

Annual Return 2019

Executive Summary

Implementation

- A total of 2,821 Yellow Fever Vaccination Centres (YFVCs) in England, Wales, and Northern Ireland (EWNI) were contacted for the 2019 Annual Returns Survey.
- The response rate was 87%.

The Yellow Fever Vaccination Centres

- The most common organisations were NHS GP practices (46.8%), followed by pharmacies (36.7%).
- Most centres have one member of staff administering yellow fever (YF) vaccine, and one health professional (55.1%) who had received any training; 25% of centres had two members of staff trained and 9.2%, three.

Yellow fever vaccine doses

- The average number of YF vaccine doses given per centre in 2019 was 47 (median:22).
- The total number of YF vaccine doses given in EWNI was 115,389. If non-responding centres had the same prescribing patterns as responding centres, the total number of doses would be 132,591
- The 18 to 59-year old age group accounted for the largest proportion of vaccinated individuals (72.5%). Those aged 60 or older accounted for 9.9% of vaccinated individuals.
- Booster doses accounted for 2% of all doses given.
- 210 medical letters of exemption were provided

Clinical incidents

- Individuals were given a vaccine in error in 72 instances. The most common reasons were 'Given when precaution present', (50, 69.4%) Other, (12, 16.7%) Contraindicated, (5, 6.9%) and 'Diluent only administered' (5, 6.9%).
- The total number of wasted doses was 1485. The most mentioned reasons for wastage were 'Cold chain' (41.7%), 'Out of date' (35.8%), 'Product fault' (0.9%), 'Procedure fault' (14.4%), and 'Other' (7.3%).
- Seventeen doses were administered inadvertently to individuals with contraindications; immunosuppressed (8), aged under six months (6), history of thymus disorder (2) and history of anaphylaxis (1).
- Five serious adverse events were reported as suspected or confirmed YEL-AND or YEL-AVD; all were reported to relevant authorities.
- 2,271 (93%) YFVCs were aware of the Commission on Human Medicines 2019 review of serious and fatal reactions following YF vaccine and recommendations, 157 (6%) were 'unsure' and 27 (1%) were not aware of the review and recommendations.

Aims

This report concerns the 2019 Annual Return of yellow fever (YF) vaccine use and practice of Yellow Fever Vaccine Centres (YFVCs) in England, Wales, and Northern Ireland.

Methods

A questionnaire was created using SurveyMonkey online survey software (SurveyMonkey, San Mateo, California, US). A weblink was disseminated to YFVCs, who remained designated between 1 January 2019 and 31 December 2019, via multiple channels: email to centre staff, news items on NaTHNaC's website, newsletter to subscribers of news items on both NaTHNaC's TravelHealthPro and Yellow Fever Vaccination Zone websites, and social media posts (Facebook, Twitter). Operational leads at major travel clinic and pharmacy chains were contacted via email. The online questionnaire was open for responses between 13 January and 30 April 2020, and email reminders were sent to non-responding centres at regular intervals. The majority of unexpected or unusual data was revisited and confirmed as human error during data sampling. Final analysis was undertaken on a cleaned dataset.

Results

2,821 YFVCs were contacted. Of the 2,659 responses, 121 were either duplicate responses (n=85) or were not currently designated (n=36). Giving an overall response rate of 87% (2455 centres). The response rates in the previous four years were 93%, 86%, 86% and 80%. Military YFVC were also surveyed but not included in this analysis.

i. YFVC characteristics

Responding YFVCs were most commonly NHS GP clinics (46.8%), followed by pharmacy clinics (36.7%), private travel clinics (8.1%), private GP clinics (5.2%), occupational health departments (2.3%) and hospital clinics (0.5%). Since 2017, there has been a decrease in the proportion of GP clinics and an increase in the proportion of pharmacy clinics (Figure 1). A small proportion of centres (11.2%) had been registered for less than a year (Figure 1, Table 1).

Figure 1: Yellow Fever Vaccination Centre organization type 2017 - 2019

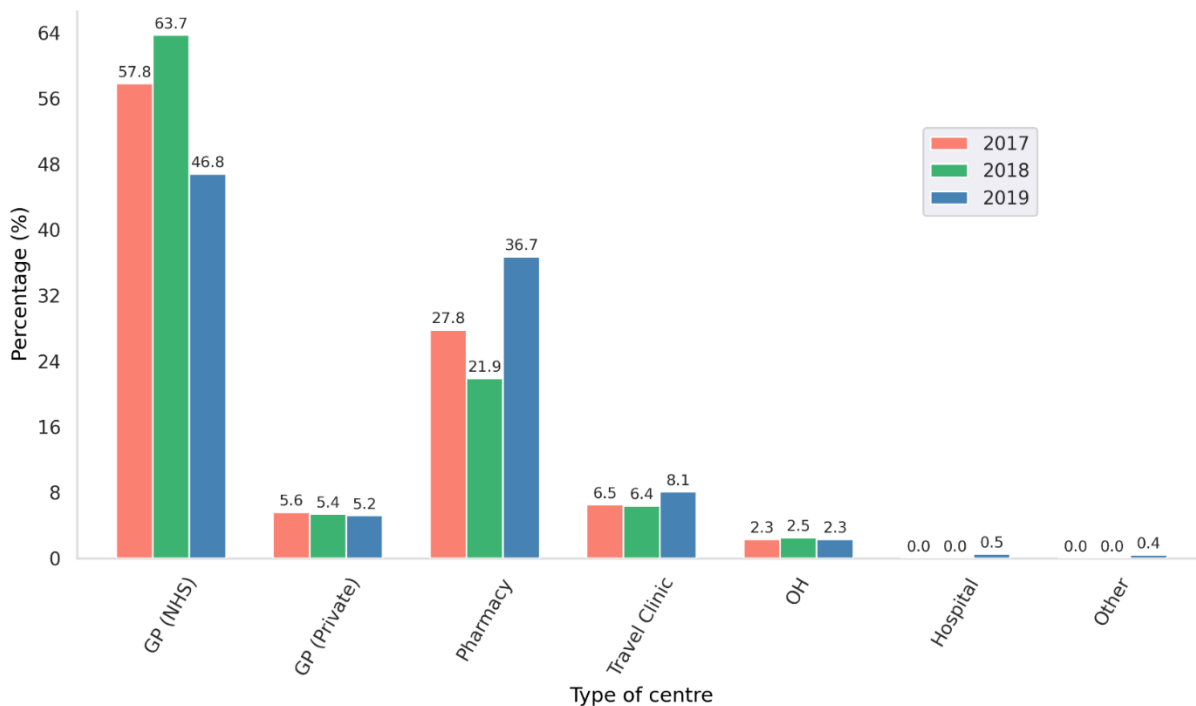


Table 1: Yellow Fever Vaccination Centre organization type 2017 - 2019

Centre type	2017		2018		2019	
	Number	%	Number	%	Number	%
GP (NHS)	1625	57.8	1722	63.7	1148	46.8
GP (Private)	157	5.6	146	5.4	127	5.2
Pharmacy	782	27.8	592	21.9	900	36.7
Travel clinic	183	6.5	173	6.4	200	8.1
Occupational Health	65	2.3	68	2.5	57	2.3
Hospital	0	0	0	0	12	0.5
Other	0	0	0	0	11	0.4
Total	2812	100%	2701	100%	2455	100%

Most centres had one health professional administering YF vaccines (range 0 to 33) (Table 2a) and one health professional who had received training (range 0 to 28) (Table 2b).

Table 2a: Number of health professionals administering YF vaccines at the centres

Number of health professionals	Number of centres	Percentage (%)
0	14 ¹	<0.1
1	982	40.0
2	742	30.2
3	371	15.1
4	165	6.7
5	79	3.2
6	38	1.5
7	23	0.9
8	12	0.5
9	5	0.2
10	12	0.5
11	2	<0.1
12	2	<0.1
13	1	<0.1
14	2	<0.1
15	2	<0.1
20	2	<0.1
33	1	<0.1
Total	2455	100.00%

¹ To be followed up by NaTHNaC

Table 2b: Number of health professionals trained to administer YF vaccine by number of centres

Number of health professionals trained	Number of centres	Percentage (%)
0	1 ²	<0.1
1	1455	59.0
2	629	25.6
3	227	9.2
4	78	3.2
5	31	1.3
6	14	0.6
7	8	0.3
8	4	0.2
9	2	<0.1
11	2	<0.1
12	2	<0.1
13	1	<0.1
14	1	<0.1
28	1	<0.1
Total	2455	100.00%

² To be followed up by NaTHNaC

ii. YF vaccine doses administered

The total number of YF vaccine doses given in EWNI was 115,389. If non-responding centres had the same prescribing patterns as responding centres, the total number of doses would be 132,591. The average number of YF vaccine doses given per centre was 47 (median: 22) (Table 3).

Table 3: Number of doses administered

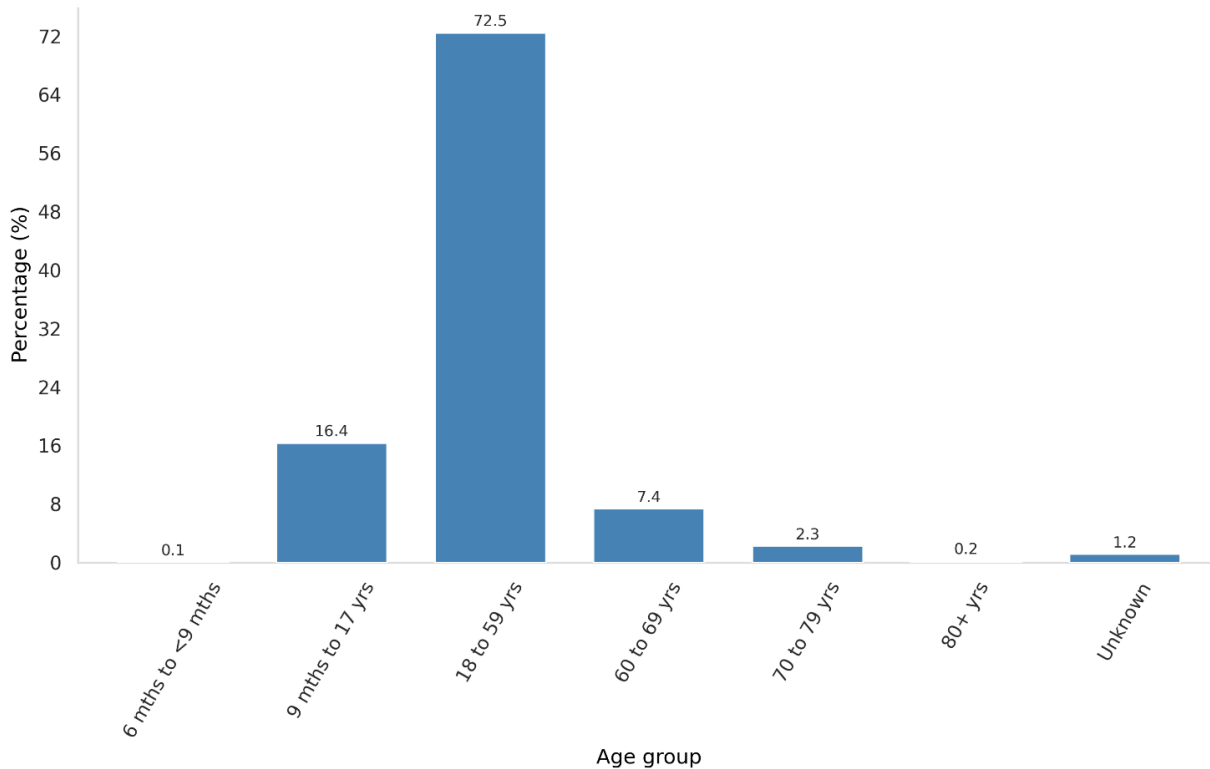
Number of doses administered	Number of centres	Percentage (%)
0-99	2172	88.5%
100-199	185	7.5%
200-299	51	2.1%
300-399	18	0.7%
400-499	14	0.6%
500-599	3	0.1%
600-699	4	0.2%
700-799	2	0.1%
800-899	4	0.2%
1000-1099	1	0.0%
1300-1399	1	0.0%
Total	2455	100.0%

iii. Vaccine recipients

72.5% of vaccines were given to those aged between 18 and 60 years of age, and 9.9% to those aged 60 years and over. (Figure 2).

There were inconsistencies in responses by YFVCs when asked about the number of booster doses given (n=2117, 1.8% of all doses given) and the reason for giving a booster dose (n=1,613, 1.4% of all doses).

Figure 2: Yellow fever vaccinations by age group



iv. Wasted doses and vaccine errors

The total number of wasted doses was 1,485. The most mentioned reasons for wastage were Cold chain (41.7%), Out of date (35.8%), Product fault (0.9%), Procedure fault (14.4%), and Other (7.3%) (Table 4).

Table 4: Yellow fever vaccine wastage by reason.

Vaccine wasted reason	Frequency	Percentage (%)
Cold chain	619	41.7%
Out of date	531	35.8%
Procedure fault	214	14.4%
Product fault	13	0.9%
Other	108	7.3%
Total	1485	100.0%

Individuals were given a vaccine in error in 72 instances³. The most common reasons were 'Given when precaution present' (50, 69.4%), Other (12, 16.7%) Contraindicated (5, 6.9%) and 'Diluent only administered' (5, 6.9%) (Table 5).

Table 5: Yellow fever vaccination error by reason

Vaccine error reason	Frequency	Percentage (%)
Given when precaution present	50	69.4%
Contraindicated	5	6.9%
Diluent only administered	5	6.9%
Out of date	0	0.0%
Other	12	16.7%
Total	72	100.0%

Seventeen doses were administered inadvertently; immunosuppressed (8), under six months (6), history of thymus disorder (2) and history of anaphylaxis (1) (Table 6). There is a discrepancy with the responses provided with this question compared with a question regarding question vaccine errors.

Table 6: YF vaccine doses administered inadvertently (contraindication present)

Administered inadvertently	Frequency	Percentage (%)
Immunosuppressed	8	47.1%
< 6 months	6	35.3%
History of thymus disorder	2	11.8%
History of anaphylaxis	1	5.9%
Total	17	100.0%

All 17 doses which were administered inadvertently will be followed up my NaTHNaC unless previously reported.

210 Medical letters of exemption (MLoE) issued (Table 7).

Table 7: MLoE issued and reason

Reason for MLoE	Frequency	Percentage (%)
Immunodeficiency	171	81.4%
History of anaphylaxis	25	11.9%
Thymectomy/Thymus disorder	10	4.8%
6 months to 9 months of age	4	1.9%
Total	210	100.0%

All reports in the Annual Return of Serious Adverse Events (SAE) were followed up by email and/or telephone. Twenty-eight reports of SAE were attributed to survey completion errors and discounted from the final analysis. A total of five SAE were reported as suspected or confirmed YEL-AND or YEL-AVD; all were reported to relevant authorities (MHRA, NaTHNaC, vaccine manufacturer) at the time of the event, with outcomes to the SAE followed up accordingly.

A question was asked on whether health professionals at the centre responsible for yellow fever risk assessment and vaccine administration were aware of the Commission on Human Medicines 2019 review of serious and fatal reactions following yellow fever vaccine and recommendations. 2,271 (93%) centres answered 'yes', 157 (6%) were 'unsure' and 27 (1%) answered 'no'.