is more, the parents felt empowered and involved in the care of their baby. It is from there that Alok got his first feel for the importance of measuring temperature in neonatal care.

## Focus on thermoregulation

According to Dr. Alok Sharma, the one thing that has been neglected in resuscitation protocols is equating the measurement of temperature to the management of airway and breathing. Yet, temperature management is vitally important for babies. A large population study by Laptook finds that for every degree under 36.5 °c in newborn babies, the risk of dying goes up 18% and the risk of getting an infection becomes much higher (about 12% more). For Alok, these numbers validate his approach. In conversations, he repeatedly stresses that if a baby cannot be kept warm after birth, just as the airway and breathing are managed, and that baby consequently develops a bleed on the brain or an infection, then that baby has been failed by the medical staff.



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When Dr. Sharma arrived in Southampton (a tertiary centre) in 2011, he observed that despite using modern techniques, like plastic bags, to keep babies born between 23 and 32 weeks warm, 36% of babies had a temperature of under 36.5 °c. Normothermia (a body temperature of between 36.5 °c and 37.5 °c) is one of the quality benchmarks of a tertiary centre at that age of gestation, so to have such a high incidence of hypothermia was worrying. What he also noticed were other morbidities linked to hypothermia like, for example, respiratory distress syndrome or risks of bleeds into the brain. Focusing on increasing the profile of temperature

management in care practices, Alok's team has worked tirelessly over the last 10 years to develop a quality improvement package to try and improve hypothermia rates. They have been able to improve not only these but also other morbidities within the NICU.

A major realization has been using education and simulation as a tool to improve the quality of care for preterm babies – particularly technology enhanced learning and simulation. The concept was based on multidisciplinary learning where doctors and nurses simulated babies being delivered in a cold environment. A key learning was to have a dedicated nurse or other professional solely focused on monitoring temperature. Assigning each individual a specific and clearly defined role meant that babies were resuscitated more effectively and hypothermia rates were brought right down to being virtually non-existent.

In the era of COVID-19, it is difficult to have face-to-face teaching but online simulations can still be done. Within