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Impact of physical distancing measures due to COVID-19 pandemic in England on childhood vaccination counts up to week 41, and vaccine coverage up to August 2020

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Main points from the fourth report

This series of reports presents an assessment of the extent of COVID-19-related impact on childhood vaccinations based on both (a) aggregated vaccine counts of dose 1 Hexavalent and dose 1 MMR vaccinations delivered to infants or children and (b) vaccine coverage data for dose 1, 2 and 3 Hexavalent and dose 1 MMR vaccines extracted from ImmForm.

This fourth report includes vaccination counts data up to week 41 and vaccine coverage data to August 2020, and indicates that:

Vaccination counts for the first dose of MMR in children aged 12 to 18 months and first dose of Hexavalent (DTaP/IPV/Hib/HepB) in children aged 6 months fell at the time of introduction of physical distancing measures in March 2020 (week 13) compared to the same period in 2019. This was followed by a rise from weeks 16 onwards which has stabilised and is comparable to vaccination counts prior to the COVID-19 pandemic.

The initial decrease in **vaccination counts** is likely to be associated with COVID-19 messaging about staying home, which could have overwhelmed the messaging that the routine immunisation programme was to continue, and with GPs rescheduling appointments in the initial weeks to ensure social distancing measures were maintained within GP practices. The data presented is from one of the largest GP IT supplier (TPP) and therefore does not represent data for all of England. Therefore, this data may not reflect regional and local variation.

Hexavalent vaccine coverage uploaded on ImmForm for infants that turned 8 weeks at or after the time when social distancing measures were evaluated continue to follow similar trends to, and are comparable with, coverage estimates for the same target age group during 2019 and early 2020. Likewise, **vaccine coverage estimates for MMR** assessed at 15 months in June, July and August 2020 are comparable to estimates from April and May 2020. However, this data must be viewed with caution as it reflects the initial weeks when social distancing measures were implemented. Future reports will include monthly vaccine coverage estimates uploaded to ImmForm via GP IT supplier extracts.

As physical distancing measures change throughout the course of the pandemic it is important for GPs to continue offering routine immunisations and, where required, **recovery plans should be put in place** to account for the initial drop in vaccination counts observed.

Introduction

In England, childhood immunisations are offered according to the **routine immunisation schedule**. Childhood vaccine coverage is routinely assessed in quarterly COVER (Cover of vaccination evaluated rapidly) programme reports for children who reached their first, second, or fifth birthday [1]. In addition to the routine quarterly reports, more timely aggregated GP vaccine coverage data on Hexavalent (Diphtheria, Tetanus, Pertussis (whooping cough), Polio, *Haemophilus influenzae* type b (Hib) and Hepatitis B) and MMR (Measles, Mumps and Rubella) vaccines are collected monthly from 6 and 15 months respectively via ImmForm*, for local areas to use for performance management.

On 23 March 2020 (week 13), physical distancing measures were introduced in England which included school closures, stopping gatherings, non-essential use of public transportation and individuals being advised to work from home [2,3]. Advice from the Joint Committee on Vaccination and Immunisation (JCVI) on routine childhood immunisations stated that children should continue to receive vaccinations according to the national schedule throughout the lockdown [4].

In order to evaluate the early impact of physical distancing measures on the delivery of childhood vaccinations, 2 datasets have been analysed:

1. An assessment of aggregated weekly vaccination counts provided by the GP IT supplier The Phoenix Partnership (TPP)**, representing approximately 38% of data for all practices in England for 2020 was compared to 2019 counts. These initially indicated that MMR dose 1 (MMR1) vaccination counts for children aged 12 to 18 months dropped almost 20% in the first weeks after introduction of physical distancing compared to the same period in 2019. First dose (dose 1) Hexavalent vaccination counts for infants younger than 6 months gradually declined, though not accentuated by the physical distancing [2]. Vaccination counts then increased in weeks 16 and 17 despite physical distancing measures remaining in place [2].

* ImmForm is the system used by PHE to record vaccine coverage data for some immunisation programmes.

** TPP supplies SystmOne which is an electronic patient record used by more than 2,600 primary care practices in the UK.

2. Early estimates of national vaccine coverage from ImmForm (representing at least 92% of practices in England) collected monthly for dose 1, dose 2 and dose 3 (completed course) of Hexavalent vaccine at 6 months was assessed from 2019 to 2020. Hexavalent vaccine coverage from August 2020 onwards reflects those infants that turned 8 weeks at or after the time when social distancing measures were implemented (23 March 2020), at six months of age. Those first scheduled for the second and third dose of hexavalent vaccine at the time when social distancing measures were implemented would have been evaluated for hexavalent dose 2 and 3 coverage in the ImmForm June and May submissions onwards, respectively. Additionally, monthly vaccine coverage for MMR1 at 15 and 18 months was compared from April 2020 to August 2020. MMR1 coverage at 15 months from June 2020 onwards reflects children that turned one-year-old at or after the time when social distancing measures were implemented (23 March 2020) whereas MMR1 coverage at 18 months will not reflect any impact from social distancing measures until the September evaluation onwards. Children that were scheduled for Hexavalent and MMR but not vaccinated prior to 23 March 2020 could have also been impacted by the implementation of social distancing measures. Therefore, coverage within their 6/15 and 18 month evaluations on ImmForm may be lower. Childhood vaccine coverage is formally assessed at 1, 2 and 5 years of age as part of the COVER (Cover of vaccination evaluated rapidly) programme therefore the ImmForm coverage data provides interim estimates of vaccine coverage until the official COVER statistics reflecting the cohorts impacted by COVID-19 are assessed during 2021.

This routine report will summarise vaccination counts for dose 1 Hexavalent and MMR1 updated weekly from TPP in 2020 compared to 2019 for the age groups stated above. This report will also summarise vaccine coverage extracted in August 2020 for dose 1, 2 and 3 of Hexavalent vaccine at 6 months compared to coverage in 2019 and dose 1 of MMR vaccine at 15 months compared to vaccine coverage from April to June 2020.

Methods

Monitoring weekly vaccination counts provided by TPP

Aggregated weekly counts of the dose 1 Hexavalent delivered to infants 6 months and younger and dose 1 MMR to children between the ages of 12 and 18 months were provided by TPP for all weeks in 2019 and the first 41 weeks of 2020. Weekly trends in vaccination counts were compared between 2019 and 2020.

Early monitoring vaccine coverage

GP practice-level vaccine coverage data is automatically uploaded via participating GP IT suppliers to the ImmForm website on a monthly basis provide an early assessment of vaccine coverage for some of the routine childhood vaccinations. This data is validated and analysed by PHE to check data completeness, to identify and query any anomalous results and describe epidemiological trends. Vaccine coverage is calculated as the number of infants reaching a target age and receiving a vaccine(s) as a proportion of the total number of infants registered at the target age, as described in Table 1.

Data extracted in August 2020 reflects Hexavalent vaccine coverage among infants born in January 2020 and evaluated at 6 months of age, who were first eligible for their primary immunisations during March 2020, at 8 weeks old.

Coverage data for the first dose of MMR1 at 15 months and 18 months were also extracted. MMR1 coverage at 15 months (only available from 2020/21 financial year) will reflect cohorts that turned 12 months and became eligible for MMR1 when the social distancing measures due to COVID-19 are reflected in the June 2020 ImmForm data, whereas MMR coverage at 18 months will only reflect the affected cohorts from the September 2020 extract onwards (Table 1).

Table 1. Vaccine type, dose and age of cohort when data is extracted from ImmForm survey

Vaccine*	Dose(s)	Age	ImmForm extracts with impacted cohorts
Hexavalent	1	6 months	August 2020 onwards
	2		June 2020 onwards
	3		May 2020 onwards
MMR	1	15 months	June 2020 onwards
MMR	1	18 months	September 2020 onwards

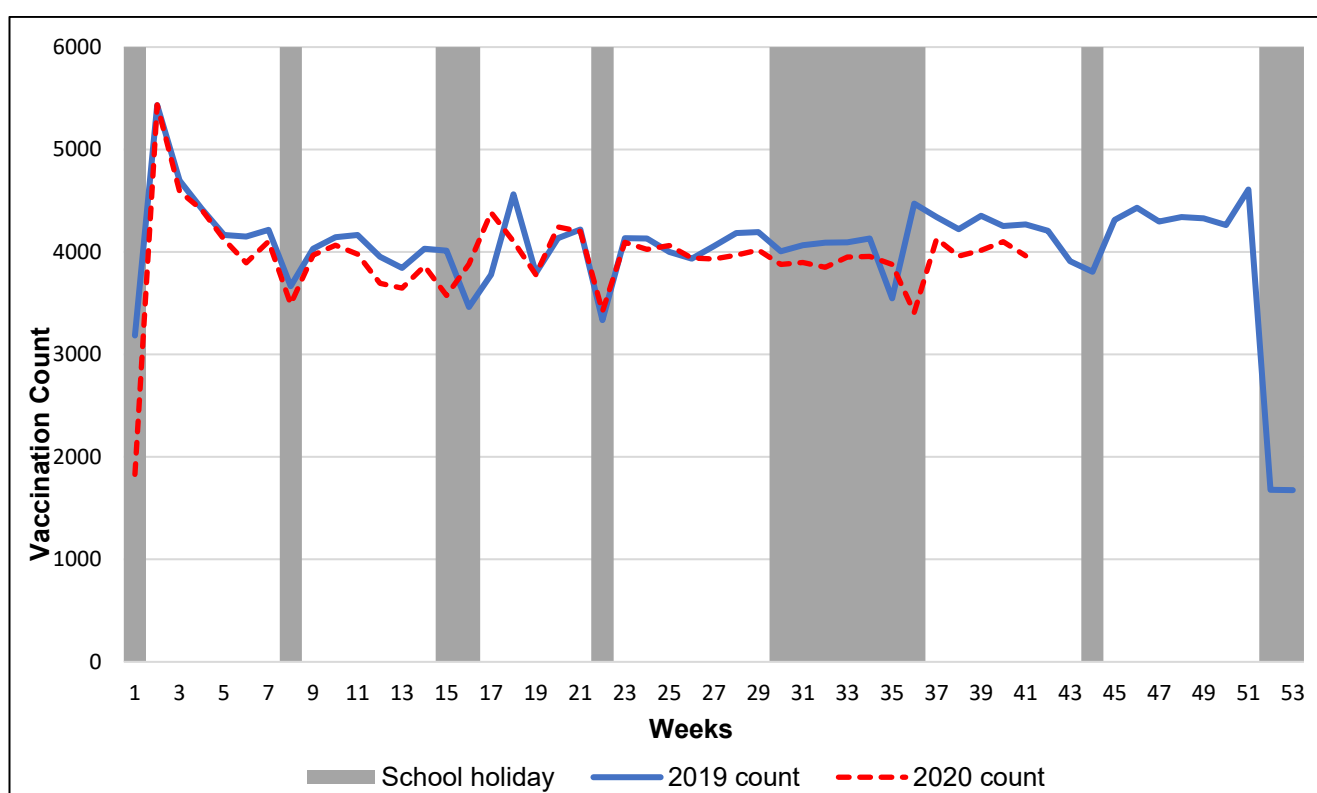
* Monthly vaccine coverage trends for Hexavalent at 6 months and MMR at 15 months were assessed over time from 2019 to 2020 to assess the impact of physical distancing measures.

Results

Vaccination counts provided by TPP

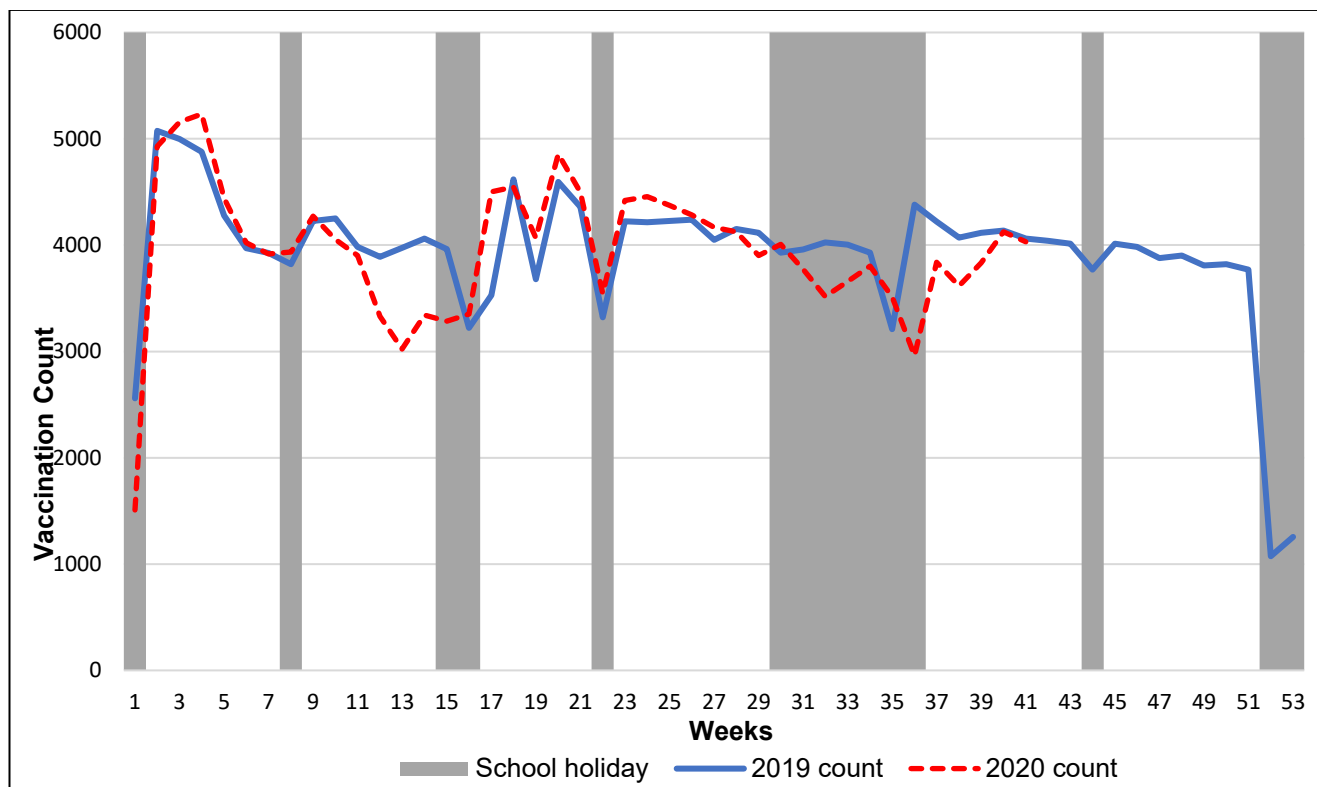
Vaccination counts from TPP general practices in 202 CCGs that were in operation in 2019 and 2020 were extracted. By week 41, a total of 161,734 Hexavalent vaccination counts were extracted in 2020 compared to 167,896 in 2019 (-3.7 percent point change) and 162,110 MMR vaccination counts in 2020 compared to 166,430 in 2019 (-2.6 percent point change).

Figure 1: Dose 1 Hexavalent vaccination counts in infants younger than 6 months in TPP practices in operation in both 2019 and 2020 in England by week in 2019 and 2020*



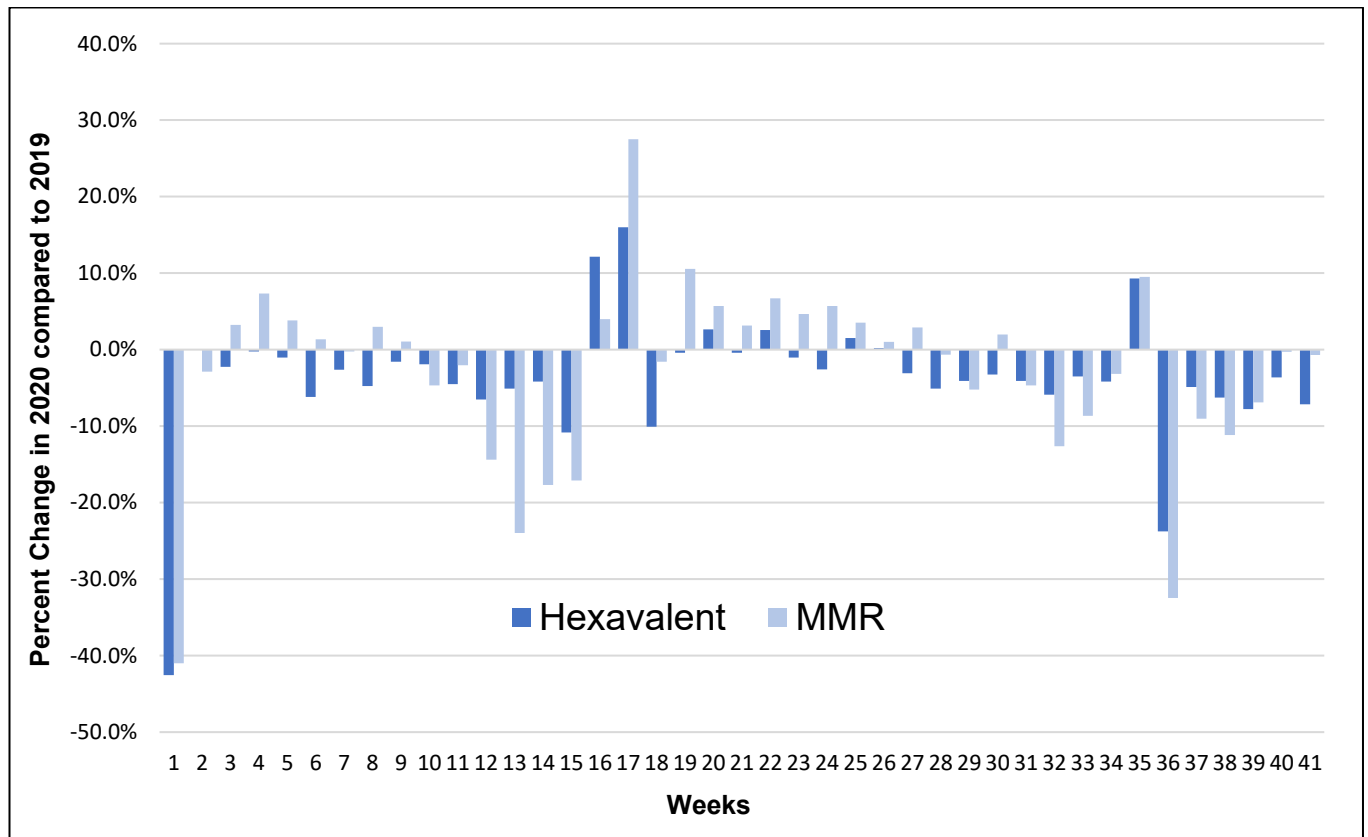
* School holidays (often coinciding with family holidays) are for the 2020 calendar year. These holidays may vary slightly by year and by local area. School holidays for the 2019 to 2020 academic year were in weeks 43, 52, 53, 1, 8, 15, 16, 19, 22, 30 to 36. School holidays for the 2020 to 2021 academic year are in weeks 44, 52, 53, 7, 13, 14, 18, 22, 29 to 35.

Figure 2: MMR 1 vaccination counts in infants ages 12 to 18 months in TPP practices open in 2019 and 2020 in England by week in 2019 and 2020



* School holidays are for the 2020 calendar year. These holidays may vary slightly by year and by local area. School holidays for the 2019 to 2020 academic year were in weeks 43, 52, 53, 1, 8, 15, 16, 19, 22, 30 to 36. School holidays for the 2020 to 2021 academic year are in weeks 44, 52, 53, 7, 13, 14, 18, 22, 29 to 35.

Figure 3: Percent change in dose 1 Hexavalent (in infants under 6 months) and MMR 1 vaccination (in infants ages 12 to 18 months) counts in 2020 compared to 2019, by week in TPP practices open in 2019 and 2020 in England



Early vaccine coverage assessment in England

Vaccine coverage data for more than 95% of practices has been available monthly since January 2019 on ImmForm, except for the August 2020 survey which had data for 92.2% of practices.

Figure 4: Vaccine coverage for dose 1, 2 and 3 of the Hexavalent vaccine by month in 2019 and 2020. Data from August 2020 onwards will reflect the cohorts impacted by the social distancing measures due to COVID-19

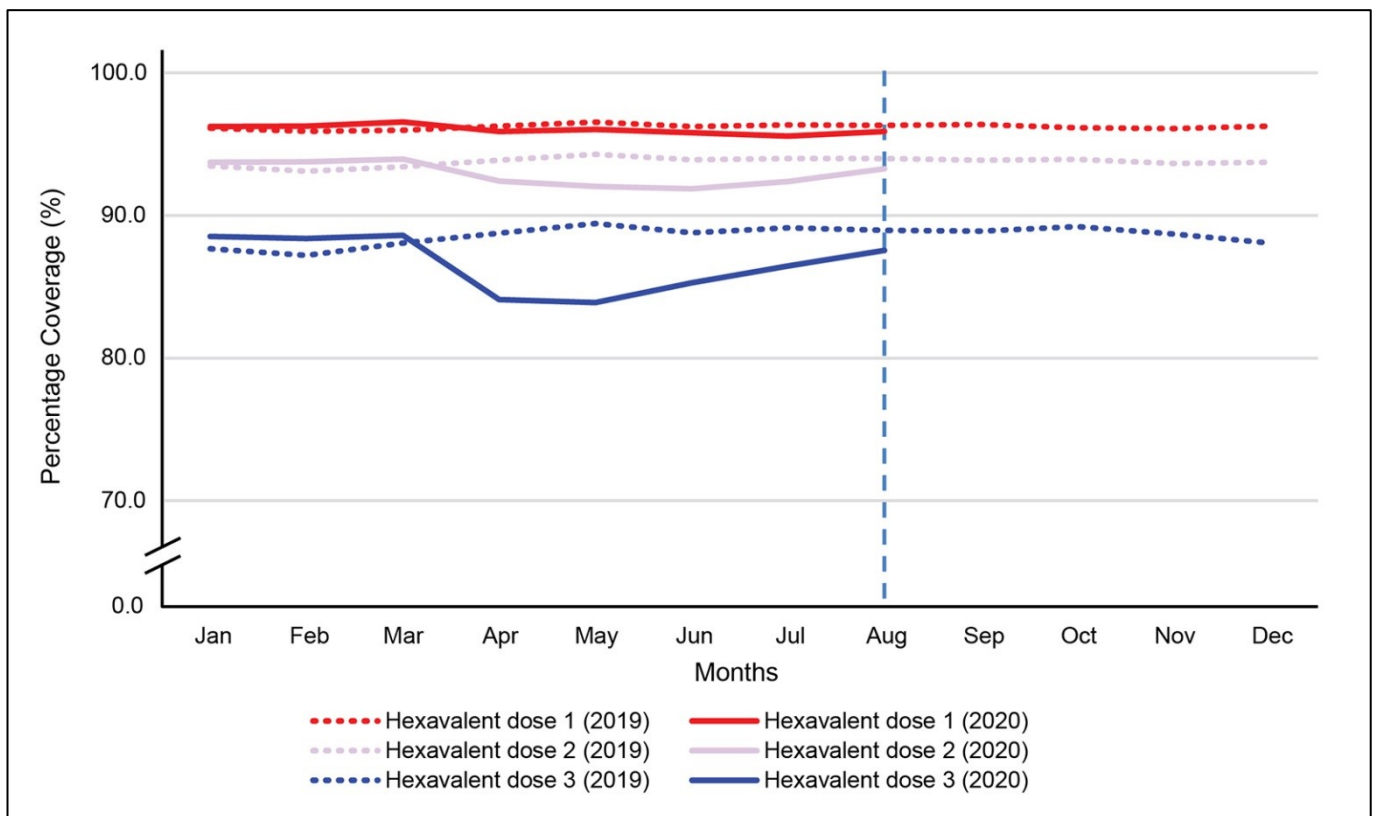
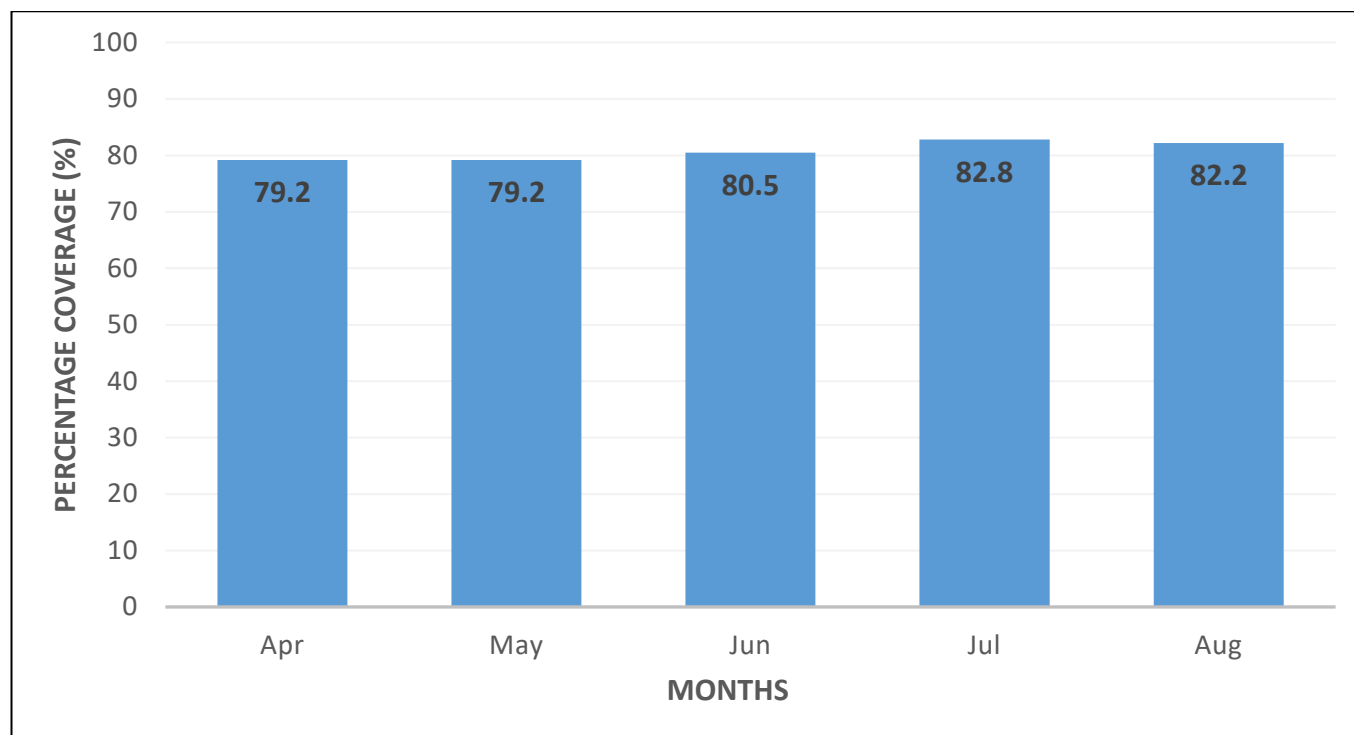


Figure 5: Vaccine coverage for MMR dose 1 at 15 months from April 2020 to August 2020. Data from June 2020 onwards reflect infants potentially impacted by social distancing measures due to COVID-19



Discussion

At the introduction of the physical distancing measures in March 2020 (week 13), vaccination counts for MMR 1 and dose 1 Hexavalent fell compared to 2019. This decrease in vaccination counts may be associated with COVID-19 messaging about staying home initially overwhelming the messaging that the routine immunisation programme was to remain operating as usual [2]. Additionally, anecdotal information indicated that in some areas, to ensure safe and best practice, GPs had to reschedule appointments in the initial weeks to ensure social distancing within GP practices. Vaccination counts for both vaccines began to rise in weeks 16 and 17 and were comparable to 2019 counts, and to counts in 2020 prior to the COVID-19 pandemic, indicating that the initial drop had recovered. However, the overall vaccination counts for dose 1 Hexavalent and MMR 1 vaccines is slightly lower than the 2019 counts. The drop in vaccination counts may be explained by a slightly smaller cohort or a small decline in coverage [2]. It is also important to note that school holidays and bank holidays occur in different weeks in 2019 and 2020, and therefore can cause weekly differences. The data presented are vaccination counts only from one GP IT supplier (TPP) and coverage estimates cannot be calculated without age-specific denominator data. Additionally, some regions are less represented than others and therefore do not represent data for all of England. This data should therefore be viewed with some caution and will not necessarily reflect vaccination count trends at a local level.

Early assessment of age-specific vaccine coverage allows local areas to assess performance before children reach the age that formal vaccine coverage is assessed. Vaccine coverage for the 3 doses of Hexavalent vaccines from aggregated GP-level data have been collected via the ImmForm platform since 2019. Hexavalent coverage estimates for those infants that turned 8 weeks at or after the time when social distancing measures were implemented (23 March 2020), evaluated in August 2020 at 6 months of age, continue to follow similar trends to and are comparable with coverage estimates for the same target age group during 2019 and early 2020. Likewise, vaccine coverage estimates for MMR assessed at 15 months in June, July and August 2020 are comparable to estimates from April and May 2020. However, this data must be viewed with caution as it reflects the initial weeks when social distancing measures were first implemented.

Children that were scheduled for Hexavalent and MMR but not vaccinated prior to 23 March 2020 could have also been impacted by the implementation of social distancing measures, therefore, coverage within their 6-, 15- and 18-month evaluations on ImmForm may be lower. However, these children will remain eligible for vaccination and will be reassessed at their first, second and fifth birthday in future routine quarterly COVER reports.

Future monthly collections will continue to monitor any impact of COVID-19 on early vaccine coverage. Vaccine coverage will vary across the country and local areas can monitor early estimates of coverage in their areas using ImmForm and other data sources to identify areas needing more support.

As physical distancing measures change throughout the course of the pandemic and the risk of other infectious diseases circulating increases, it is of utmost importance that GPs continue offering routine immunisations, check and recall those who have not received a vaccine and, where required, recovery plans should be set in place to address any drop in vaccine coverage observed since the beginning of the lockdown.

References

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