YCC North West

ANNUAL REPORT 2016/17

YELLOW CARD CENTRE NORTH WEST
ANNUAL REPORT TO THE MEDICINES AND HEALTHCARE PRODUCTS REGULATORY AGENCY

2016/17

1. STAFF

Professor Sir Munir Pirmohamed – Director
Christine Randall – Senior Medicines Information Pharmacist
Justine Howard – ADR Information Officer (to August)
Dr Leanne Bloxam – Medicines Information Scientist (from March)
Marian Madden – Administrative Assistant

2. EXECUTIVE SUMMARY

In 2016/17, 3,738 Yellow Cards (YCs) were submitted by health professionals, patients and carers from the Yellow Card Centre North West (YCCNW) region. This is a 5.1% increase on 2015/16, reporting has increased by 153.6% over the last five years.

Hospital pharmacists reported more YCs than any other group, 1,669 reports (44.6% of the total), an increase of 3.1% compared to 2015/16. Reporting increased substantially by; patient/carers 666 reports (up by 31%), community pharmacists 163 reports (up by 50%), pharmacy technicians 86 reports (up by 290%). Reporting by doctors (hospital and GP) and nurses (primary and secondary care) all fell slightly this year.

Serious adverse drug reactions (ADRs) accounted for 63% of all reports (37 reports [1.6% of serious reports] had a fatal outcome). Patients aged 65 years and over accounted for 43% of reports in 2016/17 compared to 31% five years ago. The number of reports for children aged 18 years and younger rose from 277 in 2015/16 to 370 in 2016/17. This increase reflects increased reporting to vaccinations since 2016. The childhood vaccination schedule now includes Meningitis B (Bexsero▼), influenza (Fluenz Tetra▼) and meningitis ACWY (previously meningitis C).

The top reported suspect drug this year was meningitis B vaccine (Bexsero▼,127 reports, 10th reported suspect drug in 2015/16). Seven of the 2016/17 top ten also appeared in 20115/16; meningitis B vaccine, rivaroxaban, apixaban, warfarin, omeprazole, aspirin, naproxen. New to the top ten are sertraline, flucloxacillin and ibuprofen.

Reporting of ADRs via YCs embedded in electronic healthcare systems now account for 20.1% of all our reports. Current systems in use in the North West are MiDatabank (pharmacy medicines information system) which contributed 595 reports (36% of hospital pharmacy reports) and SystmOne (GP patient management system that is also used in some hospices and prisons) which contributed 152 reports (43% of North West GP reports were made using SystmOne). Currently four North West CCGs have GP practices that are using SystmOne. The majority of GP practices in the North West use EMIS who have yet to roll out a system upgrade to enable inclusion of an embedded Yellow Card.

The collaboration between the Liverpool Health Partners (a combination of hospitals and healthcare organisations, scientific, academic and innovation institutions) and YCCNW led by Professor Munir Pirmohamed continues to improve local ADR reporting via the Yellow Card Scheme. LHP Trusts/organisations made 581reports in 2016/17 (16% of all North West reports).

The North West-wide network of Yellow Card Champions, set up in 2015 to share good practice, explore ideas and initiatives and lend support, met twice in 2016/17. Secondary care and community or mental health trusts who sent representatives to the meeting (17) contributed 2,040 reports in 2016/17(55% of all reports, 84% of secondary care reports and 70% of community/mental health trusts)). All the top ten reporting secondary care trusts have actively participated in the Champions network.

YCCNW continues to accommodate many and varied requests to talk to and support local reporters, health professionals, students and patients. In 2016/17 over 20 training sessions were provided addressing over 650 individuals.

In 2016/17 YCCNW continued to support reporting to the Yellow Card Scheme

- locally by providing feedback to NHS Trusts on their reporting.
- nationally by co-ordinating feedback of MiDatabank ADR reporting on behalf of the MHRA and UKMi (two emails to the MiUK discussion group and posted on the Specialist Pharmacy Services website).

- nationally by contributing one review of medication safety alerts, communications and publications for the monthly MSO WebEx event facilitated by NHS England.
- by updating the CPPE e-learning programme on ADR reporting.
- by updating ADR information in the CPPE /NHS Medicines Safety App.

3. YELLOW CARD DATA

- **ADR reports received**

Overall 3,738 reports of suspected ADRs were made by healthcare professionals and patients/carers from the YCCNW region in 2016/17. Table 1 highlights the total number of reports originating from the YCCNW region for the past five years and Figure 1 is a graphical representation of these data. Figure 2 shows the split by reporter type for Yellow Card reports originating in the YCCNW region in 2016/17 and Figure 3 compares the number of reports for each reporter type received in 2016/17 with those received in previous years.

Table 1. The total number of reports and percentage change over the last five years from the YCCNW region.

Year	Number of reports	Percentage change on previous year
2016/17	**3,738**	**+5.1%**
2015/16	3,554	+52.7%
2014/15	2,328	+25.1%
2013/14	1,861	+26.2%
2012/13	1,474	-1.9%

Figure 1. Line graph summarising the total number of reports originating from the YCCNW region for the past five years.

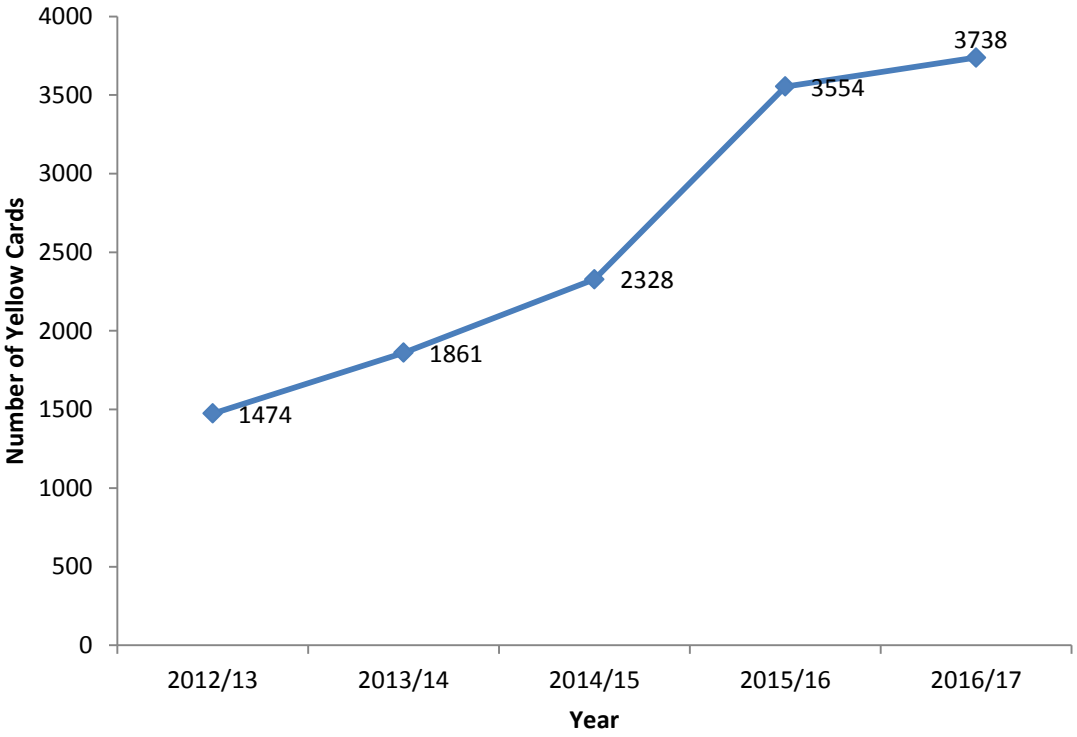


Figure 2. Percentage of Yellow Card reports that originated from the YCCNW region for each reporter group in 2016/17.

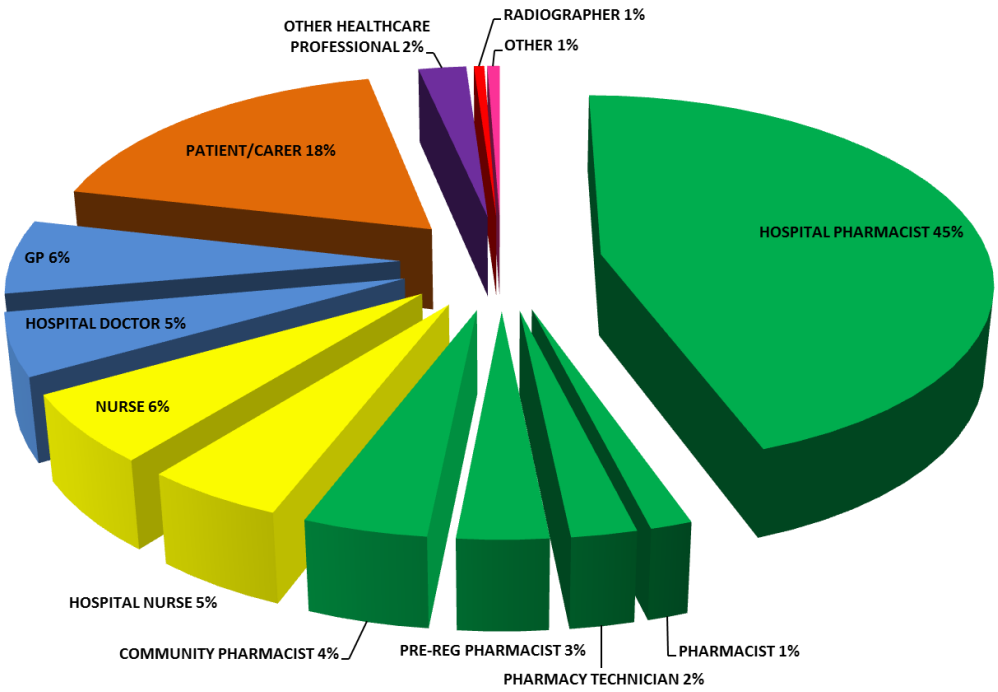
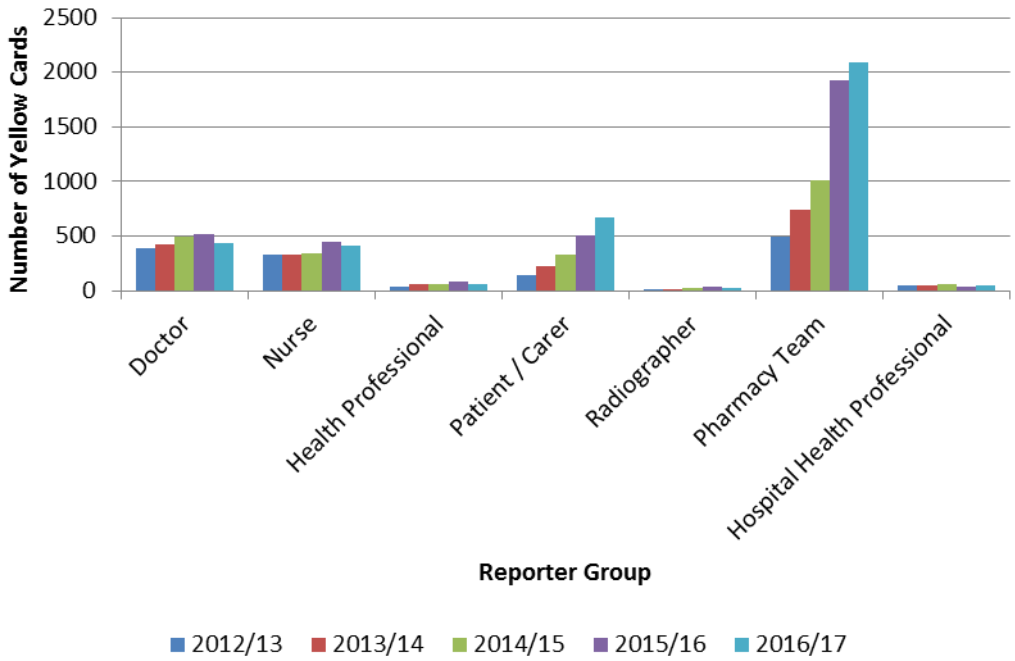


Figure 3. Number of Yellow Card reports received from each reporter group in 2016/17 compared with the previous four years.



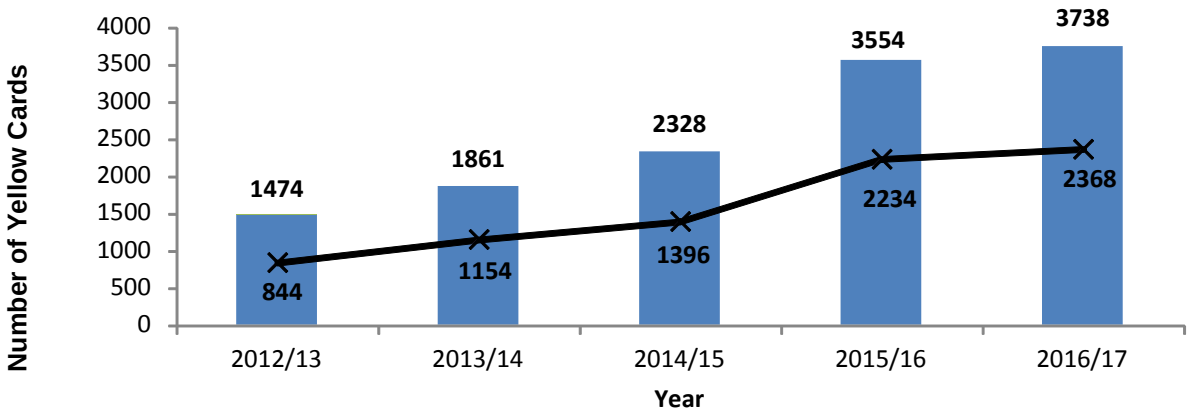
- ## Serious reactions

Total number of reports classified as serious that originated from the YCCNW region in 2016/17 and comparative data for previous years are shown in Table 2 and displayed graphically in Figure 4. A fatal outcome was reported on 37 Yellow Cards in 2016/17.

Table 2.

Year	Number of serious reports	Percentage of total reports	Percentage change on previous year
2016/17	**2,368**	**63%**	**+6%**
2015/16	2,234	63%	+60.0%
2014/15	1,396	60%	+20.1%
2013/14	1,154	62%	+36.7%
2012/13	844	57%	-1.7%

Figure 4. Serious Yellow Card reports as a proportion of total reports from 2012/13 to 2016/17 for the YCCNW region.



- ## Fatal reports

Total number of fatalities that were reported from within the YCCNW region in 2016/17 and comparative data from previous years are shown in Table 3.

Year	Number of fatal reports	Percentage change on previous year
2016/17	**37**	**-13.9%**
2015/16	43	+7.5%
2014/15	40	+8%
2013/14	37	+42%
2012/13	26	+4%

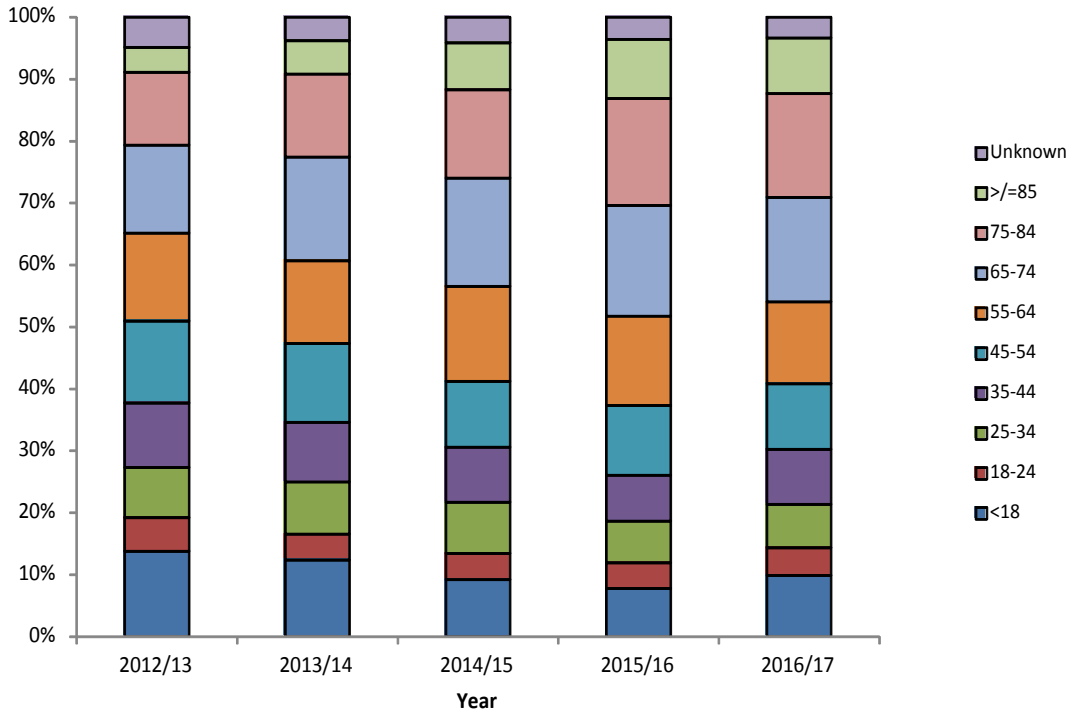
- **Age breakdown**

Table 4 shows the number of Yellow Cards originating from within the YCCNW region stratified by patient age at time of reaction, 2012/13 to 2016/17. Figure 5 is a graphical representation of these data. NB: from 2013/14 onwards additional paediatric age categories were available for analysis.

Table 4

Age band (years)	2012/13	2013/14	2014/15	2015/16	2016/17
Under 2	203	62	46	93	91
2-6		51	46	38	101
7-12		53	52	44	67
13-17		64	70	102	111
18-24	80	78	99	146	166
25-34	119	157	192	240	262
35-44	154	179	207	263	332
45-54	195	237	248	400	397
55-64	209	248	356	513	493
65-74	210	312	408	636	631
75-84	173	249	331	612	625
≥85	59	100	177	340	338
Unknown	72	71	96	127	124
Total	**1,474**	**1,861**	**2,328**	**3,554**	**3,738**

Figure 5. Percentage of Yellow Card reports that originated from the YCCNW region, stratified by age group from 2012/13 through to 2016/17.



- ## Top ten drugs

Table 5 lists the top ten reported suspect drugs originating from within the YCCNW region for 2016/17. Overall there were 4,924 suspect drugs reported on 3,738 Yellow Cards (some Yellow Card reports had more than one suspect drug). The top ten suspect drugs accounted for 16.3% of total suspect drugs reported on a Yellow Card. Table 6 contains the top ten reported suspect drugs originating from within the YCCNW region for 2015/16; these drugs accounted for 15.7% of total suspect drugs reported on a Yellow Card in 2015/16.

Table 5. The top ten (eleven) reported suspect drugs for Yellow Cards that originated from the YCCNW region in 2016/17.

Drug name	Number of times reported as a suspect drug (2016/17)
Meningococcal group B vaccine (Bexsero▼)	127
Rivaroxaban ▼	107
Apixaban	94
Sertraline	84
Warfarin	83
Influenza Vaccine (some▼)	74
Omeprazole	63
Flucloxacillin	62
Aspirin	61
Ibuprofen	60
Naproxen	60
Total	**801**

Table 6. The top ten reported suspect drugs for Yellow Cards that originated from the YCCNW region in 2015/16.

Drug name	Number of times reported as a suspect drug (2015/16)
Apixaban▼	105
Rivaroxaban▼	94
Influenza Vaccine (some▼)	73
Ramipril	65
Warfarin	63
Omeprazole	57
Aspirin	56
Clarithromycin	54
Naproxen	52
Meningococcal group B vaccine (Bexsero▼)	51
Total	**670**

Percentage of Yellow Cards

- **Source of reports**

Table 7 shows the **Number of Yellow Cards originating from within the YCCNW region stratified by reporter type from 2014/15 to 2016/17.**

Reporter	2014/15		2015/16		2016/17	
	Number	% of total	Number	% of total	Number	% of total
Carer	13	0.6%	25	0.7%	**40**	**1.1%**
Parent	35	1.5%	54	1.5%	**80**	**2.1%**
Patient	279	12.0%	427	12.0%	**546**	**14.6%**
Community Pharmacist	109	4.7%	107	3.0%	**163**	**4.4%**
Hospital Pharmacist	798	34.3%	1,618	45.5%	**1,669**	**44.6%**
Pharmacist	34	1.5%	58	1.6%	**55**	**1.5%**
Pharmacy Technician/assistant	2	0.1%	22	0.6%	**86**	**2.3%**
Pre-reg pharmacist	73	3.1%	122	3.4%	**121**	**3.2%**
Hospital Nurse	146	6.3%	200	5.6%	**183**	**4.9%**
Nurse	196	8.4%	253	7.1%	**224**	**6.0%**
GP	247	10.6%	261	7.3%	**238**	**6.4%**
Hospital Doctor	238	10.2%	249	7.0%	**199**	**5.3%**
Physician	7	0.3%	7	0.2%	**4**	**0.1%**
Coroner	1	0.0%	1	0.0%	**1**	**0.03%**
Dentist	6	0.3%	14	0.4%	**9**	**0.2%**
Midwife	0	0.0%	4	0.1%	**1**	**0.03%**
Optometrist	2	0.1%	3	0.1%	**2**	**0.1%**
Paramedic	0	0.0%	1	0.0%	**0**	**0.0%**
Radiographer	23	1.0%	33	0.9%	**20**	**0.5%**
Hospital Healthcare Professional	56	2.4%	39	1.1%	**45**	**1.2%**
Healthcare Assistant	0	0.0%	4	0.1%	**6**	**0.2%**
Other Healthcare Professional	61	2.6%	51	1.4%	**42**	**1.1%**
Medical Student	2	0.1%	1	0.0%	**2**	**0.1%**
Other	0	0.0%	0	0.0%	**2**	**0.1%**
Total	2,328	100%	3,554	100%	**3,738**	**100%**

Green – increasing figures
Red – decreasing figures

- **Type of report**

Table 8 shows the method used to report an ADR to the Yellow Card Scheme in 2016/17. Reporting via the Yellow Card app was introduced in July 2015.

Table 8. Number of Yellow Card reports from each reporting method originating from the YCCNW region in 2016/17.

	Number of reports	Percentage of total reports
App	15	0.4%
Electronic YC	2,658	71.1%
MiDatabank	595	16.0%
Paper	317	8.5%
TPP (SystmOne)	152	4.1%

4. INTERPRETATION OF REPORTING FIGURES

Yellow Card reports originating from the YCCNW region increased by 5.1% in 2016/17compared with 2015/16. Although the rate of reporting has slowed it is up by 153% compared to five years ago. Patients and carers contributed most to this increase, reporting rose by 31% (from 506 reports in 2015/6 to 666 in 2016/17). Other groups with substantially increased reporting include; community pharmacists, 163 reports (up 50%), pharmacy technicians and assistants, 86 reports (up 290%). Reporting by other health professional groups fell, hospital doctor reporting fell to 199 reports (down 20%).

Reporting via electronic healthcare systems with embedded YCs continues to contribute substantially to total reporting with 747 reports (20% of all YCCNW reports) coming from MiDatabank (pharmacy medicines information system)and SystmOne (GP patient management system that is also used in some hospices and prisons).

The top reported suspect drug this year was meningitis B vaccine (Bexsero▼,127 reports, 10th reported suspect drug in 2015/16). Seven of the 2016/17 top ten also appeared in 20115/16; meningitis B vaccine, rivaroxaban, apixaban, warfarin, omeprazole, aspirin, naproxen. New to the top ten are sertraline, flucloxacillin and ibuprofen.

Serious adverse drug reactions (ADRs) accounted for 63% of all reports, 37 reports [1.6% of serious reports] had a fatal outcome). Black triangle drugs in the top ten included the oral anticoagulant rivaroxaban, meningococcal group B vaccine (Bexsero▼) and some influenza vaccines. The number of reports for children aged under 18 years rose from 277 in 2015/16 to 370 in 2016/17. This increase reflects increased reporting to vaccinations since 2016. The childhood vaccination schedule now includes meningococcal group B (Bexsero▼), influenza (Fluenz Tetra▼) and meningitis ACWY (previously meningitis C).

The collaboration between the Liverpool Health Partners (a combination of hospitals and healthcare organisations, scientific, academic and innovation institutions) and YCCNW led by Professor Munir Pirmohamed continues to improve local ADR reporting via the Yellow Card Scheme. LHP Trusts/organisations made 581reports in 2016/17 (16% of all North West reports).

The North West-wide network of Yellow Card Champions, set up in 2015 to share good practice, explore ideas and initiatives and lend support, met twice in 2016/17. Secondary care and community or mental health trusts who sent representatives to the meeting (17) contributed 2,040 reports in 2016/17(55% of all reports, 84% of secondary care reports and 70% of community/mental health trusts)). All the top ten reporting secondary care trusts have actively participated in the Champions network.

Observations and associations in 2016/17:

- 127 reports listed Meningococcal group B vaccine as a suspect drug, of these 37 were received from community pharmacists.
- 84 of the 86 reports made by pharmacy technicians/assistants came from hospitals, of these; seven described acute kidney injury, seven described bradycardia, one described acute hepatic failure and one described Steven's Johnson Syndrome.
- Seven cases of definite or suspected Steven's Johnson Syndrome were reported, the suspect drugs were; tazobactam/piperacillin, carbamazepine, apixaban, ciprofloxacin, ibuprofen, sitagliptin, atorvastatin.
- Of the 238 reports made by GPs;19 listed rivaroxaban as the suspect drug was and 48 listed a penicillin (amoxicillin, phenoxymethylpenicillin, benzylpenicillin, co-amoxiclav) as the suspect drug.
- Of the 203 reports made by hospital doctors; six described anaphylaxis/bronchospasm associated with atracurium and four described anaphylaxis/bronchospasm associated with rocuronium.

- Drug Safety Update (DSU) highlights drug safety issues for the attention of health professionals. In 2016/17 we received the following reports linked to DSU reports:
    - SGLT2 inhibitors (canagliflozin, dapagliflozin, empagliflozin) - diabetic ketoacidosis and an increased incidence of lower limb amputation. Of the 62 suspected ADRs reported for the SGLT2 inhibitors 14 described diabetic ketoacidosis, 2 ketoacidosis, 3 acidosis, one toe amputation and 2 peripheral ischaemia.
    - Warfarin association with calciphylaxis – two reports
    - Warfarin interaction with miconazole – one report of subdural haematoma.
    - Spironolactone and hyperkalaemia – six reports of hyperkalaaemia plus one for acute kidney injury.

5. PROMOTIONAL ACTIVITIES

- **Training delivered**

Training carried out during 2016/17 in relation to ADRs and reporting to the Yellow Card Scheme is documented in Tables 9, 10 and 11. Table 9 contains data relating to training of healthcare professionals, table 10 contains data relating to training undergraduates and table 11 relates to presentations given to patients.

Table 9. Training provided to healthcare professionals in 2016/17

Audience type	Session type	Duration (hours)	Number of sessions	Total audience numbers	Total hours training
Dentists	Lecture	0.33 hours*	3	100	1
Dentists – core dental trainees	Lecture	0.33 hours*	1	3	0.33
Dentists – foundation trainees	Lecture	0.5 hours*	4	50	2
Diploma pharmacists	Lecture	1.75 hours	1	22	1.75
Hospital pharmacy staff	Lecture	1.0 hours	1	12	1
MSc HCPs	Lecture	1.0 hours	1	30	1
Non-medical prescribers	Lecture	1.25 hour	2	24	2.5
Nurses - community	Lecture	1.0	1	8	1
Pre-registration pharmacists	One to one	1 hour	2	2	2
Pre-registration pharmacists	Lecture	1 hour	1	25	1
YCCNW Yellow Card Champions	Presentation	0.5 hours	2	38	2
Totals			**19**	**314**	**15.58**

* ADR training delivered as part of medicines/prescribing-related training

Table 10. Training provided to undergraduates in 2015/16

Audience type	Session type	Duration	Number of sessions	Total audience numbers	Total hours training
Dental undergraduates	Lecture	0.5 hours	1	80	0.5
Nurse undergraduates (final year)	Lecture	1.5 hours	3	66	4.5
Medical students	Lecture (introduction to personalised medicine)	1 hour	1	360	1
Medical students	Lecture (prescribing in renal impairment)	1 hour	1	360	1
Medical students	Lecture (ADRs and interactions)	1 hour	1	360	1
Medical students	Lecture (drug overdose)	1 hour	1	360	1
Medical students*	Lecture	1 hour	14	360	14
Medical students	Lecture (YYC NW/ ADRs)	1.0	1	200	1
Totals			**23**		**24**

*These lectures are delivered by clinical pharmacologists who are affiliated with YCCNW through links with The University of Liverpool's department of Clinical Pharmacology and Therapeutics. Lecture topics include: Introduction to analgesic drugs; How do drugs cause harm?; Introduction to interindividual variation; Prescribing safety in pregnancy; Pharmacology and movement disorders; Antidepressants; Therapeutic drug monitoring; Immunosuppressants; Ten ways to kill a patient; Drugs for diabetes; Biologics and biosimilars; Paediatric pharmacology; Cancer chemotherapeutics and Management of epilepsy. All of these lectures have adverse drug reactions as a learning outcome.

Table 11. Training provided to patients in 2016/17

Audience type	Session type	Duration	Number of sessions	Total audience numbers	Total hours training
None in 2016/17					

- **Lectures delivered (invited)**

  Prof. Pirmohamed spoke at 12 national and 16 international meetings and conferences throughout 2016/17.

- **Materials developed to promote YCS**

  CPPE e-learning programme ADRs (Christine Randall author – on-going six-monthly review)
  Part 1 – ADRs and Medicines Safety
  Part 2 – Reporting ADRs
  Part 3 – Patients and ADRs

  Christine Randall contributes to updating the NHS Medicines Safety App. The app is a quick way for healthcare professionals to test their knowledge on high risk areas for medicines safety incidents. It provides a quiz with a series of ten multiple choice questions chosen randomly from a bank of questions for each topic or mixed up in a 'lucky dip'.

  Training materials used to deliver educational sessions on ADRs and the Yellow Card scheme continue to be updated, with PowerPoint presentations tailored to the audience type.

6. PUBLICATIONS (2016/17)

1. HLA-B*38:02:01 predicts carbimazole/methimazole-induced agranulocytosis.CHEUNG, C. L., SING, C. W., TANG, C., CHENG, V., **PIRMOHAMED, M**., CHOI, C. H., HUNG, C. S., LAU, E. F., LEE, K. F., MAK, M. H., LEUNG, J., WONG, T. W., HO, A., CHAN, K. W., HUNG, V., TAM, V., SIU, S. C., PANG, H. K., WAT, W. M., LEE, H. Y., CHUNG, C. T., HUE, R. M., SHAM, P. C., CHEUNG, B., WONG, I., TAN, K., & KUNG, A. (2016). Clin Pharmacol Ther, 99, 555-561.
2. A multi-factorial analysis of response to warfarin in a UK prospective cohort. BOURGEOIS, S., JORGENSEN, A., ZHANG, E. J., HANSON, A., GILLMAN, M. S., BUMPSTEAD, S., TOH, C. H., WILLIAMSON, P., DALY, A. K., KAMALI, F., DELOUKAS, P., & **PIRMOHAMED, M.** (2016). Genome Med, 8, 2.
3. Genome-Based Infection Tracking Reveals Dynamics of Clostridium difficile Transmission and Disease Recurrence. KUMAR, N., MIYAJIMA, F., HE, M., ROBERTS, P., SWALE, A., ELLISON, L., PICKARD, D., SMITH, G., MOLYNEUX, R., DOUGAN, G., PARKHILL, J., WREN, B. W., PARRY, C. M., **PIRMOHAMED, M**., & LAWLEY, T. D. (2016). Clin Infect Dis, 62, 746-752.
4. CSF/plasma HIV-1 RNA discordance even at low levels is associated with up-regulation of host inflammatory mediators in CSF. NIGHTINGALE, S., MICHAEL, B. D., FISHER, M., WINSTON, A., NELSON, M., TAYLOR, S., USTIANOWSKI, A., AINSWORTH, J., GILSON, R., HADDOW, L., ONG, E., LEEN, C., MINTON, J., POST, F., BELOUKAS, A., BORROW, R., **PIRMOHAMED, M**., GERETTI, A. M., KHOO, S., & SOLOMON, T. (2016). Cytokine, 83, 139-146.
5. Detection of Drug-Induced Acute Kidney Injury in Humans Using Urinary KIM-1, miR-21, -200c, and -423. PAVKOVIC, M., ROBINSON-COHEN, C., CHUA, A. S., NICOARA, O., CARDENAS-GONZALEZ, M., BIJOL, V., RAMACHANDRAN, K., HAMPSON, L., **PIRMOHAMED, M**., ANTOINE, D. J., FRENDL, G., HIMMELFARB, J., WAIKAR, S. S., & VAIDYA, V. S. (2016). Toxicol Sci, 152, 205-213.
6. A Systematic Review of Economic Evaluations of Pharmacogenetic Testing for Prevention of Adverse Drug Reactions. PLUMPTON, C. O., ROBERTS, D., **PIRMOHAMED, M**., & HUGHES, D. A. (2016). Pharmacoeconomics, 34, 771-793.
7. Pharmacogenomics in Childhood Asthma Consortium. (2016). Childhood asthma exacerbations and the Arg16 beta2-receptor polymorphism: A meta-analysis stratified by treatment. TURNER, S., FRANCIS, B., VIJVERBERG, S., PINO-YANES, M., MAITLAND-VAN DER ZEE, A. H., BASU, K., BIGNELL, L., MUKHOPADHYAY, S., TAVENDALE, R., PALMER, C., HAWCUTT, D., **PIRMOHAMED, M**., BURCHARD, E. G., LIPWORTH, B., & J Allergy Clin Immunol, 138, 107-113 e105.
8. Cost-effectiveness of pharmacogenetic-guided dosing of warfarin in the United Kingdom and Sweden. VERHOEF, T. I., REDEKOP, W. K., LANGENSKIOLD, S., KAMALI, F., WADELIUS, M., BURNSIDE, G., MAITLAND-VAN DER ZEE, A. H., HUGHES, D. A., & **PIRMOHAMED, M**. (2016). Pharmacogenomics J. [Epub].
9. An integrative in silico system for predicting dysregulated genes in the human epileptic focus: Application to SLC transporters. MIRZA, N., VASIEVA, O., APPLETON, R., BURN, S., CARR, D., CROOKS, D., DU PLESSIS, D., DUNCAN, R., FARAH, J. O., JOSAN, V., MIYAJIMA, F., MOHANRAJ, R., SHUKRALLA, A., SILLS, G. J., MARSON, A. G., & **PIRMOHAMED, M.** (2016). Epilepsia. [Epub]
10. Efavirenz and metabolites in CSF; relationship with CYP2B6 c.516G>T genotype and perturbed blood-brain barrier due to tuberculous meningitis. NIGHTINGALE, S., CHAU, T. T., FISHER, M., NELSON, M., WINSTON, A., ELSE, L., CARR, D. F., TAYLOR, S., USTIANOWSKI, A., BACK, D., **PIRMOHAMED, M.,** SOLOMON, T., FARRAR, J., TOROK, M. E., KHOO, S., & GROUP, PARTITION VIETNAM STUDY GROUP. (2016). Antimicrob Agents Chemother. [Epub]
11. Discordant CSF/plasma HIV-1 RNA in patients with unexplained low-level viraemia.NIGHTINGALE, S., GERETTI, A. M., BELOUKAS, A., FISHER, M., WINSTON, A., ELSE, L., NELSON, M., TAYLOR, S., USTIANOWSKI, A., AINSWORTH, J., GILSON, R., HADDOW, L., ONG, E., WATSON, V., LEEN, C., MINTON, J., POST, F., **PIRMOHAMED, M.,** SOLOMON, T., & KHOO, S. (2016). J Neurovirol. [Epub]
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7. YCC WEBSITE

Website updates

Due to IT issues there have been no updates to the YCC NW website in 2016/17

Number of website hits

We are unable to obtain this information.

8. RESEARCH AND ONGOING INITIATIVES

North West Coast CLAHRC
YCCNW is working with the North West Coast Collaboration for Leadership in Applied Health Research and Care (CLAHRC) who are developing four projects related to adverse drug reactions as part of their Delivering Personalised Health and Care theme.

The aims of the projects are:
Project 1 - Evaluate implementation of the Liverpool ADR Causality Assessment Tool in clinical practice. The Royal Liverpool (adult) and Alder Hey (paediatric) are selected sites for this evaluation.
Project 2 - Establish a biobank to investigate factors (genetic and non-genetic) underlying the onset of new ADRs.
Project 3 - Evaluate effectiveness of an educational programme in improving awareness of junior doctors to adverse drug reactions, and methods of reporting.
Project 4 - Evaluate strengths and barriers to implementing a patient portal which incorporates the ability to report adverse drug reactions.

ISoP conference 2017
Professor Pirmohamed is chairing the Local Organising Committee for the 2017 International Society of Pharmacovigilance (ISoP) conference which will be held in Liverpool in October 2017. Christine Randall is also a member of the Local Organising Committee.

YCCNW Champions network
The YCCNW Champions' network was set up in 2015 with the aim of sharing best practice to increase YC reporting in the North West. Two meetings were held 2016/17, representatives of 17 Trusts attended across the two meetings. Trusts engaged with the Champions' network contributed 2,040 reports in 2016/17 (55% of all reports).

LHP YC Working Group
The Liverpool Health Partners Yellow Card Working Group, which was formed in May 2014 and is led by Professor Munir Pirmohamed, continued its quarterly meetings until January 2017. The group developed a survey to explore '*Non-Medical Prescriber experiences of training and competence to report Adverse Drug reactions'* which was circulated electronically in September 2016 to Non-medical Prescribers in the North West. Results of the survey are to be presented at the 2017 ISoP conference and the 2017 UK Medicines Information conference. A full paper will be submitted for publication in 2017/18.

Key findings:

- 611 responses were received (570 were suitable for analysis).
- Responses came from
    - Community practitioner 120 (21.1%)
    - Nurse 388 (68.1%)
    - Pharmacist 27 (4.7%)
    - Other 35 (6.1%)

- 46% of respondents reported prescribing at least once daily.
- 76% respondents stated that they were confident or very confident to identify adverse drug reactions.
- 61.1% respondents had never reported an ADR on a Yellow Card
- Of the 219 who had reported on a Yellow Card 87% had reported between one and five times.
- 83% of respondents said that they would value additional information/support/training about adverse drug reactions and the Yellow Card Scheme.

9. CONCLUSION

In 2016/17 3,738 Yellow Cards were submitted by health professionals, patients and carers from the YCCNW region. This is a 5.1% increase compared to 2015/16. Hospital pharmacists continued to be the highest reporting group (1,669 reports [44.6% of total reports] in 2016/17 vs. 1,618 reports [45.5%] in 2015/16). This continuing high level of hospital pharmacy reporting correlates well with attendance at North West-wide Champion network meetings.