

PE1823/F

Royal College of Physicians of Edinburgh submission of 5 November 2020

The Royal College of Physicians of Edinburgh is an independent clinical standard setting body and professional membership organisation, which aims to improve and maintain the quality of patient care. Founded in 1681, we support and educate doctors in the hospital sector throughout Scotland and the world with over 13,000 Fellows and Members in over 90 countries, covering 54 medical specialties and interests. The College is pleased to submit a response to this request for views on PE01823: Full body scans to all neonates in Scotland.

The petition calls “on the Scottish Parliament to urge the Scottish Government to offer full body scans to all neonates in Scotland with the aim of detecting and hopefully treating rare and hidden conditions”. The College first of all acknowledges that the petitioner has experienced an unbearable personal tragedy and we offer our sincere condolences. The petitioner considers that this might have been avoidable with a routine screening investigation and subsequent treatment.

Full body scans

A full body scan would have to be either a CT scan or an MRI scan. CT scans involve a significant amount of radiation, which would be particularly concerning for immature tissues (e.g. the developing brain) and on a population basis would increase the risk of developing cancer¹. This would therefore not be an option. MRI scans are difficult to perform and not without risk (infants have to lie alone and still for a length of time in the scanner), time consuming and costly.

Hidden conditions

A hidden condition would presumably be an internal malformation, with no outward signs of its presence. The petitioner refers to AV (arteriovenous) malformations, and other conditions for which there might be treatment.

Not all internal malformations would be detected on a neonatal MRI scan. A negative scan could therefore fail to diagnose an internal condition and provide false reassurance. Secondly, a number of innocent anatomical or developmental variations would be identified, and cause anxiety for parents (and clinicians) and would almost certainly lead to unnecessary further investigations and follow up appointments.

¹ [Lancet](https://doi.org/10.1016/S0140-6736(12)60815-0). 2012 Aug 4; *Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study*. 380(9840): 499–505. doi: [10.1016/S0140-6736\(12\)60815-0](https://doi.org/10.1016/S0140-6736(12)60815-0)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3418594/>

Population screening

The petitioner is seeking to introduce population screening. The UK National Screening Committee (UK NSC) advises ministers and the NHS in the four UK countries about all aspects of population screening and supports implementation of screening programmes. They publish criteria² that is used to evaluate new screening proposals. For screening to be effective, there needs to be an extremely high chance that a condition will be detected (the diagnostic test is sufficiently sensitive) and accurate (or specific). As no test is 100% sensitive, or 100% specific, inevitably some conditions are missed, and some are 'diagnosed' but not present, and so there is a risk of harm on both sides. There needs to be a reasonable chance that the benefits of screening outweigh the risks of screening. There are therefore important ethical considerations for screening a population. WHO principles (often referred to as the Wilson and Jungner criteria) also state that the total cost of finding a case should be economically balanced in relation to medical expenditure as a whole³.

As screening tests are applied to large populations of individuals, the overwhelming majority of whom will not have the condition in question, it is vital that decisions to introduce new screening tests are supported by high quality evidence that evaluates the test performance in terms of sensitivity, specificity, and positive and negative predictive value. It is important that earlier diagnosis can give rise to a treatment that has been shown to improve the outcome without an unacceptable risk of harm. It is important that there should have been an evaluation of the consequences to individuals who receive false positive and false negative tests as a result of participation in screening.

Unfortunately there is no supporting information presented with this petition which indicates that UK National Screening Committee criteria have been researched to the degree required to support consideration of implementation of screening. The College suggests that the Committee consider the following factors during their deliberations: would the proposal be effective and practical; would this divert resources from other areas of the NHS, with the associated ethical considerations; and would the benefit gained by individuals from the screening programme outweigh any harms, and what ethical implications arise from this.

²UK National Screening Committee: Criteria for appraising the viability, effectiveness and appropriateness of a screening programme <https://www.gov.uk/government/publications/evidence-review-criteria-national-screening-programmes/criteria-for-appraising-the-viability-effectiveness-and-appropriateness-of-a-screening-programme>

³ Page 27, WHO: Principles And Practice Of Screening For Disease https://www.who.int/ionizing_radiation/medical_radiation_exposure/munich-WHO-1968-Screening-Disease.pdf