

Annual Return 2021

Executive Summary

This Annual Return (AR) reports the use of yellow fever (YF) vaccine and YF vaccination services in Yellow Fever Vaccination Centres (YFVC) from 1 January 2021 to 31 Dec 2021; the second year where international travel was restricted due to the COVID-19 pandemic.

Demographics

- A total of 1,863 YFVC in England, Wales and Northern Ireland (EWNI) remained designated at the end of 2021. This represents a 19% decrease in the number of YFVC that remained designated at the end of 2020.
- All 1,863 designated YFVC were invited to complete an AR, and the response rate was 71%.
- The most common organisations providing YF services were GP practices (46.2%), followed by pharmacies (41.5%).
- All health professionals (HPs) had received NaTHNaC YF training in 957 (72.7%) YFVC; some HPs in 213 YFVC and no HPs in 145 YFVC. All of the latter 145 centres were followed up by NaTHNaC and 3 YFVC were temporarily suspended.

Yellow fever vaccine doses

- 15,345 YF vaccine doses were administered in EWNI; with the average number of YF vaccine doses given per centre in 2021 being 12 (median 2).
- The 18- to 59-year-old age group accounted for the largest proportion of vaccinated individuals (76%). Those aged 60 years or older accounted for 4.1% of vaccinated individuals.
- 202 reinforcing doses were given, accounting for 1.3% of all doses given.
- 1,143 (87%) YFVC collected information about Medical Letters of Exemption (MLoE); in total 221 MLoE were issued to travellers.

Clinical incidents

- 39 YF vaccines (0.25% of all vaccines administered) were reported as given where a contraindication to YF vaccine was present. Further investigation by NaTHNaC of these reports, confirmed all as being AR survey completion errors.
- One suspected yellow fever vaccine associated viscerotropic disease (YEL-AVD) and no suspected or confirmed yellow fever vaccine associated neurotropic disease (YEL-AND) were reported in 2021. Further investigation by NaTHNaC revealed that the one reported case of suspected YEL-AVD was an AR survey completion error.

Conditions of Designation and Code of Practice

- 1,193 (90.7%) of all responding YFVC were aware of the [Report of the Commission on Human Medicine's Expert Working Group on benefit-risk and risk minimisation measures of the yellow fever vaccine](#); 115 (8.7%) were 'unsure' and 7 (0.5%) were not aware of the review and recommendations.
- 1,250 (94.8%) of responding YFVC used a traveller checklist during the travel health consultation to assist YF vaccine risk assessment; of these 967 (77%) YFVC used the NaTHNaC/Public Health Scotland standardised checklist.
- 1,235 (93.9%) YFVC supplied the YF vaccine Patient Information Leaflet (PIL) routinely to travellers receiving YF vaccination.

Introduction

This report concerns the 2021 Annual Return of yellow fever (YF) vaccine use and practice of Yellow Fever Vaccination Centres (YFVC) in England, Wales, and Northern Ireland.

Methods

A questionnaire (Appendix A) was created using SurveyMonkey online survey software (SurveyMonkey, San Mateo, California, US). YFVC who remained designated between 1 January 2021 and 31 December 2021 were sent a weblink to the survey 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 Zone websites, and social media posts (Facebook, Twitter). Operational leads at major travel clinics and pharmacy chains with multiple YFVC were contacted via email.

The online questionnaire was open for responses between 17 February and 16 June 2022. Email reminders were sent to non-responding centres at regular intervals.

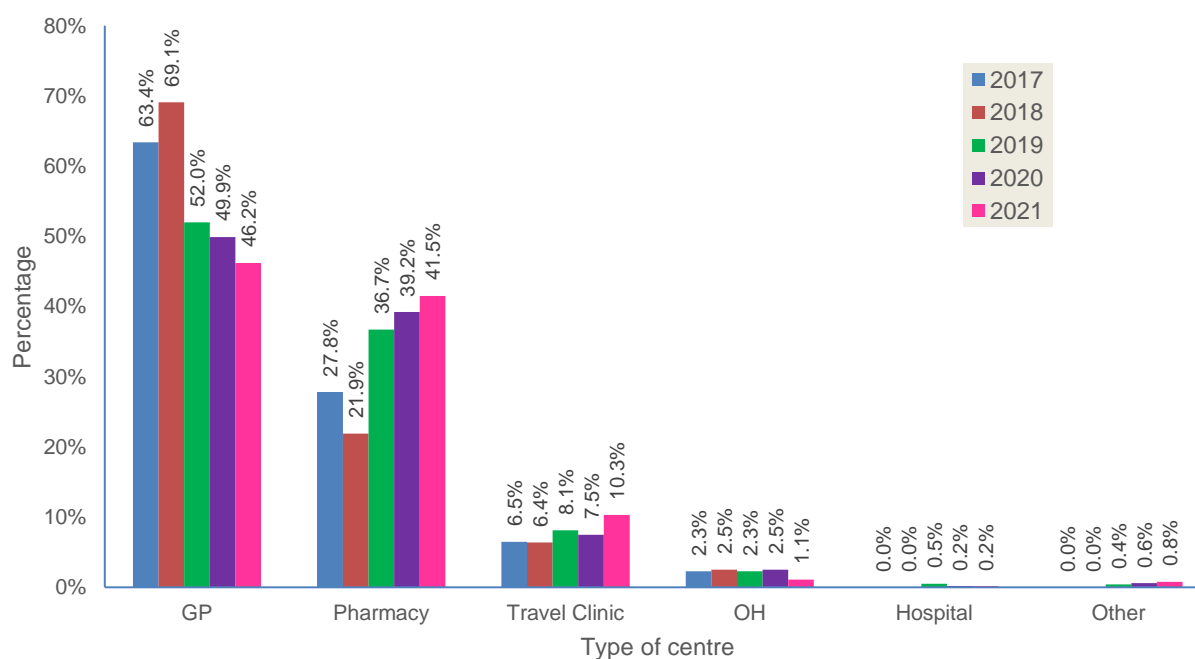
Results

1,863 YFVC were contacted, with 1,315 responses (response rate of 71%). The response rates in the previous five years (2020-2016) were 88%, 87%, 93%, 86% and 86% respectively.

i. YFVC characteristics

Responding YFVC were most commonly from General Practice (GP) (46.2%), followed by pharmacies (41.5%), travel clinics (10.3%), occupational health departments (1.1%) and hospitals (0.2%). Since 2018, there has been a decrease in the proportion of GP YFVC and an increase in the proportion of pharmacy YFVC (Figure 1). A small proportion of YFVC (3%) had been registered for less than a year.

Figure 1: Yellow Fever Vaccination Centre organisation type 2017 - 2021



Most YFVC had one health professional administering YF vaccines (range 0 to 12) (Table 1).

Table 1: Number of health professionals administering YF vaccines at YFVC

Number of health professionals	Number of centres	Percentage (%)
0	123	9.37%
1	591	45.01%
2	369	28.10%
3	146	11.12%
4	54	4.11%
5	15	1.14%
6	6	0.46%
7	4	0.30%
8	1	0.08%
9	2	0.15%
11	1	0.08%
12	1	0.08%
Total	1313*	100.00%

*Two completion errors

Of responding YFVC, 957 (72.7%) reported that all health professionals administering YF vaccine had received NaTHNaC YF training; 213 (16.2%) reported that some health professionals had received YF training; and 145 (11%) reported that no health professionals administering YF vaccine had received NaTHNaC training. NaTHNaC followed up all 145 YFVC, reporting no YF training. Of these, 97 were survey completion errors, 40 were no longer designated YFVC and five were awaiting training and not offering a YF vaccination service. As a result of follow up, three YFVC were temporarily suspended from providing YF vaccination services.

iii. YF vaccine doses administered

15,345 YF vaccine doses were administered by responding YFVC in EWNI. The average number of YF vaccine doses given per YFVC was 12 (median: 2) (Table 2). 32.3% of YFVC did not administer any YF vaccines; an increase from 20.5% in 2020.

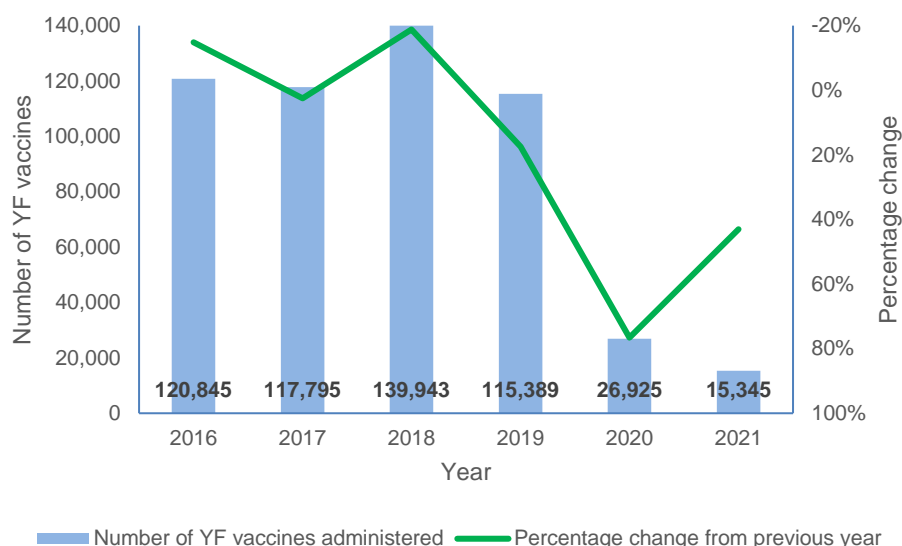
Table 2: Number of doses administered

Number of doses	Number of centres	Percentage
0	425	32.3%
1-10	530	40.3%
11-20	171	13.0%
21-30	74	5.6%
31-40	36	2.7%
40+	78	5.9%
Total	1314*	99.8%

*One completion error

There was a 43% reduction in YF vaccine administered in 2021 compared with 2020 when 26,925 doses of YF vaccine were reported as being administered; and an 86% decrease compared with 2019 when 115,389 doses of YF vaccine were reported as being administered (Figure 2).

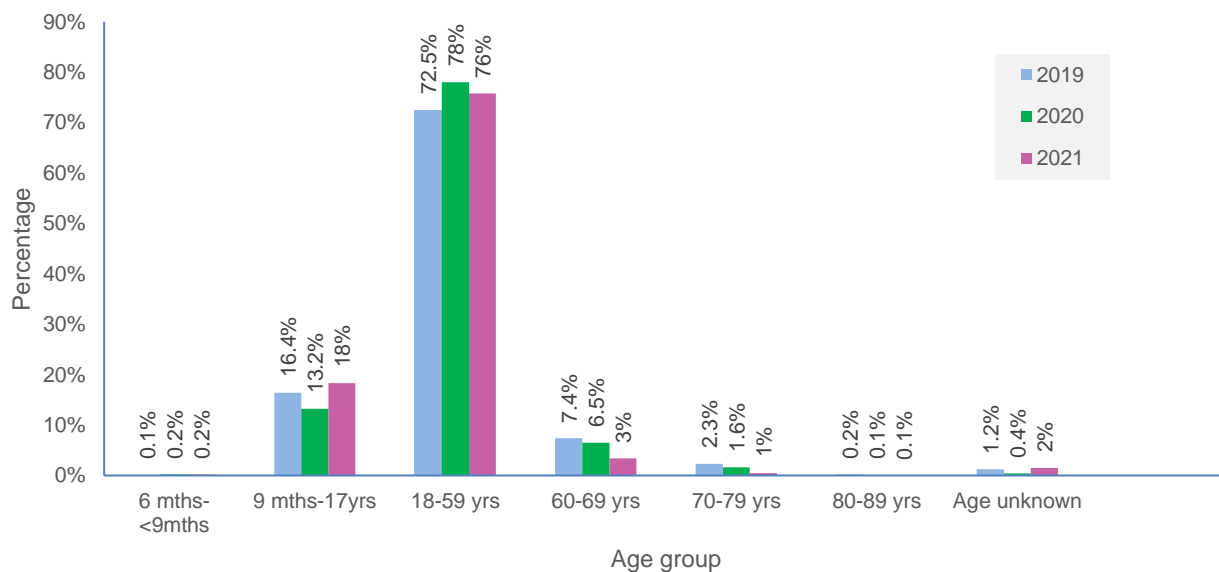
Figure 2: Number of YF vaccines administered 2016-2021



iv. Vaccine recipients

76% of vaccines administered in responding YFVC were given to those aged between 18 and 59 years of age. 4.1% of YF vaccine was administered to those aged 60 years and over. This represents a 50% proportional decrease compared with 2020 when 8.2% of YF vaccine was given to those aged 60 years and over; and a 58.6% proportional decrease with 2019, when 9.9% of YF vaccine was given in this age group (Figure 3).

Figure 3: Yellow fever vaccinations administered by age group 2019-2021



202 reinforcing doses of YF vaccine were given by responding YFVC during 2021: representing 1.3% of all doses. The most common reason for administration of a reinforcing dose was for certification purposes where the original certificate or details of vaccination were unavailable (49%), followed by first YF vaccine dose given when aged less than two years (4%).

15 YFVC reported 39 occasions when YF vaccine had been given inadvertently, where a contraindication to YF vaccine was present. All have been followed up by NaTHNaC; and all were found to be survey completion errors.

One suspected yellow fever vaccine associated viscerotropic disease (YEL-AVD) and no suspected or confirmed yellow fever vaccine associated neurotrophic disease (YEL-AND) or anaphylaxis were reported in 2021. The one reported case of suspected YEL-AVD was followed up by NaTHNaC and confirmed as an AR survey completion error.

1,143 (87%) YFVC collected information about MLoE; and during 2021, 221 were issued to individuals who were travellers (Table 3).

Table 3: MLoE issued and reason

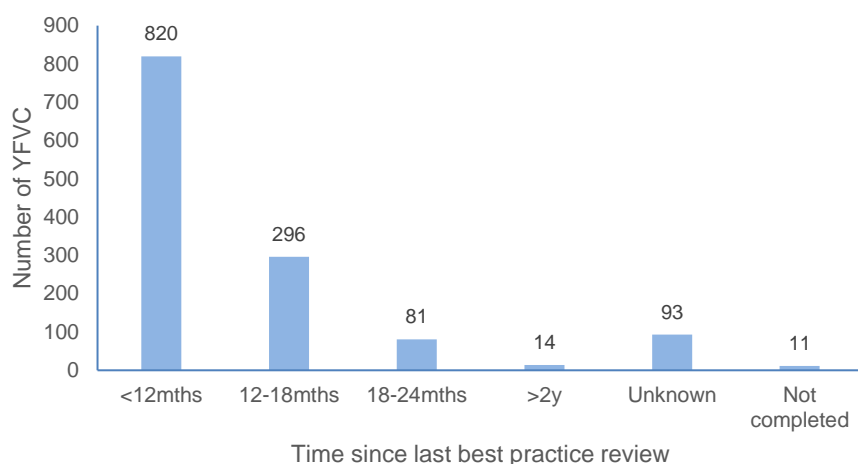
Reason for MLoE	Frequency	Percentage
Contraindication		
History of anaphylaxis to previous dose or vaccine component	30	13.6%
History of thymus disorder	0	0%
Immunocompromised due to congenital condition or disease process	11	5.0%
Immunosuppressed due to treatment	57	25.8%
Aged over 60yrs to area where YF vaccine generally not recommended	35	15.8%
Family history of YEL-AVD/YEL-AND	0	0%
Precaution		
Aged 6-9 months	8	3.6%
Aged over 60yrs	45	20.3%
Pregnancy	4	1.8%
Breastfeeding	2	0.9%
HIV	1	0.5%
Low dose immunosuppressants	17	7.7%
Other	11	5.0%
Total	221	100%

v. Conditions of Designation and Code of Practice

1,193 (90.7%) respondents were aware of the [Report of the Commission on Human Medicine’s Expert Working Group on benefit-risk and risk minimisation measures of the yellow fever vaccine](#) , 115 (8.7%) were ‘unsure’ and 7 (0.5%) were ‘not aware’.

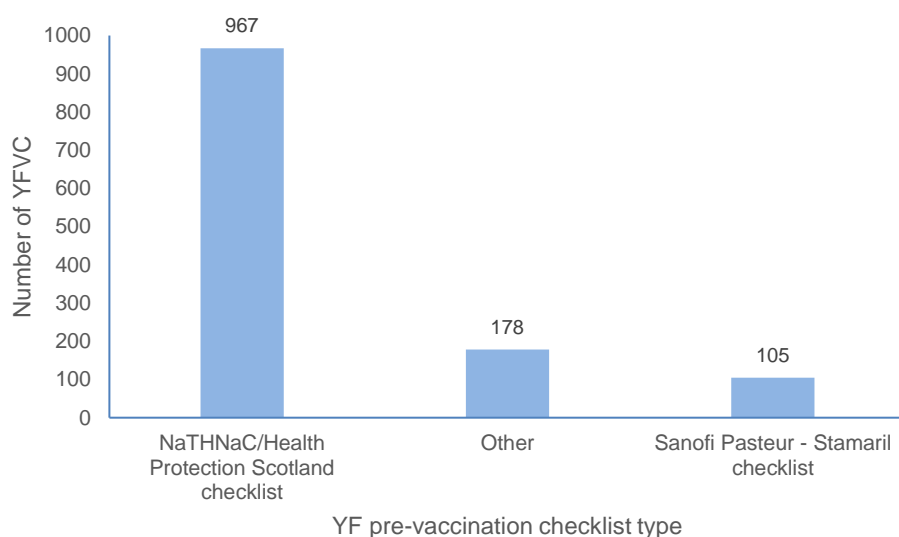
A [best practice review](#), or audit of the services offered by YFVC, is a reminder of the key recommendations and requirements for YFVC under the Conditions of Designation and Code of Practice. A best practice review had been completed by a total of 1,211 (92%) responding YFVC: 820 within the last year, 377 within the last 12-24 months and 14 more than 2 years ago. 11 (0.8%) YFVC had not completed a best practice review and 93 (7%) YFVC were unsure (Figure 4).

Figure 4: Time elapsed since last YFVC best practice review



A checklist was used by 1,250 (94.8%) responding YFVC to assist YF vaccine risk assessment; and of these, 967 (77%) used the NaTHNaC/PHS YF pre-vaccination checklist, 178 (14%) an alternative checklist, and 105 (8%) the Stamaril checklist supplied by Sanofi Pasteur (Figure 5).

Figure 5: YF risk assessment tool used by YFVC



1,235 (94%) YFVC supplied the YF vaccine PIL routinely to travellers receiving a YF vaccine; 80 YFVC either did not provide or were unsure if the YF vaccine PIL was provided to travellers.

Conclusion

The 2021 AR reports on activity within YFVC during a second year where international travel was restricted, clinical services reprioritised and staff furloughed (the UK Government Covid Job Retention Scheme ended 30 September 2021) due to the COVID-19 pandemic. This is likely to have contributed to a decrease in the number of designated YFVC and the number of YF vaccines administered.

The type of YFVC and vaccine recipients remain, overall, representative of data collected in previous years. Perhaps one exception is the relative decrease in number of YF vaccines given to those aged 60 years and over. In addition to the restriction on international travel during 2021, the [Commission on Human Medicines 2019 report](#), highlighted the need for caution when offering YF vaccine to people aged 60 years or older, due to a higher risk of life-threatening side effects. As international travel recovers, NaTHNaC will monitor the number

of YF vaccine doses administered in this cohort, to consider whether the recommendations made in this report have impacted on YF vaccination practice in this age group.

The AR data facilitates the monitoring of practice in YFVC, and the identification of areas where practice can be improved. NaTHNaC routinely follow up areas of concern and offer support to YFVC through ongoing training and education as well as regularly highlighting available YF vaccine guidance and resources.

Areas for improvement identified on this year's AR include the following:

- 29% of YFVC, still designated in 2021, failed to submit an AR. In response, NaTHNaC sent these centres an email reminder that AR submission is part of the Conditions of Designation; furthermore, that a record is kept of YFVC failing to submit an AR.
- YFVC are required to use both a checklist to assist with YF vaccine risk assessment and supply a PIL to travellers receiving a YF vaccine; just under 95% of responding YFVC confirmed doing so. NaTHNaC will review options for highlighting these requirements to YFVC, along with the UK's [Commission on Human Medicines 2019 report](#).
- It is recommended that YFVC complete a best practice review (audit) annually; 62% of responding YFVC had done so. NaTHNaC will consider how YFVC can be encouraged to complete this audit annually, as a matter of good practice and professional accountability.

Thank you to all YFVC who participated in the 2021 AR.

Appendix A: Questionnaire sent to all YFVC that remained designated during 2021

Yellow Fever Vaccination Centres – Annual Return 2021

Your Centre

1. *What is your YFVC ID Number? This is the 4-digit number after 'UKYFVC' on the centre's rubber stamp
2. *What is the full postcode of the centre?
3. *Which of the following best describes your centre?
 - General Practice
 - Pharmacy
 - Occupational Health Department
 - Travel Clinic
 - Hospital
 - British Armed Forces
 - Other (please specify)
4. *When was your centre designated?
 - We have been designated for less than one year (this is the Annual Return for only part of 2021)
 - We have been designated for over one year (this is the Annual Return for 2021)

Centre Activity

5. *How many health professionals were responsible for administering yellow fever (YF) vaccine at your centre in 2021?
6. *Of those health professionals who gave YF vaccine in 2021, how many had undertaken NaTHNaC YF vaccination training (e-learning +/- virtual classroom) during the last 2 years?
 - All
 - Some
 - None
7. *Has the Responsible Supervising Clinician (RSC) undertaken NaTHNaC yellow fever training?
 - Yes within the last 2 years
 - Yes but over 2 years ago
 - No
8. *How many doses of the yellow fever vaccine were administered at your centre in 2021?
9. *How many doses were administered in each of the following age groups?

If no doses were administered enter 0

- 6 months to under 9 months
- 9 months to 17 years
- 18 to 59 years
- 60 to 69 years
- 70 to 79 years
- 80 years and older

- Age unknown

10. *How many reinforcing doses (to ensure continued protection, according to the [Green book flowchart](#)), were administered during 2021?

- 0
- 1 or more (please enter the number of reinforcing doses administered)

11. *How many reinforcing doses were given for the following reasons?

- Where the first dose given was:
 - when aged less than two years old
 - during pregnancy
 - whilst infected with HIV
 - when immune suppressed
 - before undergoing a bone marrow transplant
- Where previously vaccinated but ICVP (certificate) lost and reissue not possible
- Other

12. If Other, please specify

Contraindications

13. *How many doses of YF vaccine were given to the following groups, where a **contraindication to vaccination** was present?

If no doses were administered enter 0

- Aged under six months
- With history of a confirmed anaphylactic reaction to a previous does of yellow fever vaccine
- With history of a confirmed anaphylactic reaction to any component of the vaccine, including egg
- With history of a history of thymus disorder
- With history of a primary or acquired immunodeficiency due to a congenital condition or disease process, (see chapters 6 & 35 of the [Green Book](#))
- Immunosuppressed due to treatment, (see chapters 6 & 35 of the [Green Book](#))
- Those aged 60 years or over and travelling to an area where **YF vaccination not generally recommended by WHO**
- With family history (1st degree relative) of [YEL-AVD](#) and [YEL-AND](#) following vaccination

Yellow fever vaccine associated viscerotropic disease ([YEL-AVD](#))

Yellow fever vaccine associated neurologic disease ([YEL-AND](#))

Medical Letters of Exemption

14. *How many Medical Letter(s) of Exemption (MLOE) were issued by your centre in 2021?

- 0
- Unknown
- 1 or more (please enter the number of MLoE issued)

15. *How many Medical Letter(s) of Exemption (MLOE) were issued where there was a contraindication to yellow fever vaccine administration

Where none were issued enter 0

- History of confirmed anaphylactic reaction to a previous dose of yellow fever vaccine
- History of confirmed anaphylactic reaction to any component of the vaccine, including egg
- History of thymus disorder
- History of thymectomy for any reason
- History of primary or acquired immunodeficiency due to congenital condition or disease process (see chapters 6 & 35 of [the Green Book](#))
- Immunosuppressed due to treatment (see chapters 6 & 35 of [the Green Book](#))
- Aged 60 years or over and travelling to an area where YF vaccination not generally recommended by WHO
- Family history of [YEL-AVD](#) or [YEL-AND](#) following vaccination that was not related to a known medical risk factor

16. *How many Medical Letters of Exemption (MLOE) were issued where there was a precaution to yellow fever vaccine administration?

- Infants aged 6-9 months
- Aged 60 years and over [vaccine risk considered to outweigh the risk of disease]
- Pregnancy
- Breast feeding mother
- HIV infection with CD4 >200 and suppressed viral load
- Taking lower dose immunosuppressive therapies (see chapter 6 and 35 of the [Green Book](#))
- Other

17. If you have given a Medical Letter of Exemption (MLOE) for 'other', please give further details below

Yellow Fever Vaccine Associated Severe Adverse Events (YEL-SAE)

18. *How many of the following serious Yellow Fever Vaccine Associated Severe Adverse Events (YEL-SAE) occurred at your centre in 2021? If none, please record 0

NaTHNaC may contact a YFVC for clarification on data submitted in some circumstances

- Anaphylaxis
- Yellow fever vaccine associated neurological/neurotropic disease [YEL-AND]
- Yellow fever vaccine associated viscerotropic disease [YEL-AVD]

19. If any serious YEL-SAE occurred at your centre, who were they reported to?

- NaTHNaC
- MHRA via the yellow card system
- The manufacturer
- Other (please specify)

Conditions of Designation and Code of Practice

20. *Are all health professionals administering vaccine at your centre aware of the [Commission on Human Medicines 2019 report](#)

- Yes
- No
- Unsure

21. *It is recommended that for good governance YFVC undertake an [annual best practice review](#). How often is YF practice reviewed at your centre?

- 0 to 12 months
- 12 to 18 months
- 18 months to 2 years
- More than 2 years
- Never
- Unsure

22. *Is a standardised YF pre-vaccination checklist used during the travel health consultation to assist yellow fever vaccination risk assessment?

- Yes
- No
- Unsure

23. If yes, which standardised YF pre-vaccination checklist is used?

- [NaTHNaC/Health Protection Scotland YF pre-vaccination checklist](#)
- [Sanofi Pasteur – Stamaril checklist](#)
- Other (please specify)

24. *Is the yellow fever vaccine [Stamaril] Patient Information Leaflet [PIL] routinely given to the traveller?

- Yes, before the consultation
- Yes, during the consultation
- Yes, after the consultation
- No
- Unsure

Contact Information

25. *To confirm, what is your YFVC ID Number? This is the 4-digit number after 'UKYFVC' on the centre's rubber stamp

26. *Please enter your email address: