Medicines & Healthcare products
Regulatory Agency

10 South Colonnade
Canary Wharf
London
E14 4PU
United Kingdom
gov.uk/mhra

[redacted]

8 February 2023

FOI 22/1205

Dear [redacted]

Thank you for your email and information request dated 16 December where you asked about the list of probabilities the MHRA uses to determine how likely it is that the side effects reported to the MHRA Yellow Card reporting site are related to the Covid-19 vaccines, for both foreseen and unforeseen side effects and what, if any, temporal thresholds are used for time between vaccination and occurrence of event. Please accept our apologies for the delay in responding to you.

All the COVID-19 vaccines used in the UK vaccination programme were approved following a rigorous review by the MHRA and the Government's independent advisory body, the Commission on Human Medicines (CHM), of their safety, quality and effectiveness. The MHRA concluded that the COVID-19 vaccines were safe and effective and that the benefits outweigh any risk.

No medicine or vaccine is completely risk-free and hence the MHRA continually monitors the safety of the COVID 19 vaccines through a comprehensive COVID-19 Vaccine Surveillance Strategy. This monitoring strategy is proactive and based on a wide range of information sources, with a dedicated team of scientists continually reviewing information to look for safety issues or any unexpected, rare events.

The Yellow Card scheme is one of these sources of information and is the UK system for collecting suspected side effects to medicines and vaccines from healthcare professionals and patients. We publish a summary of Yellow Card reporting for the COVID-19 vaccines which summarises information received via the Yellow Card scheme. This report now focuses on the COVID-19 vaccines administered from the beginning of the Autumn 2022 booster campaign. Please see our existing record for a summary of information received via the Yellow Card scheme on COVID-19 vaccine primary and booster vaccination campaigns

up to the end of August 2022 as well as safety investigations carried out by the MHRA on these products.

In terms of the probability of how likely it is that a report of a side effect is related to a COVID-19 vaccine, there is no defined list as such as many factors are considered. Yellow Card reports of suspected adverse drug reactions are evaluated, together with additional sources of evidence, by a team of safety experts to identify any new safety issues or side effects. We apply statistical techniques, known as disproportionality analyses, that can tell us if we are seeing more reports of an event for a particular vaccine compared to other vaccines. For these analyses, no specific temporal thresholds are used for time between vaccination and occurrence of event however the time to onset of the event after vaccination is taken into account as part of the overall assessment of any new safety signals. The assessment of any signals arising from these analyses aims to account for factors such as coincidental illness. We also look at the clinical characteristics to see if new patterns of illness are emerging that could indicate a new safety concern.

As part of the enhanced surveillance strategy put in place for COVID-19 vaccines, additional statistical techniques are implemented where, for a number of adverse events of special interest, the number of reports received for each COVID-19 vaccine in compared to what we would expect to see given the extent of use of that vaccine, the age distribution of those who have received it, and the age-specific background rates of the event in the absence of vaccination. These observed versus. expected analyses do require a temporal threshold to be placed on the time between vaccination and occurrence of the event. The time chosen is event specific and dependent on the nature of the event. The default for proactive analyses is 45 days following each vaccine dose although sensitivity analyses including shorter and longer time intervals of 7 and 90 days are conducted. Further ad hoc analyses with differing time windows can be conducted as necessary. Multiple observed versus expected analyses are conducted allowing for differing levels of reporting, assuming 10%, 25%, 50%, and 100% of events occurring in the time window are reported to the Yellow Card scheme respectively.

We supplement this form of safety monitoring with other epidemiology studies including analysis of anonymised GP-based electronic healthcare records and other healthcare data to proactively monitor safety. These analyses are more bespoke and do not rely on reporting. Combined safety data enables the MHRA to detect side effects or safety issues associated with COVID-19 vaccines.

We also work closely with our public health partners in reviewing the effectiveness and impact that the vaccines are having to ensure benefits continue to outweigh any possible side effects. In addition, we work with our international counterparts to gather information on the safety of vaccines in other countries.

For the vast majority of people, the benefits of the vaccines in preventing serious complications associated with COVID-19, far outweigh any currently known side effects. The safety of COVID-19 vaccines is continuously monitored; should a new safety issue be confirmed we will continue to act promptly to inform patients and healthcare professionals and take appropriate steps to mitigate any identified risk and protect public health.

We hope this information is helpful.

If you are dissatisfied with the handling of your request, you have the right to ask for an internal review. Internal review requests should be submitted within two months of the date you receive this response and addressed to: info@mhra.gov.uk

Please remember to quote the reference number above in any future communications.

If you were to remain dissatisfied with the outcome of the internal review, you would have the right to apply directly to the Information Commissioner for a decision. Please bear in mind that the Information Commissioner will not normally review our handling of your request unless you have first contacted us to conduct an internal review. The Information Commissioner can be contacted at:

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

Yours sincerely

MHRA Customer Experience Centre
Communications and engagement team
Medicines and Healthcare products Regulatory Agency
10 South Colonnade, Canary Wharf, London E14 4PU
Telephone 020 3080 6000