Meningococcal ACWY (MenACWY) vaccine uptake, and barriers and motivations towards vaccination in undergraduate students: a mixed-methods study.

Authors: Kirsten M A Trayner,[1, 2] J Claire Cameron,[2] and Niall Anderson[1]
1. University of Edinburgh; 2. Health Protection Scotland

INTRODUCTION

- Students are at an increased risk of developing invasive meningococcal disease (IMD). A high vaccine uptake among students is fundamental for generating herd immunity across all age groups.
- The Joint Committee on Vaccination and Immunisation (JCVI) recommended MenACWY vaccine[1] for adolescents and new students (<25 years and attending university for the first time) in response to a meningococcal W outbreak causing severe disease.

Primary outcomes	**Estimate MenACWY uptake** **Identify factors associated with MenACWY uptake**
Secondary outcomes	**Barriers and motivations towards vaccination**

METHODS

- Mixed-methods approach: online **cross-sectional survey**, one **focus group** (4 participants – all vaccinated) and 7 **interviews** (6 vaccinated; 1 unvaccinated).
- All 1st year undergraduates (n=5808) were invited to take part in the survey via email, and qualitative participants were recruited through the survey. Inclusion criteria were <25 years and attending university for the first time (MenACWY eligible).
- Quantitative data was analysed using chi-squared tests, non-parametric tests and a logistic regression model was used to assess confounding. Bias was assessed by comparing the demographics of the sample to the target population. Qualitative data was analysed using the principles of grounded theory.

RESULTS

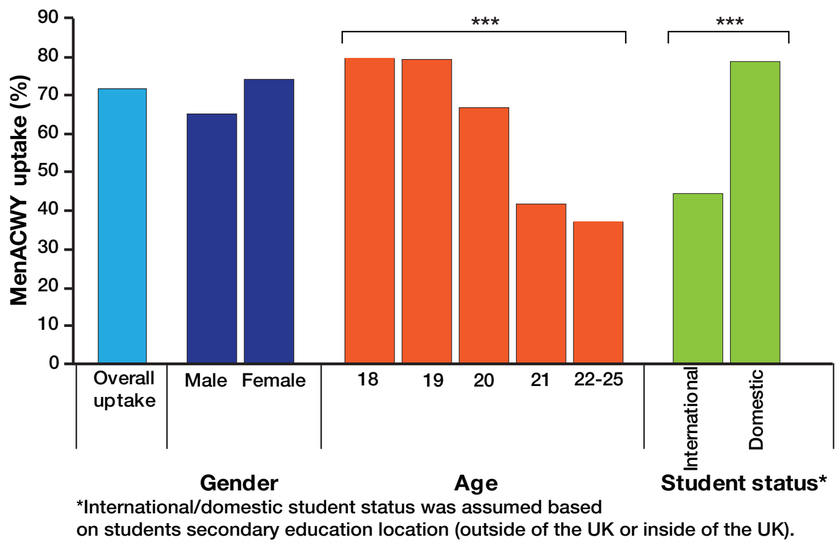
MenACWY vaccine uptake

- MenACWY uptake was 71.5% (519/768). Uptake was associated (p<0.001) with age and international/domestic student status:
  - Uptake was lowest in older students, 21-25 years old (31.9%; 31/549) and international students (44%; 71/549)

TABLE 1: MenACWY uptake, period when respondents received the MenACWY, perception of protection after vaccination and awareness of signs and symptoms. N=768.

		N (%)
MenACWY uptake	Vaccinated	549 (71.5)
	Unvaccinated	219 (28.5)
Period when respondents received the MenACWY	Before starting university	421 (76.7)
	After starting university	128 (23.3)
Belief of being fully protected after vaccination	Yes	329 (42.8)
	No	179 (23.3)
	Unsure	260 (33.9)
Awareness of signs and symptoms	Yes	379 (49.3)
	No	204 (26.6)
	Unsure	185 (24.1)

FIGURE 1: MenACWY uptake by gender, age and student status. N=549.
*** Refers to a significant association (p<0.001)



*International/domestic student status was assumed based on students secondary education location (outside of the UK or inside of the UK).

Barriers to vaccination

A. Communication

- The top three reasons for not receiving the MenACWY were related to a lack of information:
  - "Did not receive enough information"=35% (76/219), "Did not know about a vaccine"=34% (75/219), "Had a meningitis vaccine in the past"=26% (56/219).

B. Access

- The majority of respondents received the vaccine before starting university:
  - Qualitative participants described that they would be less likely to access the vaccine once term had started given their busy schedules, which may explain the lower uptake observed in international students.

C. Knowledge

- An association (p<0.001) was found between knowledge and vaccination status: unvaccinated respondents had a lower knowledge score (4.1/11) in contrast to vaccinated respondents (5.4/11).
- Qualitative participants had a limited knowledge of their vaccination history, and some questioned the necessity of the MenACWY as they believed they had previously been vaccinated.

D. Perception of risk

- Perception of risk was low, despite understanding of meningococcal risk factors.
- Meningococcal complacency was a concern:
  - 56% (508/768) of vaccinated respondents believed they were fully protected or were unsure. 51% (389/768) of respondents did not know/were unsure of the signs and symptoms of meningococcal disease.

TABLE 2: Reasons for receiving/not receiving the MenACWY. N=768.

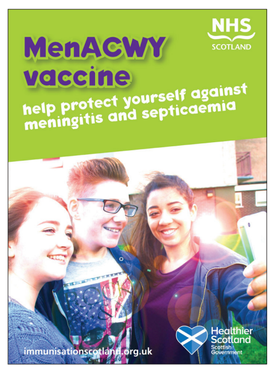
Reasons for receiving the MenACWY	% vaccinated participants
Vaccine free of charge	65.2
Easy access to vaccine (convenience, location)	61.4
Parent/guardian recommendation	57.4
Letter received in the post informing you of vaccination programme	46
School/college/university recommendation	46
Health professional (doctor, nurse) recommendation	46
Received sufficient information on disease and vaccine	39.3
Information provided on leaflets and posters	15.6
Prior exposure to disease (friends, family, self)	7.6

Reasons for not receiving the MenACWY	% unvaccinated participants
Did not have enough information about the disease and/or vaccine to make an informed decision	35
Did not know about a meningitis vaccine	34.4
Had a meningitis vaccine in the past	26
Afraid of injections	14.1
Concerned about vaccine side effects	12.3
Do not trust the quality of health services	3.2
Had meningitis (meningococcal disease) in the past	1.4

Motivations towards vaccination

A. Perception of meningococcal disease

- Meningococcal disease was perceived as a severe disease, but less so than other infectious diseases (HIV and malaria). Their perception was shaped by prevalence, transmission and fatality of the disease. This suggests that if participants were more knowledgeable about the consequences on meningococcal disease (e.g. high case fatality, limb loss), they would perceive it as more serious and be more motivated to receive a vaccination.



B. Perception of vaccines

- Vaccines were perceived as a highly effective method of preventing disease. Many qualitative participants described "feeling protected" as a key motivation.

C. Social responsibility

A notion of social responsibility was identified as a key motivator, qualitative participants described receiving vaccinations as a "moral obligation".

PARTICIPANT QUOTES

Uncertain of vaccination history
"It was difficult to know if we needed the vaccine. My mum told me I had a meningitis vaccine so I didn't need it... we need to be more aware of types of meningitis vaccines"

Perception of meningococcal disease
"Meningitis really stands out, I know I'd be much more concerned about that than if they'd got anything else"

Perception of risk
"I'd say that there's quite a blasé attitude towards the whole thing, in that people get the vaccine and then they don't think about it anymore"

Perceptions of vaccines
"When you learn about the impact vaccines have had on our country and the rest of the world, you realise how important they are"

Social responsibility
"You're responsible for making sure you're safe from diseases, which are high risk to you and other people. You're doing good for yourself but you're also doing good for society as a whole. It's something people should realise"

CONCLUSIONS

Students outwith main UK-based, core age cohorts, were under immunised and targeted efforts are needed for these groups. Knowledge gaps were identified in relation to types of vaccines, signs and symptoms and vaccination history. Future programmes should focus on raising awareness that receiving one vaccine does not guarantee all-type protection, in addition to highlighting the benefits of vaccines, for the individual and society as a whole.

Acknowledgements

I would like to thank my dissertation supervisors, Claire and Niall, for their guidance and patience and the University of Edinburgh for funding this study.

References

1. Chief Medical Officer. Meningococcal ACWY (MenACWY) vaccination programme: university freshers and adolescents aged 14-18. [Internet]. 2015. Available from: http://www.sehd.scot.nhs.uk/cmo/CMO(2015)15.pdf