Using the Clinical Practice Research Datalink to support Yellow Cards

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The Clinical Practice Research Datalink

The UK Clinical Practice Research Datalink (CPRD) collates anonymised primary care electronic healthcare record data on patient and practice demographics, as well as individual patient clinical diagnoses, prescriptions, referrals to secondary care, test results, UK anti-vaccination records, for approximately 13.5 million patients in over 680 general practices across the UK. The CPRD is jointly funded by the NHS National Institute for Health Research (NIHR) and the MHRA.

- Yellow Cards are a valuable tool in pharmacovigilance. The national coverage and range of reporting routes mean that they are particularly useful for detecting rare events or those associated with long term use.
- However, alone, they provide limited data on the context of the reaction and are subject to under- and over-reporting.
- In the UK, a patient’s GP is the gatekeeper to all other NHS services so the CPRD provides us with the capability to rapidly identify a large cohort of patients and comprehensively monitor their prescriptions and characterise any potential adverse events over time.
- CPRD is a valuable resource and can be used to optimise the use of Yellow Card spontaneously reported adverse event data and strengthen the MHRA's routine pharmacovigilance.

How we already use CPRD to support pharmacovigilance?

Strengthening signals - Proactive vaccine pharmacovigilance

- Vaccines are vital in global public health.
- There have been many scare stories relating to the safety of vaccinations that have affected uptake and hence the success of immunisation campaigns.
- We need to be able to gather as much data as quickly as possible to expand the knowledge of a vaccine's safety profile and to act quickly in the event of a

Observed vs expected analyses:

1) Identify key adverse events of special interest based on knowledge of vaccine, prior vaccine campaigns, events common in the target population
2) Use data from the CPRD to calculate age and gender specific background event rates
3) From the start of the campaign gather weekly data on vaccine use (from CPRD)
4) Compare the number of Yellow Cards (and any other cases identified) to the number expected assuming normal background rates using the MaxSPRT [1].

For example: Chronic Fatigue Syndrome (CFS) in girls aged 12-13 years following vaccination with the HPV vaccine. 2000-2005.

This signal of a possible risk of CFS with the HPV vaccine was followed up with a more robust pharmacoepidemiological study again using CPRD data which showed that there was no association [2].

References & acknowledgements


Putting signals into context - Risk evaluation, communication, and monitoring outcomes

CPRD can also provide in-depth drug utilisation data to help with the assessment of signals, assess benefit risk, support clear communications, and monitor the impact of any regulatory actions.

Further risk evaluation - Pharmacopoeidemiological research

Finasteride is a type II 5α-reductase inhibitor. A signal was detected from Yellow Cards for 5mg finasteride associated with male breast cancer. A matched case-control study using the CPRD helped to further evaluate this signal [4].

The future for CPRD within MHRA’s pharmacovigilance strategy

CPRD has proven itself to be a valuable resource for supporting the Yellow Card scheme. However, the approach taken has been, to date, somewhat ad-hoc. In order to better utilise CPRD to support the Yellow Card and routine pharmacovigilance activities a more consistent approach should be taken.

Software has been developed to allow the routine extraction and summary of electronic healthcare record data. The MHRA is investigating the potential use of this software and is working with Commonwealth Informatics to incorporate CPRD data into an efficient interface (LODEX) for MHRA scientists and assessors to use so that the data can be available to support signal detection.

As seen for vaccines, this data can help put Yellow Cards into context and examine trends over time as well as examine under-reporting.

CPRD data extracted in this routine way could also be used in other ways to support wider pharmacovigilance.

- To help prioritise signals by providing drug exposure data to input into the assessment of the potential public health impact.
- There is an increased focus on monitoring the impact of regulatory actions.
- Basic drug exposure data can often be used as a crude measure of this.
- Help assess the feasibility of conducting a more robust epidemiological study helping both our own research but also in assessing industry sponsored Post Authorisation Safety Studies (PASS).

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