

# UniCoVac Position Paper<sup>1</sup>

## Considerations for University Campus-Based Vaccination Programmes for COVID-19 and Other Infectious Disease Vaccines

### Version 2<sup>2</sup>

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#### 1. Overview

This position paper sets out the rationale, logistics and limitations for delivery of COVID-19, MMR and meningitis vaccines to university students. Key aspects considered are ascertainment of vaccine status and campus-based delivery of vaccines.

The approaches described in this position paper will require an inter-disciplinary approach. There will be a requirement for data analysts to enable personalised, secure access to vaccination records, for social media experts and sociologists to design appropriate pathways and literature for disseminating information and for public health experts to oversee literature outputs and delivery of campus-based immunisation programmes. Contributions from vaccinologists, economists and modellers will also be required for monitoring and assessing the utility of implemented recommendations.

#### 2. Background

##### 2.1 UK Vaccine Policy for Students

UK university students are recommended to complete COVID-19 vaccination (2 doses) where possible, to complete their 2-dose MMR (measles, mumps and rubella) vaccination and to have their single dose of MenACWY (meningococcal serogroups A, C, W and Y) vaccines if any doses were missed during infant and school-age vaccination<sup>3,4</sup>. The MenACWY vaccine is available to all university entrants who have not yet been vaccinated, up to their 25<sup>th</sup> birthday even if they were not eligible at school.

International students are a challenging group and Public Health England (PHE) has specific recommendations on provision of COVID-19 vaccines to this group that are dependent on the type, if any, of vaccine already provided overseas<sup>5</sup>. International students are also recommended to take up MMR and MenACWY vaccines if not received overseas.

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<sup>3</sup>MMR vaccine schedule is one dose at one year old with a booster at 3 years 4 months; MenACWY vaccine schedule is an in-school programme with one dose to Year 9 (i.e. 14 years old); Green Book Chapter 11.

<sup>4</sup>Vaccination of individuals with uncertain or incomplete immunisation schedule; [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/852475/Algorithm\\_immunisation\\_status\\_Jan2020.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/852475/Algorithm_immunisation_status_Jan2020.pdf)

<sup>5</sup>Page 14 and appendix 1 of following document; <https://www.gov.uk/government/publications/covid-19-vaccination-programme-guidance-for-healthcare-practitioners>

Immunisation prior to arrival at university is preferred as pre-existing immunity provides the optimum scenario for prevention of both disease by and spread of these infectious agents. It is known that early mixing amongst new university students, particularly those in halls, is an important factor in higher risks of certain infectious diseases in these young people when compared to their peers.<sup>6</sup>

## **2.2 Disease and Vaccine Coverage among University Students**

Outbreaks of COVID-19 have been associated with attendance of students at universities and in particular with use of university accommodation. Students are currently being offered their first dose of a COVID-19 vaccine with delivery of a second dose likely to occur before the start of the next university term (i.e. in September 2021). A booster dose is unlikely to be offered to this age group until early 2022 but vulnerable students are likely to be offered a booster from September 2021<sup>7</sup>. Vaccinees are recommended to have the same vaccines for all doses. GP registration is recommended but not essential for accessing these vaccines. Estimates of COVID-19 vaccine coverage levels and vaccine hesitancy among students have indicated varying and changing levels for both factors reflecting the current fluidity of viewpoints.

Outbreaks of measles and mumps were associated with young people<sup>8</sup> and with universities just prior to the start of the pandemic<sup>9</sup>. Measles and mumps cases are currently at very low levels<sup>10</sup> but are predicted to rapidly re-appear on easing of lockdown<sup>11</sup>. The UK levels of MMR vaccination are currently significantly below the recommended 95% coverage level<sup>5</sup> and the current university in-take are from the year groups where immunisation of infants with MMR fell to historically-low levels due to the Wakefield scandal<sup>6</sup>.

Penetration of the MenACWY vaccine campaign into all schools and for all pupils is incomplete (e.g. 85.4% for 2017/18 cohort)<sup>12</sup>. Meningitis infections are currently at historically-low levels<sup>13,14</sup> but outbreaks or cases in universities may rapidly re-appear on easing of lockdown.

## **3. Current University Vaccination Programmes**

Government campaigns are directly targeted to students with involvement of UCAS with the aim of encouraging students to take up vaccines prior to university entry as set out above.

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<sup>6</sup> Mandal S, Campbell H, Ribeiro S, Gray S, Carr T, White J, Ladhani SN, Ramsay ME. Risk of invasive meningococcal disease in university students in England and optimal strategies for protection using MenACWY vaccine. *Vaccine*. 2017 Oct 13;35(43):5814-5818. doi: 10.1016/j.vaccine.2017.09.024. Epub 2017 Sep 18. PMID: 28928076.

<sup>7</sup> JCVI interim advice/potential COVID-19 booster vaccine programme winter 2021 to 2022 - GOV.UK

<sup>8</sup><https://www.nuffieldtrust.org.uk/resource/vaccination-coverage-for-children-and-mothers-1>

<sup>9</sup><https://www.gov.uk/government/news/mumps-outbreaks-across-england>

<sup>10</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/990119/hpr0821\\_mmr-Q1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/990119/hpr0821_mmr-Q1.pdf)

<sup>11</sup>[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)32394-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32394-1/fulltext)

<sup>12</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/773539/hpr0319\\_vc-menACWY.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/773539/hpr0319_vc-menACWY.pdf)

<sup>13</sup><https://www.gov.uk/government/publications/meningococcal-disease-laboratory-confirmed-cases-in-england-in-2020-to-2021/laboratory-confirmed-cases-of-invasive-meningococcal-infection-in-england-january-to-march-2021>

<sup>14</sup> [https://www.thelancet.com/journals/landig/article/PIIS2589-7500\(21\)00077-7/fulltext](https://www.thelancet.com/journals/landig/article/PIIS2589-7500(21)00077-7/fulltext)

Students are also encouraged to register with a GP on arrival at university. Most universities are thought to supplement these governmental campaigns with their own information campaigns. PHE, Universities UK (UUK) and the meningitis charities collaborate on delivery of toolkits and key resources to universities and other higher education institutions. There is however no requirement for these activities or centralised monitoring of activity.

Prior to the pandemic, universities varied in their approaches to MMR and MenACWY vaccine delivery with the key approaches being:-

- i. Large-scale campaigns (>200 doses; very rare; e.g. Nottingham and Bristol)
- ii. Small-scale campaigns (<200 doses per year; unusual)
- iii. Only students in medicine or other practice-based medical courses
- iv. Directing students to GP practices
- v. Information only

#### **4. Are recommendations needed?**

Vaccine coverage levels for the COVID-19, MMR and MenACWY vaccines are currently below the levels required to fully prevent disease cases and/or spread of the targeted-infectious agents. Universities are both vulnerable to outbreaks of infectious diseases and have extensive reach into a critical cohort for spread of disease agents. Thus, universities have an important role in preventing spread of these infectious diseases. Guidance is provided by the government on the prevention and management of meningococcal meningitis and septicaemia in higher education institutions<sup>15</sup>. The Green Book and other governmental documents have limited information or recommendations on vaccine delivery for other disease by universities.

#### **5. Evidence**

##### **5.1 What do we know about university student knowledge and viewpoints?**

###### **5.1.1 University of Leicester survey**

A University of Leicester questionnaire obtained data from 827 undergraduate students between the 1<sup>st</sup> and 21<sup>st</sup> of June 2021. An individual, anonymised link to the questionnaire was emailed to all University of Leicester (UoL) undergraduate students. After completing three consent questions, students were asked to complete 28 questions on:- demographics; uptake, attitudes and knowledge of COVID-19, MMR and MenACWY vaccines; COVID-19 experiences; and pandemic experiences. As with similar studies, there was a bias for respondents who were positive about vaccines with 93% indicating a willingness to take up COVID-19 vaccines and only 5% indicating a likelihood to refuse. There was a high level of concern about spreading this disease to others, high knowledge about the Pfizer and AstraZeneca COVID-19 vaccines but also high levels of concern about vaccine side-effects. The vaccine hesitant group had a disparate range of views.

Key aspects of the study were:-

- a) When asked about 'On campus vaccination', 45% of all students indicated that such a campaign would 'definitely increase' their vaccine uptake and 16% answered 'somewhat increase'

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<sup>15</sup> [Meningococcal disease: clinical and public health management - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/clinical-and-public-health-management)

- b) For international students who are currently in the UK, 63% responded as ‘definitely increase’ and 13% answered ‘somewhat increase’ when asked about how ‘On campus vaccination’ would affect their vaccine uptake
- c) When asked about vaccine status, a ‘don’t know’ response was obtained from 11% for the MMR vaccine and 26% for the MenACWY vaccine with 3% and 4% answering ‘no’ for each vaccine, respectively.
- d) 20% of students were unaware that the MMR and MenACWY vaccines were free

### 5.1.2 Other studies of meningococcal vaccines

A number of studies have examined meningococcal vaccine uptake among students prior to the pandemic. A meta-analysis by Whisnant et al.<sup>16</sup> found that the perceived risk of disease was positively-correlated with vaccine uptake but no factors were consistently correlated with refusing the vaccine and comparisons were difficult due to a lack of consistency among the studies. One example study is that of Blagden et al.<sup>17</sup> who explored vaccine hesitancy but found that inconvenience was the only significant barrier to uptake. The observational study by Turner et al.<sup>18</sup> performed during initial introduction of the MenACWY vaccine found that the large-scale ‘on campus’ vaccination programme at the University of Nottingham increased uptake among UK students from 31% to 71% and among international students from 1% to 72%.

### 5.1.3 Overall summary

While comprehensive literature review of COVID-19 vaccine uptake is required, a preliminary view is that the vaccine hesitant group is comprised of a disparate range of views but with perceived low risk and concerns about vaccine effectiveness being prevalent ideas. A qualitative conclusion for meningitis vaccines is that accessibility and knowledge of vaccine status are the key barriers to vaccine uptake among students. For the MMR vaccine, the key barriers are not clear but lack of certainty about vaccine status is likely to be a key factor. There may also be an information barrier as some students were unaware that these vaccines were free or available at GP practices.

## 6. Recommendations on vaccine status

This section provides recommendations to address concerns raised in the previous section. The key concerns considered are how to improve student knowledge of their vaccination status, of the availability of vaccines and access to vaccines. A specific section on international students is also provided as this group has aspects that are not applicable to other students.

### 6.1. Recommendations on vaccine status

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<sup>16</sup>Whisnant J, Martin-Kerry J, Flett L, Knapp P. Predictors of meningococcal vaccine uptake in university and college students: a systematic review and meta-analysis. *J American College Health* 2020; : 1-13.  
DOI: [10.1080/07448481.2020.1819292](https://doi.org/10.1080/07448481.2020.1819292)

<sup>17</sup>Blagden S, Seddon D, Hungerford D, Stanistreet D. Uptake of a new meningitis vaccination programme amongst first-year undergraduate students in the United Kingdom: a cross sectional study. *PLoS ONE* 2017; **12**: 1-16. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0181817>

<sup>18</sup>Turner DPJ, Oldfield NJ, Bayliss CD. University vaccine campaign increases meningococcal ACWY vaccine coverage. *Public Health* 2017; **145**: 1-3. doi:[10.1016/j.puhe.2016.12.010](https://doi.org/10.1016/j.puhe.2016.12.010)

A potential deterrent to seeking a particular vaccination is not knowing if one has already had the vaccine as individuals will be confused about what to do and are likely to be cautious. Lack of knowledge is a significant problem for childhood vaccines.

PHE literature states that individuals should contact their GP if they are uncertain about their vaccination status and take up these vaccines if their vaccination status cannot be established. This viewpoint on uncertainty about the MMR and MenACWY vaccines is probably poorly appreciated by the general public but this has not been explored. This uncertainty is also a barrier to action as individuals are likely to do nothing rather than proactively check their vaccination status. For COVID-19 vaccines, the systems for recording vaccine status are of high quality with both digital and paper-based systems to accommodate different groups of individuals. The recent introduction of the NHSapp is also a novel digital approach to medical records that has significant value for recording vaccinations.

The recommendations below outline technical and information delivery approaches to this problem of vaccine status. The former are issues for governmental policy while the latter can be undertaken by both central government and universities.

#### **6.1.1 Recommendations for government policy:**

- 1) To assess availability of childhood vaccine information in GP records
- 2) To assess the availability of childhood vaccine information on the NHSapp
- 3) To assess how GP vaccine data can be added to the NHSapp
- 4) To facilitate transfer of GP vaccine data into a digital and more accessible format
- 5) To instigate an information campaign to encourage uptake of the MMR and MenACWY vaccines by students if they are uncertain of their vaccine status

#### **6.1.2 Recommendations for university policy:**

- 1) To inform students how to check their status for COVID-19 vaccines and to recommend updating missing vaccinations
- 2) To inform students of changes in recommendations for COVID-19 vaccines with differential advice for students in vulnerable categories
- 3) To inform students how to check their MMR and MenACWY vaccine status (see notes below) and to recommend updating missing vaccinations
- 4) To recommend students to update MMR and MenACWY vaccines if there is uncertainty about their vaccine status
- 5) To provide students with detailed information on how to update their vaccines both prior to and post arrival on campus (see Note 1).
- 6) To specifically provide vaccine information to international students (see separate section)

#### **6.2. Recommendations on information about vaccines for university students**

The previous section has outlined the importance of educated students about accessing vaccines if they are uncertain about their vaccination status. Another barrier to uptake is that a proportion of students are unaware that vaccines are free. Literature on the MMR and MenACWY vaccines should be updated to specifically indicate that these vaccines are free and are readily available from GP practices upon request.

#### **6.3. Recommendations on GP registration and Vaccine Campaigns**

### 6.3.1 GP Registration

Universities should provide students with information on local GP practices and how to register with these practices. Opportunities to register with the GP practice during registration or Fresher's week would facilitate access to these facilities.

### 6.3.2 Recommendations on campus-based vaccine campaigns

On campus vaccination campaigns have the potential to increase student uptake of vaccines as these campaigns would remove barriers to uptake such as having to find and register with a GP practice and having to book a vaccination appointment.

The ability to offer vaccinations on campus will be influenced by the availability of qualified personnel, access to vaccine doses and the cost of vaccine delivery. Qualified personnel can be accessed through a GP practice that is based on the campus or is linked to the university but this is a significant barrier for most universities in delivering vaccines on campus. Vaccine doses can be accessed through local PHE teams and this is a less significant barrier as these teams are expected to maximise vaccine uptake.

Costs should in theory be neutral as there are specific government payments for vaccine delivery; however the manpower costs can exceed payments if vaccine uptake is lower than planned. Observations on estimating the number of doses are outlined below. Costs of advertising are not included in governmental payments for vaccine delivery. Universities may need to consider committing part of their welfare budget to these campaigns as part of a general 'public goods' endeavour and for enhancing the welfare of all students.

There are three key aspects to a vaccine campaign:- timing; location; and communications. Timing will differ for the COVID-19 versus MMR/MenACWY vaccines but other aspects will be similar. Note that MMR and MenACWY vaccines can be given simultaneously and that it is likely the COVID-19 vaccines can also be given with one or both of these vaccines<sup>19</sup>.

Timing for COVID-19 vaccines:-

- 1) Start of term for unvaccinated individuals
- 2) Variable times during autumn term for a 2<sup>nd</sup> dose (must be 8 weeks or more after the 1<sup>st</sup> dose)
- 3) Spring term for booster dose (if implemented)
- 4) All year groups

Timing for MMR and MenACWY vaccines:-

- 1) Start of term<sup>20</sup>
- 2) Foundation, first year and international students only

Locations:-

- 1) Link GP registration with vaccine offer
- 2) Central campus building

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<sup>19</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/998309/Greenbook\\_chapter\\_14a\\_1July2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/998309/Greenbook_chapter_14a_1July2021.pdf)

<sup>20</sup> An exception is if the first MMR dose has been received less than 1 month earlier

- 3) Halls of residence if in distinct location and contain substantial proportion of new entrants
- 4) Local GP practice if campus building is not feasible (but requires good signposting)

Communications:-

- 1) Link of GP registration with verbal communications on vaccines
- 2) Dedicated vaccination email from university about vaccination campaign (either 'on campus' or GP-linked) with option to book vaccination
- 3) Dedicated vaccination email from university 7, 1 and 0 days prior to walk-in event
- 4) Specific emails for international students outlining offered vaccines, details on vaccines plus indicating that vaccines are free and how to access them
- 5) Support communications in other email and online content from university
- 6) Posters in halls of residence
- 7) Talks by peers and/or experts during welcome events on vaccines and the effects of the diseases
- 8) Publicity should focus on 'ease of access' and 'vaccine safety'. A dedicated email address for answering more complex questions about vaccines should be provided. Links to reputable sites on vaccine hesitancy should also be provided.

#### **6.4. Recommendations for international students**

International students are a diverse group who will have had access to identical or equivalent vaccines to those offered in the UK. The Green Book outlines the recommendations for international students who had other COVID-19 vaccines (see above). Note that the MenAfriVac and MenC vaccines are inferior to the MenACWY vaccine due to the differing number of serogroups covered by each vaccine.

International students find it difficult to negotiate the UK medical system (including GP registration) and are often unaware of the types of vaccines offered in the UK and that these vaccines are free. International students often arrive early on campus and hence there is an opportunity to target these students prior to arrival of other undergraduates.

Recommendations for international students are:-

- 1) Targeted communications on vaccines and GP registration to international students with sensitivity to potential language barriers and differing healthcare systems
- 2) Bespoke talks delivered through international university groups on vaccines
- 3) Targeted vaccine campaign to international students within a specific location

Note 1. Approaches for individuals to checking and updating MMR and MenACWY vaccine status

- i. Consult 'red book' for childhood vaccines
- ii. Ask parents/individuals responsible for childhood medical care about vaccine status (note that this option is subject to a degree of uncertainty)
- iii. Request information from GP
- iv. Access the NHS app and check if vaccine information is available.
- v. If an individual finds a gap in or uncertainty about their MMR or MenACWY vaccine records then the following protocol should be followed:-
  - a. Contact local GP practice and book relevant vaccinations
  - b. Register with local GP practice and book relevant vaccinations

Note 2. Estimating numbers of vaccine doses for university campaigns

A key aspect of a vaccine campaign is estimating the number of doses in order to maximise uptake. A booking system facilitates estimating numbers and potentially enhance uptake. On-going estimation of vaccine coverage within the student population may also facilitate estimation of potential uptake.

Uptake for COVID-19 vaccines on campus is unpredictable as the timing of second vaccine doses may mean either that most students are vaccinated prior to university return or may require the vaccine upon their return. Uptake is however likely to be high with a high proportion of students willing to get these vaccines.

Uptake for the MMR vaccine based on the UoL data has a maximum of 10% of the student population. Uptake is however likely to be low unless students who are uncertain are strongly encouraged to be vaccinated as a precaution.

Uptake for the MenACWY vaccine based on the UoL data has a maximum of 25% of the student population. Uptake of this vaccine may be stronger than for MMR and would be enhanced if students who are uncertain are strongly encouraged to be vaccinated as a precaution.

Note that the MenACWY is an inactivated vaccine and the COVID-19 vaccines are also considered to be inactive (i.e. the adenovirus in the AstraZeneca vaccine is non-replicating). The Green Book indicates that inactivated vaccines can be given simultaneously and in conjunction with one 'live' virus vaccine such as the MMR vaccine<sup>21</sup>.

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<sup>21</sup> Green Book, Chapter 11, Page 8 and Chapter 14a, page 18.