



Why is measles on the rise in the UK?

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Abbreviations: UKHSA: UK Health Security Agency; UK: United Kingdom; WHO: World Health Organisation; GP: General Practice.

United Kingdom (UK) headlines have recently reported a rise in measles cases with over 216 confirmed cases and 103 probable cases in the West Midlands as of 18 January [1]. The UK Health Security Agency (UKHSA) has declared a national incident, and the agency is currently focusing on limiting further spread of the outbreak [1]. Measles is a highly contagious virus which can lead to serious complications such as pneumonias, encephalitis and in some cases death [2]. It is a virus spread through droplets or airborne transmission with the basic reproduction number (R0) of 12-18, meaning that an infected person would infect 12-18 by Guerra FM, et al. [3,4]. In comparison Sars-Cov-2 has an estimated R0 of 1.5 to 3.5 [5]. As a result, the World Health Organisation (WHO) recommends 95% two dose vaccine coverage of measles to reduce the transmission and provide herd immunity to those who are unable to receive the vaccine [4]. The UK has never met this target [6].

The measles vaccine was first introduced to the UK in 1968 [7]. Prior to its introduction measles cases varied between 160,000 to 800,000 with around 100 deaths every year [7]. Measles cases did decrease once the measles vaccine was introduced however it was not until the introduction of the measles, mumps, rubella vaccine otherwise known as MMR and the achievement of vaccine coverage in 1988 that measles cases fell to exceptionally low levels [7]. Following a predicted measles epidemic in 1994 and to maintain control of measles a two-dose schedule of MMR was introduced in 1996 [7]. Since that time, the UK has had several nationwide campaigns to increase MMR vaccine coverage including the period following discredited claims linking autism and the

Commentary

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MMR vaccine in the early 2000's [7].

The MMR vaccine is typically given at 1 year of age and at 3 years and 4 months as per the UK childhood vaccine schedule [8]. However, if an individual over two years of age vaccine history is uncertain, they can have two doses 4 weeks apart to ensure immunity [9]. Since 2010 vaccine coverage in the UK after a second dose has only ever been as high as 89.3% and current MMR coverage is the lowest it has been in a decade [6].

The UK had reached measles elimination status in 2016 as declared by the WHO; however by 2018 this status had been lost [10]. The criteria to verify elimination of measles include a high-quality surveillance system to detect and confirm possible measles cases, at least 12 months absence of endemic measles from the previous case and genotyping of evidence that supports the lack of endemic transmission [10].

As of July, last year the UKHSA warned of the possibility of a measles outbreak in London where vaccine uptake was only 74.1% for two doses of MMR by 5 years of age which is well below the desired 95% as outlined by the WHO [6]. The measles outbreak of between 40,000 and 160,000 in London as a result of sub-optimal vaccine uptake. The same report also suggested possibility of an outbreak outside of London due to transmission from imported overseas cases [11].

From the recommendations of the UKHSA report [6] and risk of measles outbreak Public Health England and the NHS developed a new strategy address these concerns. The NHS England Vaccination Strategy sets out nine themes to increase vaccine coverage stop the spread of infections and prevent serious illness and hospitalisation [12]. While the

vaccine strategy focuses on all vaccines and not specifically on measles it has been designed based on the success of the COVID-19 vaccine delivery and aims to integrate the COVID-19 vaccine delivery with longstanding vaccination programmes [12]. The strategy encompasses understanding of social determinants of health including how to access marginalised and underserved populations as well as utilising skilled workforce members to deliver the programme [12].

While the NHS England Vaccination Strategy has been welcomed and praised by public health experts its implementation has come too late for this outbreak. While cases rise in the West Midlands and the UKHSA scrambles to respond to this hopefully parents and caregivers will realise the importance of timely vaccination. This outbreak may demonstrate the on-going risk of measles and encourage individuals and families to ensure their protection using vaccines. The current response from the UKHSA to provide increased vaccination and targeting of individuals who have no record of MMR doses should curb the spread and prevent the cases from reaching the predicted 40,000 cases [11].

It may be startling to learn that the current UK outbreak of measles does not appear to be due to anti-vaccination ideas which are commonly attributed as a barrier to MMR vaccine uptake [13]. The current measles outbreak may be attributable to health instructions during the COVID-19 pandemic [6,14]. During the COVID-19 pandemic people were instructed to stay at home and isolate to protect themselves. There was particular emphasis on not overwhelming health facilities and keeping themselves safe by not visiting health facilities needlessly. While vaccinations continued and were prioritised in primary care facilities many families and individuals may have been reluctant to visit their local General Practice (GP) surgery or were not aware that this service was still taking place. The UK was not alone in this practice or in the decline in vaccine uptake. The Centre for Disease Control and Prevention [15] reported over 61 million doses of measles vaccines were not administered during 2020 to 2022 globally. It was not just measles vaccines that were affected but all immunisation coverage which reduced by 10% over the pandemic [12,16].

WHO Europe suggested urgent action in February 2023 to prevent resurgence in measles [6]. This was aimed at all countries to initiate urgent catch-up programs targeting individuals who were missing MMR doses [6]. However, there is evidence outlining increased measles activity and rise in cases on a global scale with large outbreaks occurring in multiple countries including South Africa and parts of Asia [6]. This is leaving not just the UK vulnerable and at risk of imported cases but also numerous other countries [11,15].

The current measles outbreak in the UK presents an

opportunity to manage and increase vaccine uptake to achieve the measles elimination status again. As of 2021, only 5 countries have achieved this status and maintained their achievements. Sri Lanka is one such country that has achieved measles elimination status and has held that since 2019. Sri Lanka has also achieved rubella elimination. This is due to strong public health campaigns and commitment to the WHO measles and rubella strategic framework [17-19]. There is hope that the UK can eliminate measles with the implementation of the NHS England Vaccination Strategy.

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