PReCePT: reducing cerebral palsy through improving uptake of magnesium sulphate in preterm deliveries

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Neonatal healthcare professionals in every maternity unit in the country are working together with England's 15 Academic Health Science Networks (AHSNs) to help improve outcomes for babies born very prematurely.

Through the PReCePT (PReventing Cerebral palsy in PreTerm labour) programme, women threatened with very preterm birth at ≤30 weeks of pregnancy are offered magnesium sulphate, which has a protective effect on the preterm neonatal brain. As a result, fewer babies are likely to develop cerebral palsy, improving quality of life for preterm babies and their families.

Cerebral palsy affects approximately 2.5 in every 1,000 babies. Although the exact mechanism of action of magnesium sulphate as a neuroprotective agent is unknown, NICE guidelines recommend its administration in very preterm deliveries to reduce the risk of cerebral palsy.[1] However, the uptake of magnesium sulphate in the UK remains low; the National Neonatal Audit Programme's report on 2017 data showed that only 64.1% of eligible mothers received it, although this was a marked improvement on 53.3% in 2016.[2] For every 37 mothers who receive magnesium sulphate, one case of cerebral palsy can be prevented. A dose of magnesium sulphate, which the mother receives via an intravenous drip in her arm, costs from just £1.

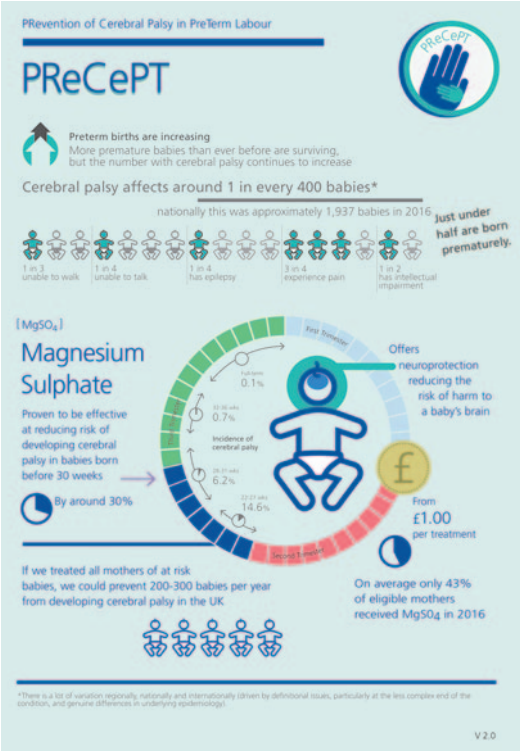

FIGURE 1 PReCePT: reducing cerebral palsy in preterm labour.

PReCePT was born in the West Country back in 2014. It began with Dr Karen Luyt, a neonatologist at University Hospitals Bristol NHS Foundation Trust and National Clinical Lead for the PReCePT programme. Dr Luyt knew there was strong evidence that giving mothers in preterm labour magnesium sulphate could help to guard against cerebral palsy but also knew that many maternity units were not offering eligible mothers the treatment. There were many babies being born with cerebral palsy that could have been easily prevented. What Dr Luyt did not know was how to influence others to change their practice. Around this time, the West of England AHSN was looking for projects of exactly this nature – where healthcare professionals could be supported to put strong clinical evidence into wider practice. PReCePT was developed by the West of England AHSN in collaboration with University Hospitals Bristol NHS Foundation Trust, and involved both patients and staff.

Dr Luyt received funding for an improvement team to co-design a quality improvement (QI) approach with staff and parents, which was quickly adopted by all five maternity units in the West of England. After just six months, the five units had increased the administration of magnesium sulphate to eligible mothers from an average of 21% to 88%.[3] Estimates show that this reduced the effects of this disabling condition for children and their families by preventing around seven cases of cerebral palsy across the region, representing potential lifetime health and social care savings of around £5 million.

Since the initial project, PReCePT has gone from strength to strength. It was selected by NHS England as one of the AHSN Network's seven

national adoption and spread programmes for 2018-2020. This means PReCePT is the first ever perinatal programme delivered at scale across England, bringing together midwives, obstetricians and neonatologists in every maternity unit in the country. Today it is a powerful example of how the national AHSN Network can rapidly put evidence into practice to improve health care for the nation.

PReCePT has also been selected as one of seven UK projects to receive £0.5 million through the Health Foundation's Scaling Up Improvement programme, leading to the PReCePT Study. This is a research trial nested within the PReCePT national programme to undertake evaluative research to compare the effect of different levels of funding and QI involvement on magnesium sulphate uptake rates. Of the 152 maternity units across England in the PReCePT programme, 40 have been randomly selected to be part of the PReCePT Study. Within this group, 13 units are receiving enhanced QI support from the study team, and 27 units are being observed while implementing the standard QI support model.

The PReCePT programme is very much aligned to the work of the Maternal and Neonatal Health Safety Collaborative by supporting one of its five primary drivers: improving the optimisation and stabilisation of the very preterm infant.[4] The latest version of the Saving Babies' Lives Care Bundle[5] launched by NHS England in March also now includes guidance on administering magnesium sulphate to women in very preterm labour to prevent cerebral palsy, providing an additional boost for PReCePT.

Mother Elly Salisbury received magnesium sulphate when she went into labour at just 27 weeks of pregnancy. Speaking about why she is such a passionate supporter of PReCePT she says: "Cormac has just turned five and he's an amazing little boy, he has no signs of cerebral palsy at all. I truly believe that the magnesium sulphate was part of that.

"I think it's incredible that across the country all mothers in my situation will be offered magnesium sulphate. It will make such a difference to thousands of babies, and that in itself is just so completely worth it."

As part of this national programme, each AHSN has a regional project and a regional clinical lead, as well as a team of midwives implementing the project. Together they are aiming to ensure at least 85% of all eligible mothers in England are receiving magnesium sulphate by 2020. Midwives across the country are getting to grips with the process and it has already shown fantastic results. In January 2019 Thames Valley Region and Milton Keynes ensured 90% of eligible mothers received magnesium sulphate to protect their newborn infants, while Cornwall achieved a staggering 100%.

Dr Luyt comments: "This simple intervention can make such a difference to the lives of children and their families. I'm immensely proud of what our maternity, neonatal and quality improvement teams, advised by service users, have achieved together and we're all working hard to ensure every preterm baby delivered by the NHS can have the best chance in life."

References

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