

YellowCard Centre Scotland

Centre for Adverse Reactions to Drugs (Scotland)
Helping to make medicines safer.



**Annual Report
April 2013 to
March 2014**

ANNUAL REPORT OF THE YELLOW CARD CENTRE SCOTLAND TO THE MEDICINES AND HEALTHCARE PRODUCTS REGULATORY AGENCY

2013-2014

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2. Executive Summary

The staff of YCC Scotland has been engaged in national strategic development and delivery of initiatives to support the work of the Yellow Card Scheme and patient safety with medicines across Scotland. We have been actively working with the Scottish Government Pharmaceutical Division, NHS Education for Scotland, Healthcare Improvement Scotland and the MHRA to take forward medicines governance and safety aligned developments. The adverse events reporting agenda in Scotland continues to evolve with medicines as a core component, which encompasses reporting via the Yellow Card Scheme due to the change in the definition of an ADR in 2011 to include medication errors that result in harm to a patient.

One of the key achievements within this financial year has been the delivery of [6 e-learning modules](#) on ADRs for healthcare professionals, which were produced in collaboration between YCC Scotland and NHS Education Scotland for healthcare professionals. These modules were launched in spring 2014.

Members of the team continue to support and deliver educational sessions and have provided 19 ADR specific presentations and 3 invited lectures to different groups of professionals and students.

There has been a 37% increase in Yellow Card reporting observed in Scotland during 2013/14. This is higher than the 21% increase in ADR reporting over the UK as a whole and is a welcome change to the previously downward trend in reporting which had been observed in Scotland since 2009. The percentage of ADRs from Scotland compared with the whole of the UK has increased from 6% in 2012/13 to 7% in 2013/14. This reflects the impact of a combination of various initiatives from YCC Scotland and National YC Strategies from the MHRA. New vaccines campaigns were also introduced during 2013 throughout the UK which stimulated ADR reporting and provided 30% of the total increase in reporting for the year.

3. Yellow Card Data Analysis

Table 1 –Yellow Card reporting for Scotland 2009/10 to 2013/14

Year	Number of reports	Percentage change on previous year
2013/14	1173	+37%
2012/13	858	-6%
2011/12	914	-9%
2010/11	1008	-9%
2009/10	1104	-

3a Total Scottish Reports

Table 1 above shows the total Scottish Reports increased by 37% from 858 in 2012/13 to 1173 in 2013/14. Figure 1 shows the reporting trend for Scotland since 2009/10. A steady rate of decline had been observed from 2009/10 onwards although this trend has reversed significantly in 2013/14 to return to a level similar to that last observed in 2006/7.

The total number of UK reports increased from 14380 in 2012/13 to 17463 in 2013/14 demonstrating an increase of 21%. In 2012/13 Scotland had been falling behind the rest of the UK due to a number of factors including the introduction in England and Wales of the SystmOne GP computer system which allows GPs to report directly using an integral electronic Yellow Card. Although Scotland has yet to benefit from inclusion of the electronic Yellow Card in the EMIS and Vision GP systems, other initiatives have helped to augment YC reporting from GPs and others.

Figure 1 - Total Yellow Card reports from Scotland 2009/10 to 2013/14

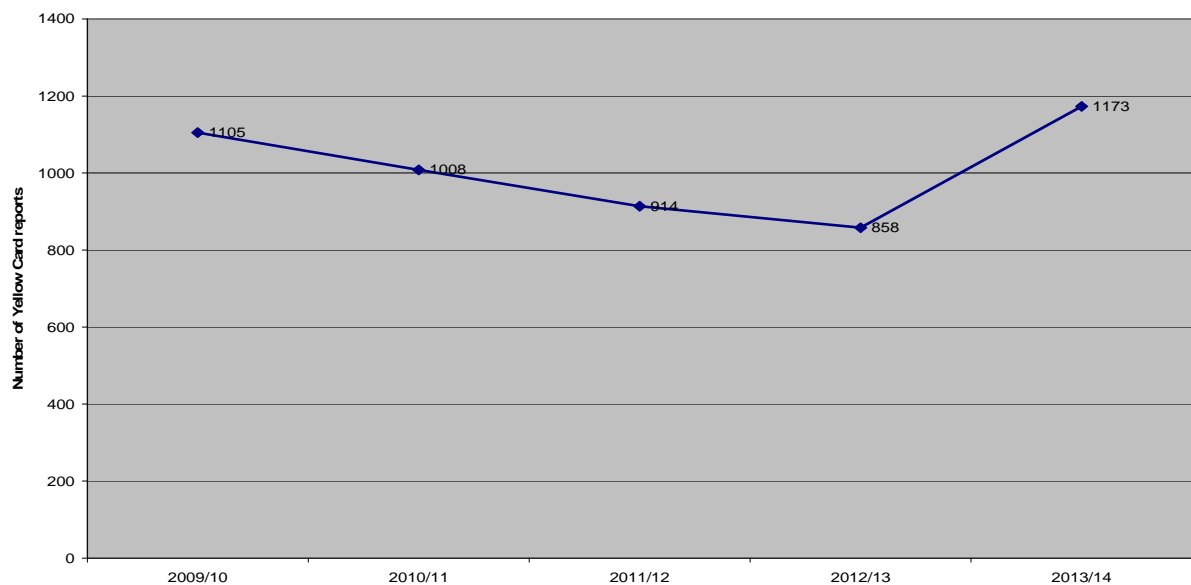


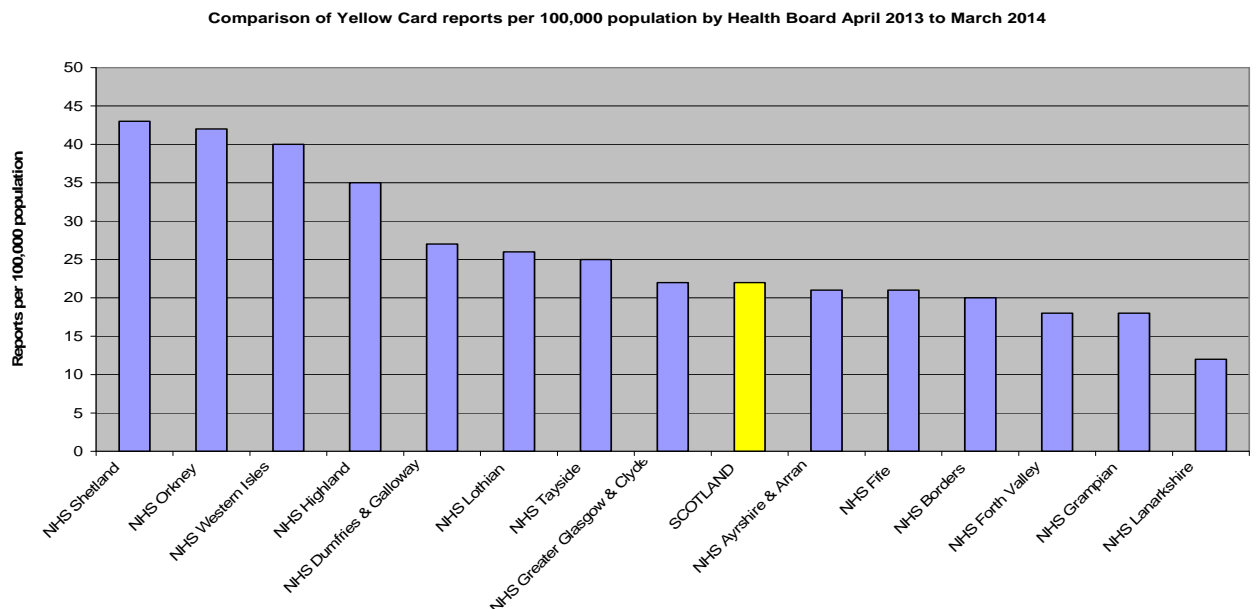
Figure 2 demonstrates that the average number of Yellow Card reports per 100,000 population in Scotland is just over 22 (a significant increase on 15 for 2012/13) with the highest ratio of 43/100,000 being recorded in NHS Shetland which has a relatively low total population compared with the rest of Scotland. The lowest ratio of 12 reports per 100,000 was recorded in NHS Lanarkshire although this still demonstrated a slight increase on the previous year from 11 reports per 100,000 population.

While most of the health board areas have demonstrated an increase in reporting from the previous year per 100,000 population, it is of note that reports from Ayrshire and Arran have decreased from 22 (which was well above the Scottish average in 2012/13) to 21 per 100,000 population (which is just below the Scottish average this year) Ayrshire and Arran continues to have a high proportion of varenicline reports from other healthcare professionals involved with smoking cessation although this has reduced significantly compared with the previous year from 41 to 20 reports.

The health board area with the most notable increase in reporting is Dumfries & Galloway which has increased from 14 per 100,000 population (below the Scottish average in 2012/13) to 27 per 100,000 in 2013/14 which is above the Scottish average. Dumfries & Galloway report that, following receipt of their 2012/13 Health Board Report from YCC Scotland in which a general downward trend in YC reporting had been highlighted, a communication had been sent out from their Area Drugs and Therapeutics Committee to encourage future submission of Yellow Cards. This initiative would appear to have contributed to the overall increase in YC reporting from Dumfries & Galloway.

These data allow YCC Scotland to highlight those areas requiring enhanced effort in promoting ADR reporting.

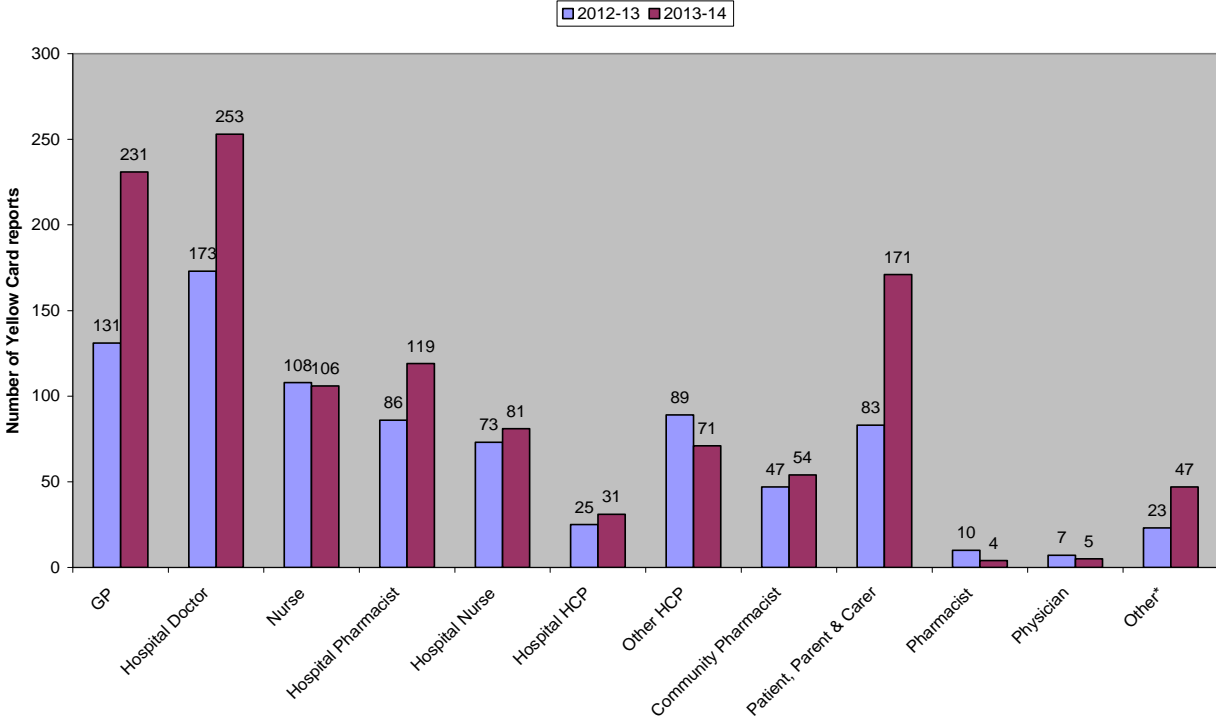
Figure 2 – Comparison of Yellow Card reports per 100,000 population by Health Board April 2013 to March 2014



3b Sources of Yellow Card Reports (Scotland)

Figure 3 demonstrates the rate of increase in ADR reporting for the majority of the main reporter groups that contribute to the Yellow Card scheme. The only groups showing any decline in reporting were the generic terms “other HCPs”, “pharmacists” and “physicians”. These generic assignments are used when the reporter does not indicate their origin or professional affiliation when submitting a Yellow Card report. A significant increase in reporting is observed for other specified HCPs (including dentist, healthcare assistant, optometrist, medical student, radiographer, chiropodist, midwife and pre-registration pharmacist), hospital and community pharmacists, hospital doctors and GPs. This appears to demonstrate that the choices available using the electronic Yellow Card encourage more accurate description of people’s professional roles. In addition, last years annual health board reports encouraged healthcare professionals to ensure that their professional affiliation and location (hospital or community) were indicated on the Yellow Card reports and this possibly can attribute to the decrease in reporting from these generic reporter group classifications.

Figure 3 – Scotland total Yellow Card reports by reporter 2012/13 to 2013/14



*Other – dentist, healthcare assistant, optometrist, medical student, radiographer, chiropodist, midwife, pre-registration pharmacist

The main points of note are as follows:

Healthcare Professionals submitted 1002 reports (increase from 772 the previous year) comprising 85% of all Scottish reports while **Patient Groups** submitted 171 reports (reflecting an overall increase in patient reporting from 83 the previous year) making up the remaining 15%. The previous year Healthcare Professionals submitted 90% of reports and Patient Group submitted 10%. Thus the ratio of patient to HCP reporting has increased.

GPs reporting increased by 76% from 131 in 2012/13 to 231 in 2013/14. Thus GP reporting in Scotland increased from 15% to 20% which is similar to the percentage of GP reports in 2011/12. A number of factors could have facilitated this trend reversal. Locally here in Scotland there have been meetings between Management Board Team members and GP groups both at a strategic and at an operational level. The MHRA Yellow Card strategy will also have played a part in the increase in GP reporting. There may have been some residual effect from the Doc-2-Doc discussion forum on ADR reporting from February and March 2013. The BMJ eLearning module on ADR reporting was launched in April 2013 and this would also be expected to have had a positive impact on GP reporting. The most frequently reported drug was the influenza vaccine (the majority of which were identified as the new Fluenz nasal vaccine), followed by the varicella zoster vaccine and rivaroxaban. Of these Fluenz had Black Triangle (BT) status throughout the period and rivaroxaban had BT status for some of the period. This, therefore, reflects appropriate reporting from the GPs.

Clearly the three new vaccines schedules (nasal influenza vaccine, rotavirus vaccine and varicella zoster vaccine) played a role in the increase in GP reporting and accounted for 35 of the total GP reports. If these are removed from the total however, there were still 196 GP reports which demonstrate a 50% increase in GP reporting compared with the previous year.

Hospital Doctors reporting increased from 173 in 2012/13 to 253 in 2013/14 showing a 46% increase and involving 22% of all Yellow Card reports. For the second year running Hospital Doctor reports have exceeded GP reports. The most commonly reported drugs were warfarin followed by rivaroxaban. This may reflect the ongoing YCC Scotland promotion of Yellow Card reporting provided at both undergraduate and postgraduate level.

Nurses reporting reduced very slightly from 108 in 2012/13 to 106 in 2013/14. Although this group, which includes all community-based nurses, had been involved in reporting the three newly introduced vaccines, there had been a significant reduction in reporting of the HPV vaccine after the Black Triangle status for Gardasil was removed in May 2013. In 2012/13 there had been 34 reports involving HPV vaccine however this was reduced to 11 in 2013/14 (6 from Nurses, 4 of which were serious). Thus the decrease in reporting on HPV vaccines was effectively balanced out by reporting of the new vaccines schedules. This demonstrates good ADR reporting practice by nurses who were reporting both serious and non-serious ADRs for the new Black Triangle (BT) nasal influenza vaccine (and also for the newly used but non-BT varicella zoster and rotavirus vaccines), but mainly serious-only ADRs for the established HPV vaccine which no longer had a BT and they had been using for a number of years.

Hospital Nurse reporting was increased by 11% in 2013/14 with 81 reports compared with 73 in the previous year and covering most of the Health Board areas. As only 3 of these reports included the new vaccines, this demonstrates an independent increase in hospital nurse reporting which could be attributed to a combination of the ongoing teaching provided by YCC Scotland on ADRs at both undergraduate and postgraduate level; and the MHRA Yellow Card Strategy developments such as the Nursing Times ADR Reporting Learning Unit launched in January 2014. Although the Nursing Times Learning Unit may have had some impact, more than 3/4 (79%) of the reports were submitted in the 9 month period before their launch so it is unlikely that the increase in reporting was wholly attributable to the modules alone.

Hospital pharmacist reporting increased by 38% (i.e. 119 versus 86). This increase is mainly attributed to the reports sent by medicines information pharmacists electronically via MiDatabank.

Community Pharmacist reporting increased by 15% during 2012/13 from 47 to 54 reports. Although their Yellow Card reporting has remained fairly static over the past ten years, this does demonstrate a small increase in reporting which may reflect some of the MHRA Yellow Card strategy promotional work which was available in Scotland. Community Pharmacy reporting is an area which we aim to improve in the future. Integration of the electronic Yellow Card into Community Pharmacy Patient Medication Records would assist in increasing reporting and this is a long-term aim. It is hoped that, in the shorter term, promotion of the NES ADR training e-learning modules in conjunction with another Public Health campaign planned for February/March 2015 might help to increase reporting from Community Pharmacists.

Patient, Parent and Carer reporting more than doubled during 2013/14 compared with the previous year from 83 to 171 and there were reports from all Health Board areas. The main contribution to this was from patients and parents whose reporting increased by 51 and 31 reports respectively compared with the previous year.

Patient reports covered a diverse range of drugs and vaccines including the influenza vaccine (non-BT), citalopram and 2 reports concerning the newly introduced varicella zoster vaccine (BT). Parent reports included numerous reports for the new Fluenz (14) and Rotarix (5) vaccines although they also reported a wide range of other vaccines and drugs. Throughout 2013/14 YCC Scotland had been starting to engage with a number of patient groups although the first face-to-face meeting did not occur until April 2014. The MHRA Yellow Card Strategy had been promoting patient and parent reporting throughout the year including some community pharmacy and other HCP based initiatives, press releases and social media.

Other groups of particular note are **Dentists** whose reporting increased from 4 in 2012/13 to 13 in 2013/14 with the most commonly reported ADR being osteonecrosis of the jaw with bisphosphonates (4 separate reports from one Health Board), and **Pre-registration Pharmacists** whose reporting increased from 7 in 2012/13, 20 in 2013/14 and came from a number of Health Board areas.

Hospital Reporting by Health Board

Table 2 shows the number of reports received from hospitals by health board. NHS Dumfries & Galloway, NHS Lothian and NHS Greater Glasgow & Clyde had the highest percentage of reports submitted from Hospitals. Greater Glasgow & Clyde and Lothian have the greatest abundance of population and of teaching hospitals which would help to explain both the high numbers and proportion of Hospital based reports from these two areas. The overall population and hence the number of reports in Dumfries and Galloway is lower although they too demonstrated a high proportion of Hospital reports. These results enable us to identify where there is a low number of Hospital reports combined with a low percentage of Hospital reporting so that we can target these areas for future promotion and support with ADR reporting. These tend to be areas without the benefit of major teaching hospitals such as Orkney, Shetland and the Western Isles.

Table 2 - Reports from hospitals 2013-2014

Health Board	Hospital reports*	% of Board's total reports
NHS Ayrshire & Arran	29	37%
NHS Borders	10	43%
NHS Dumfries & Galloway	23	56%
NHS Fife	27	35%
NHS Forth Valley	15	28%
NHS Grampian	37	36%
NHS Greater Glasgow & Clyde	125	50%
NHS Highland	47	42%
NHS Lanarkshire	37	46%
NHS Lothian	127	49%
NHS Orkney	2	22%
NHS Shetland	1	10%
NHS Tayside	39	38%
NHS Western Isles	0	0%

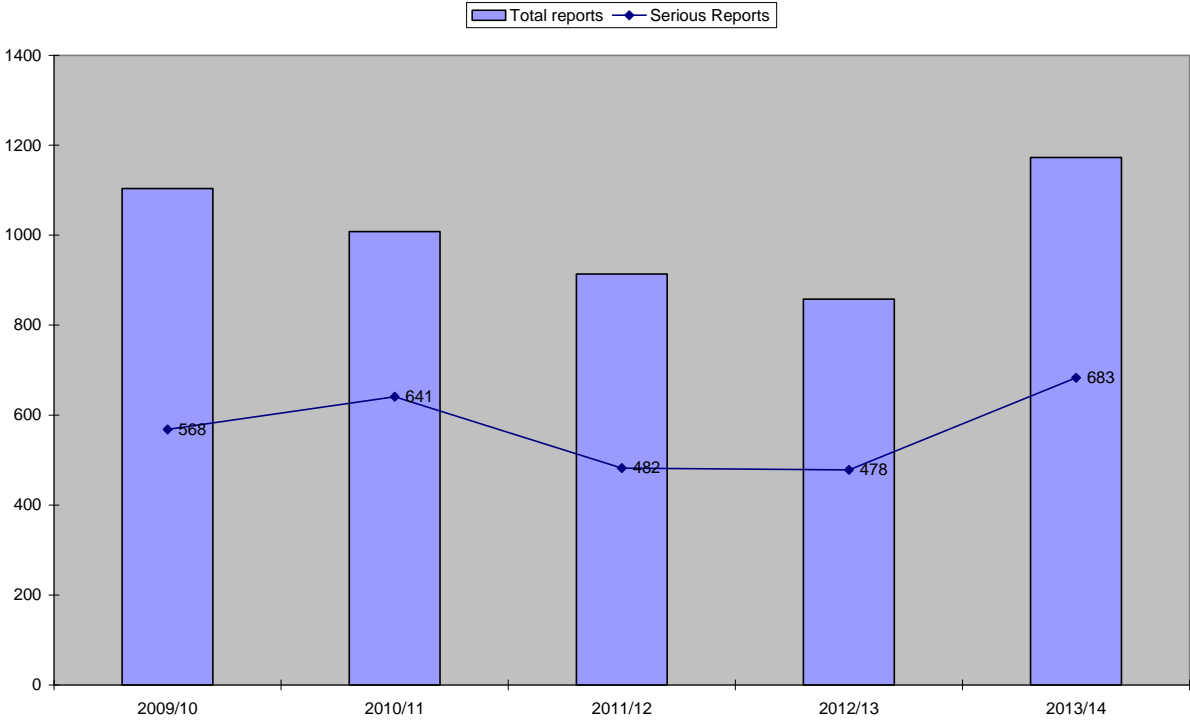
3c Serious Reports (Scotland)

Table 3 and Figure 4 show that the number of serious reports from Scotland increased from 478 in 2012/13 to 683 in 2013/14 showing a 43% rise. In 2013/14, 58% of all Scottish reports were classified as serious compared with 56% the previous year. This has occurred in conjunction with an overall reduction in Black Triangle reporting. As it is recommended that all ADRs are reported with BT drugs but only serious reactions with established drugs and vaccines then, with fewer BT reports one might indeed expect the percentage of serious ADR reports to increase.

Table 3 - Serious reports over last five years

Year	Number of serious reports	Percentage of total reports	Percentage change on previous year
2013/14	683	58%	+43%
2012/13	478	58%	-1%
2011/12	482	53%	-25%
2010/11	641	64%	+13%
2009/10	568	51%	-

Figure 4 – Serious reports as a proportion of total reports from 2009/10 to 2013/14



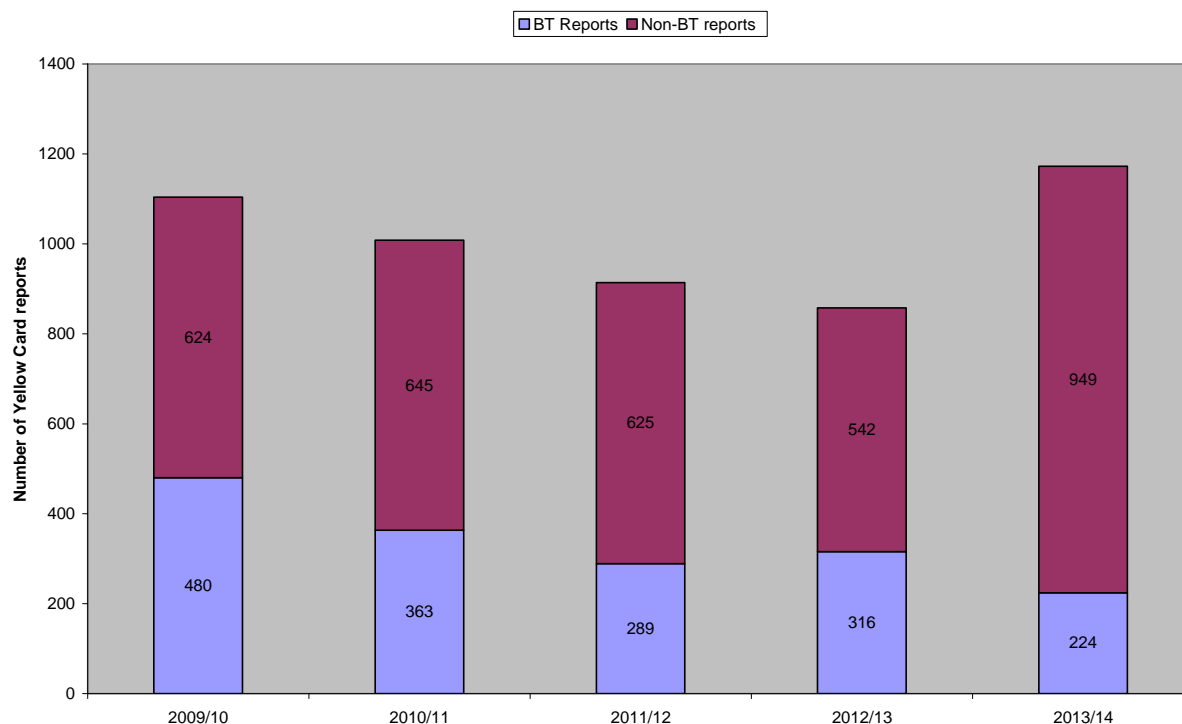
3d Black Triangle Reports (Scotland)

Table 4 and Figure 5 show that Black Triangle reporting in Scotland decreased from 316 in 2012/13 to 224 in 2013/14 i.e. a fall of 92 reports resulting in a 29% decrease. Whereas in 2012/13 Black Triangle reports represented 37% of all reports, this had decreased to 19% of all reports by 2013/14. This reflects the overall decrease in the number of drugs with Black Triangle status in 2013/14 compared with the previous year. With the change in EU legislation, MHRA Black Triangle (BT) status changed to an EU-wide Additional Monitoring status in April 2013. Prior to this the MHRA had been actively removing BT drugs which they deemed to no longer require intensive monitoring and, as a result, the list of BT drugs decreased from 196 in November 2012 to 138 in March 2013. The first EU Additional Monitoring list comprised just over 100 drugs (e.g. 105 in June 2013).

Table 4 - Black Triangle reports over last five years

Year	Number of Black Triangle reports	Percentage of total reports	Percentage change on previous year
2013/14	224	19%	-29%
2012/13	316	37%	+9%
2011/12	289	32%	-20%
2010/11	363	36%	-24%
2009/10	480	43%	-

Figure 5 – Black Triangle reports as a proportion of total reports from 2009/10 to 2013/14



3e Fatal Reports (Scotland)

The number of fatalities reported for Scotland increased from 38 in 2012/13 to 63 in 2013/14, a 66% rise from 4% to 5% of the Scottish total reports which is in line with the overall trend involving more reporting of serious ADRs. The UK average percentage for fatal reports is normally around 6% so the 5% figure for Scotland does not suggest any major increase in fatalities as such but may simply indicate better ADR reporting.

Table 5 shows the number of fatalities reported for Scotland over the last five years

Table 5 - Number of fatalities reported for Scotland over the last five years

Year	Number of fatal reports	Percentage change on previous year
2013/14	63	+66%
2012/13	38	+41%
2011/12	27	-20%
2010/11	34	+6%
2009/10	32	-

3f Age Banding (Scotland)

Table 6 and Figure 6 show that, while reporting in all age bands has increased, reporting in the under 18s has more than doubled in 2013/14, from 101 to 214 reports (an increase of 112%). A high proportion of this can be attributed to the new vaccination campaigns launched in 2013. In July 2013 the rotavirus vaccine was introduced to be administered to all infants at 2 & 3 months of age and later in the autumn it had been agreed that influenza vaccination programme should be extended so that all pre-school children were offered vaccination against influenza, the majority of whom were to receive the Fluenz intranasal influenza vaccine which had BT status.

Table 6 and Figure 6 also show reporting in elderly patients have shown a significant increase with reporting in the 75-84 and the over 85 year groups increasing by 87% and 89% respectively. This is expected in line with a higher proportion of the general population being older and the factors that age and polypharmacy contribute to higher risks for potential ADRs. In addition, the introduction of the varicella zoster vaccine from September 2013, which was offered to everyone aged 70 and 79 years, resulted in 50 Scottish Yellow Cards and therefore increased the number of reports within those age bands (65-74 increasing by 46% and 75-84 increasing by 87%).

Table 6 - Age Banding Reports Scotland 2011-2012 to 2013-2014

Age Banding	Reports in 2011-2012	Reports in 2012-2013	Reports in 2013-2014
Child <18	137	101	214
18-24	40	48	49
25-34	92	95	106
35-44	101	105	108
45-54	149	138	154
55-64	149	112	180
65-74	127	122	178
75-84	53	69	139
>85	14	27	51
Age not specified	52	41	39
TOTAL	914	858	1208*

* YCC Scotland total is 1173. The MHRA changed their data extraction methods during 2013/14 which is thought to explain the discrepancy between the total figures.

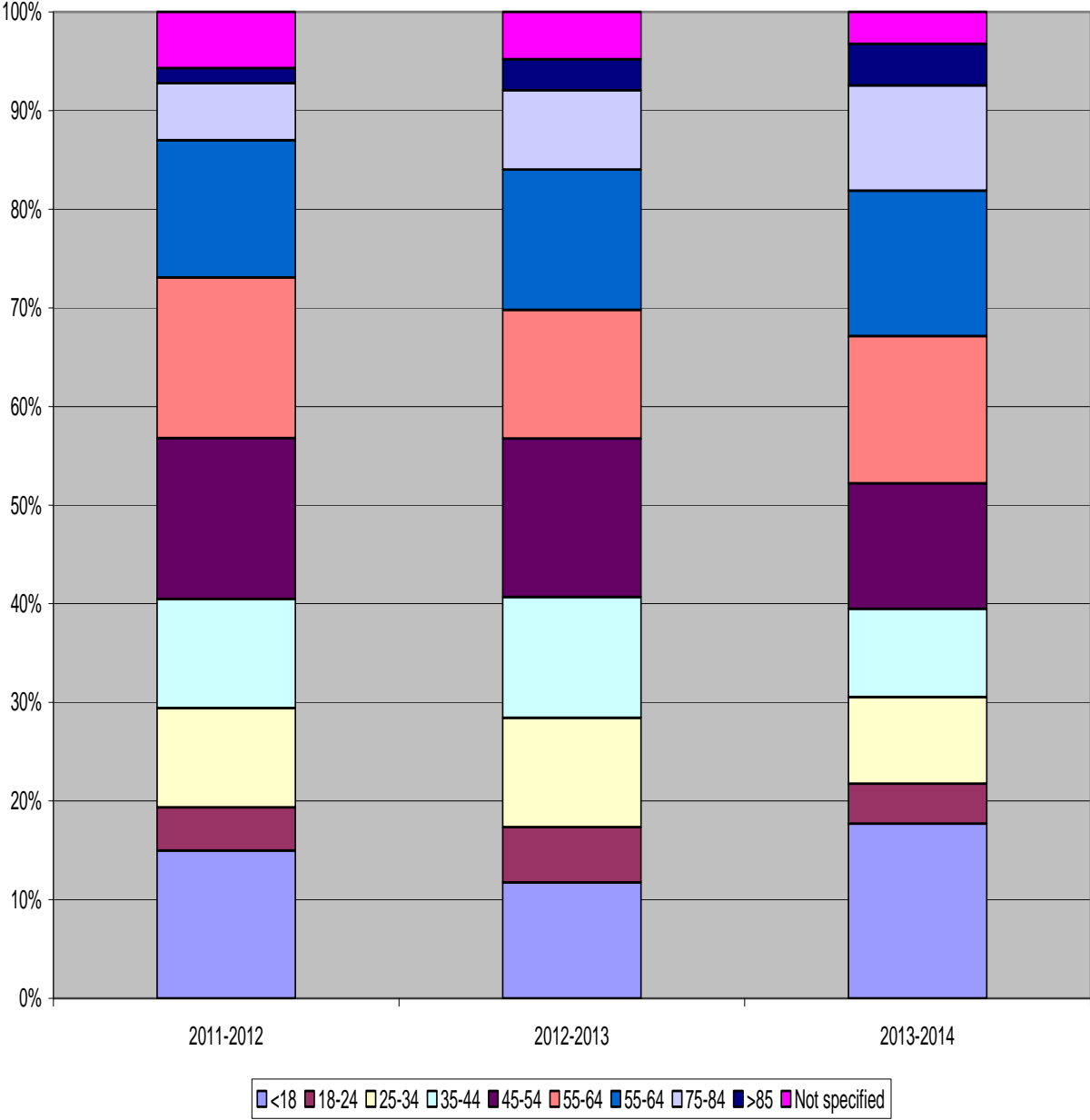
Table 7 - Age Banding Paediatric Reports Scotland 2013-2014**

ICH Age Range	Paediatric Yellow Card Reports	% of Paediatric Yellow Card Reports
Preterm newborn infants	3	1%
Term newborn infants (0-27 days)		
Infants & toddlers (28 days – 23 months)	54	25%
Children (2-11 years)	91	43%
Adolescents (12-18 years)	66	31%
TOTAL	214	

**Please note that reports for patients aged 18 years old have been included in paediatric report numbers, these patients are part of the 18-24 year old age banding in the Age Banding Reports Scotland 2013-2014 table.

The details on the Paediatric Age Banding Table 7 demonstrate a shift in paediatric reporting from the previous year as Infant & toddler reporting increased from 18 to 54 (16% to 25% of all paediatric reports) and reporting for children increased from 30 to 91 (27% to 43%). These increases are largely attributable to the reports submitted for the Rotarix and Fluenz vaccines with 20 of the increased 36 reports for Infants & toddlers associated with the Rotarix vaccine and 55 of the 61 increased reports for children being due to the Fluenz vaccine. Although reporting about adolescent ADRs also increased from 61 in 2012/13 to 66 in 2013/14, these reports represented a smaller proportion of all the paediatric reports compared with the previous year (54% in 2013/14 and 31% in 2013/14) It is however encouraging to note that, even excluding the new vaccines, there was a general increase in reporting in the paediatric age band.

Figure 6 – The percentage of total Yellow Card reports from Scotland, stratified by age group 2011/12 to 2013/14



3g Top Medicines Reported

Tables 8 to 14 details the top medicines reported for Scotland in 2013/14 and 2012/13; top medicines reported for Scotland compared to the UK in 2013/14; top medicines reported for paediatric patients 2012/13 and 2013/14; and top Black Triangle medicines 2012/13 and 2013/14.

Table 8 - Top Ten Medicines reported 2013-2014

Ranking	Drug Name	Number of reports (2013/14)
1	Influenza vaccines	89
2	Varenicline	62
3	Diphtheria containing vaccines	36
4	Rivaroxaban	32
5	Warfarin	28
6	Meningococcal vaccines	24
7	Varicella-zoster vaccines	21
8=	Rotavirus vaccine	20
8=	Ticagrelor	20
10	Pneumococcal vaccines	17

Table 9 - Top Ten Medicines reported 2012-2013

Ranking	Drug Name	Number of reports (2012/13)
1	Varenicline	115
2	HPV vaccines	34
3	Diphtheria containing vaccines	22
4	Influenza vaccines	21
5	Rivaroxaban	20
6	Etonogestrel	19
7	Adalimumab	14
8=	Infliximab	11
8=	Warfarin	11
8=	Tocilizumab	11
8=	Citalopram	11

Table 10 - Top medicines reported for Scotland compared to the UK in 2013/14

Ranking	Scotland Medicine Name	Number of reports (Direct only)	UK Medicine Name	Number of reports (Direct and Indirect)
1	Influenza vaccines	89	Clozapine	2247
2	Varenicline	62	Influenza vaccines	896
3	Diphtheria containing vaccines	36	Etanercept	751
4	Rivaroxaban	32	Adalimumab	746
5	Warfarin	28	Varenicline	585
6	Meningococcal vaccines	24	Rivaroxaban	584
7	Varicella-zoster vaccines	21	HPV vaccines	583
8=	Rotavirus vaccine	20	Etonogestrel	392
8=	Ticagrelor	20	Telaprevir	351
10	Pneumococcal vaccines	17	Dabigatran	346

Table 11 - Top Five Medicines reported in Paediatric Reports 2013-2014

Paediatric Ranking	Drug Name
1	Influenza vaccine
2	Rotavirus vaccine
3	Meningococcal group C conjugate vaccine
4	Diphtheria, tetanus and poliomyelitis vaccine (Revaxis)
5	Pneumococcal polysaccharide conjugate vaccine

Table 12 - Top Five Medicines reported in Paediatric Reports 2012-2013

Paediatric Ranking	Drug Name
1	Human papilloma virus vaccine
2	Diphtheria, tetanus and poliomyelitis
3=	Pneumococcal polysaccharide conjugate vaccine Omalizumab
4=	Duraphat (fluorides) Rubella vaccine, measles vaccine, mumps vaccine Poliomyelitis vaccine, diphtheria tetanus pertussis (acellular) and haemophilus type B vaccine
5 =	Varenicline tartrate Meningococcal group C conjugate vaccine

Table 13 - Top Ten Black Triangle Medicines 2013-2014

Generic Drug Name	Yellow Card Reports
Varenicline	62
Influenza vaccines	55
Rivaroxaban	20
Mirabegron	14
Telaprevir	10
Acidinium bromide	6
Dapagliflozin	4
Etonogestrel	4
Glycopyrronium bromide	4
Ivacaftor	4

Table 14 - Top Ten Black Triangle Medicines 2012-2013

Generic Drug Name	Yellow Card Reports
Varenicline	115
HPV vaccines (Gardasil)	22
Rivaroxaban	20
Etonogestrel	13
Tocilizumab	10
Adalimumab	9
Iron isomaltoside 1000	7
Pneumococcal vaccines	7
Omalizumab	7
Liraglutide	6

Influenza Vaccines were the most frequently reported products in Scotland during 2013/14 with a total of 89 reports (34 serious). Influenza vaccines had been in 4th position the previous year. Of all the influenza vaccine reports 55 specifically named the newly launched Black Triangle (BT) Fluenz intranasal influenza vaccine of which 15 were considered serious. The influenza vaccines were also the most frequently reported paediatric product in 2013/14 and the Fluenz vaccine was the second most frequently reported BT drug. In the whole of the UK (including reports from industry) Influenza vaccines were the second most frequently reported product after clozapine.

Varenicline is now the second most frequently reported drug in Scotland with 62 reports (12 of which were considered serious), having been knocked off the top spot since the previous year. Varenicline continues to be the most frequently reported BT drug in Scotland and it also remains in the top 5 drugs reported in the whole of the UK.

As in 2012/13 years, **Diphtheria Containing Vaccines** are 3rd in the Scottish Top 10 drugs. In 2013/14 there were 36 reports (19 serious) whereas the previous year there were 22 reports (10 serious). These vaccines were also the 4th most frequently reported paediatric medicine.

Rivaroxaban was the 4th most reported medicine in Scotland with 32 reports, considerably more than the 20 in the previous year. There were 23 serious reports, 20 of which involved bleeding problems. Rivaroxaban had had its Black Triangle (BT) status removed prior to April 2013 and then re-instated in October 2013 which explains why only 20 of the 32 reports had BT status. In the whole of the UK rivaroxaban was the 6th most frequently reported drug.

Warfarin was the 5th most frequently reported drug in Scotland with 28 reports (25 serious) which is more than double the 11 reports from the previous year. As in previous years, warfarin did not feature in the top 10 UK drugs.

In 6th position in Scotland were **meningococcal vaccines** with 24 reports (7 serious). Meningococcal vaccine were also the 3rd most frequently reported paediatric vaccines in Scotland although these were not listed in the top 10 UK drugs.

Varicella-zoster vaccines were the 7th most frequently reported product in Scotland with 21 reports, 4 of which were considered to be serious. This vaccine programme had been introduced for the vaccination of elderly people against shingles during 2013 although the drug had been available for some time previously and BT status had been removed prior to this year. Varicella zoster vaccine did not appear in the UK top 10.

The **rotavirus vaccine** which was added to the childhood vaccination schedule in 2013 was 8th equal in Scotland with 20 reports (9 serious). This was also the 2nd most frequently paediatric medicine in 2013/14 although it did not reach the UK top 10. It had had its BT status removed some time before its launch on the vaccination schedule.

Ticagrelor was also the 8th equal most reported drug in Scotland with 20 reports (13 serious) and 10 of which involved a serious bleeding disorder. Ticagrelor's BT status had been removed early in 2013/14. It did not feature in the UK top 10 and had not featured in Scotland's top 10 the previous year

Pneumococcal vaccines were the 10th most frequently reported products in Scotland with 8 of the 17 reports considered serious. These were also the 5th most frequently reported paediatric medicines in Scotland although not included in the UK Top 10.

The top 5 **Paediatric reports** were headed by the two newly introduced influenza and rotavirus vaccines followed by meningococcal, diphtheria containing and pneumococcal vaccines.

Herbal reports

There was only 1 herbal report this year which came from a hospital doctor and was not considered to be serious.

3h Source of reports – detailed breakdown

Table 15 below details the reports received by reporter origin over the last 3 years.

Table 15 - Reports received by reporter origin

Reporter	2011/12		2012/13		2013/14	
	Number	% of total	Number	% of total	Number	% of total
Carer	11	1.2%	4	0.5%	6	0.5%
Parent	16	1.8%	8	0.9%	43	3.6%
Patient	98	10.7%	71	8.3%	122	10.4%
Community Pharmacist	33	3.6%	47	5.5%	54	4.6%
Hospital Pharmacist	73	8%	86	10%	119	10.1%
Pharmacist	8	0.9%	10	1.2%	4	0.3%
Pharmacy Assistant	-	-	-	-	-	-
Pre-reg pharmacist	6	0.6%	7	0.8%	20	1.7%
Hospital Nurse	47	5.1%	73	8.5%	81	6.9%
Nurse	122	13.3%	108	12.6%	106	9.9%
GP	181	19.8%	131	15.3%	231	19.7%
Hospital Doctor	159	17.4%	173	20.2%	253	21.6%
Physician	21	2.3%	7	0.8%	5	0.4%
Coroner	-	-	-	-	-	-
Dentist	2	0.2%	4	0.5%	13	1.1%
Midwife	-	-	2	0.2%	3	0.3%
Optometrist	1	0.1%	3	0.3%	1	0.09%
Chiropodist	-	-	2	0.2%	1	0.09%
Radiographer	3	0.3%	2	0.2%	4	0.3%
Hospital Healthcare Professional	34	3.7%	25	3%	31	2.6%
Healthcare Assistant	-	-	2	0.2%	2	0.2%
Other Healthcare Professional	97	10.6%	89	10.4%	71	6%
Medical Student	2	0.2%	1	0.1%	3	0.3%
Unknown	-	-	-	-	-	-
Total	914		855		1173	

4. Interpretation of Reporting figures

A total of 1173 Yellow Card reports were submitted from Scotland, covering 392 different drugs.

Yellow Card reporting in Scotland has increased by 37% in 2013/14 reversing the downward trend of previous years and demonstrating a greater increase compared with the whole of the UK which had a 21% increase in YC reporting.

Influenza vaccines were the most frequently reported products with 89 reports. Fifty-five influenza vaccine reports specifically named the newly launched Black Triangle (BT) Fluenz intranasal influenza vaccine. The other two vaccines which had also been included in the vaccination schedule in 2013, rotavirus vaccine for infants and varicella zoster vaccine for the elderly entered the Scottish top 10 reported medicines for the first time.

Although the three new vaccines (nasal influenza, rotavirus and varicella zoster vaccines) contributed significantly to Scottish YC reporting, they were not the sole reason for the increase observed. When the 96 reports for the new vaccines are removed from the equation, 1077 other reports remain which still demonstrates a 25% increase in reporting compared with 2012/13.

The most notable increases have been seen regarding reporting from parents, patients and carers which has more than doubled in the past year. Parent reporting was enhanced by the two new paediatric vaccines however, even excluding these, there was still a considerable increase in Parent reporting. Perhaps as parents have been made aware that they can report adverse effects to vaccines, this has alerted them to reporting side effects to other medicines as well. EU legislation introduced in 2012 requiring clear information on YC reporting being present on all Patient Information Leaflets may also have contributed to the overall increase in patient reporting

GP reporting and hospital doctor reporting have also increased significantly demonstrating a 76% increase and a 46% increase respectively.

A number of factors will have contributed to the increase in reporting throughout Scotland. Based upon the feedback received on the ongoing teaching programme provided at both undergraduate and postgraduate level, current and future healthcare professionals who have attended the sessions have indicated that they are now more likely to submit a Yellow Card when appropriate (see section 5 for details).

The MHRA Yellow Card (YC) strategy has included promotional and teaching materials aimed at parents, patients, GPs, nurses and community pharmacists and this will be expected to have had a significant impact upon Yellow Card reporting from these groups.

At a local level in Scotland members of the YCC Scotland Management Board have been engaging with GP, non-medical prescribers, hospital doctors and patient, parent & carer groups to promote YC reporting although it must be noted that the first face-to-face meeting with a patient/carer group did not take place until after the end of March 2014.

In addition to MHRA work with preferred providers of GP electronic systems to deliver integrated electronic Yellow cards, a GP IT request form was completed in December 2013 to request the addition of a functionality to allow electronic submission of Yellow Cards from Scottish GP preferred systems (i.e. Vision and EMIS). This application was completed by YCC Scotland in collaboration with MHRA and Dr Libby Morris. Progress with implementation of an electronic Yellow Card is essential to further assist with any increase in GP or community nurse reporting

5. Promotional activities

5a Training delivered to healthcare professionals and their respective groups

ADR e-learning modules

The 6 ADR e-learning modules developed with the support of NHS Education for Scotland were completed during 2013/14 however various technical issues led to their launch being delayed until June 2014. All 6 of these modules are mandatory for completion from August 2014 for pre-registration pharmacists in Scotland. Modules 1 and 6 have been incorporated into the required electronic modules for FY1s in Scotland from August 2014.

Table 16 details the face-to-face education and training sessions delivered to healthcare professionals and undergraduates by the staff of YCC Scotland in 2013/14. A total of 19 lectures and training sessions were delivered covering 51.25 hours of training and 1235 participants.

Table 16 – Education and training sessions

Audience	Session	Duration (hours)	Number of sessions	Total audience numbers	Total hours training
Healthcare Professionals					
GPs – East Lothian PLT	Presentation	1 hour	1	15	1
Independent prescribers – University of Dundee	Lecture/ Workshop	3.5 hours	2	53	7
Independent & Supplementary Prescribers - Napier University	Lecture/ Workshop	3 hours	2	51	6
Medical postgraduates – University of Edinburgh, MSc Translational Medicine	Module (Adverse Drug Reactions)	2 hours	2	50	4
Medical postgraduates – RCPE, MSc Internal Medicine	Lecture (Adverse Drug Reactions I, II)	2 hours	2	25	4
Medical postgraduates – University of Glasgow	Lecture (ADRs with Biopharmaceuticals)	.75 hours	1	50	.75
Podiatry MSc postgraduates – Queen Margaret University	Lecture/ Workshop	3 hours	1	26	3
Undergraduates					
Biomedical Sciences undergraduates – University of Edinburgh, Final year	Lecture/ Workshop	3 hours	1	15	3
Medical undergraduates – University of Edinburgh, Year 1 MBChB	Lecture (Adverse Drug Reactions I, II)	2 hours	2	250	4
Medical undergraduates – University of Edinburgh, Year 3 MBChB	Lecture (Adverse Drug Reactions)	1.5 hours	1	250	1.5
Medical undergraduates – University of Edinburgh, Year 4 MBChB	Lecture (Prescribing to prescribe)	1 hour	1	250	1
Medical undergraduates – University of Edinburgh, Year 5 MBChB	Workshop on prescribing	4 hours	2	150	8
Nursing undergraduates – University of Edinburgh	Lecture/ Workshop	2 hours	1	50	2
Total			19	1235	51.25 hours

The standard evaluation form was used for 5 the face-to-face education sessions delivered (i.e. Biomedical Science students; Independent & Supplementary Prescribers at Edinburgh Napier University; Independent Prescribers at the University of Dundee; and Podiatrists at Queen Margaret University). In total 144 attendees completed the questionnaires. Figures 7 to 9 below show a high level of satisfaction with the programmes delivered and constructive feedback has been used to fine tune future training to fit the needs of the student groups. One of the questions asked on the back of the evaluation form was if the content of the presentation would change the participant’s practice. Of those who completed this section (114 of the 144 forms) 112 indicated that it would change their practice (positively), one indicated that it would not and one (a biomedical student) indicated that this question would not apply to their practice.

Figure 7 – Overall rating of the ADR education session



Figure 8 – Were learning needs met by the ADR education session

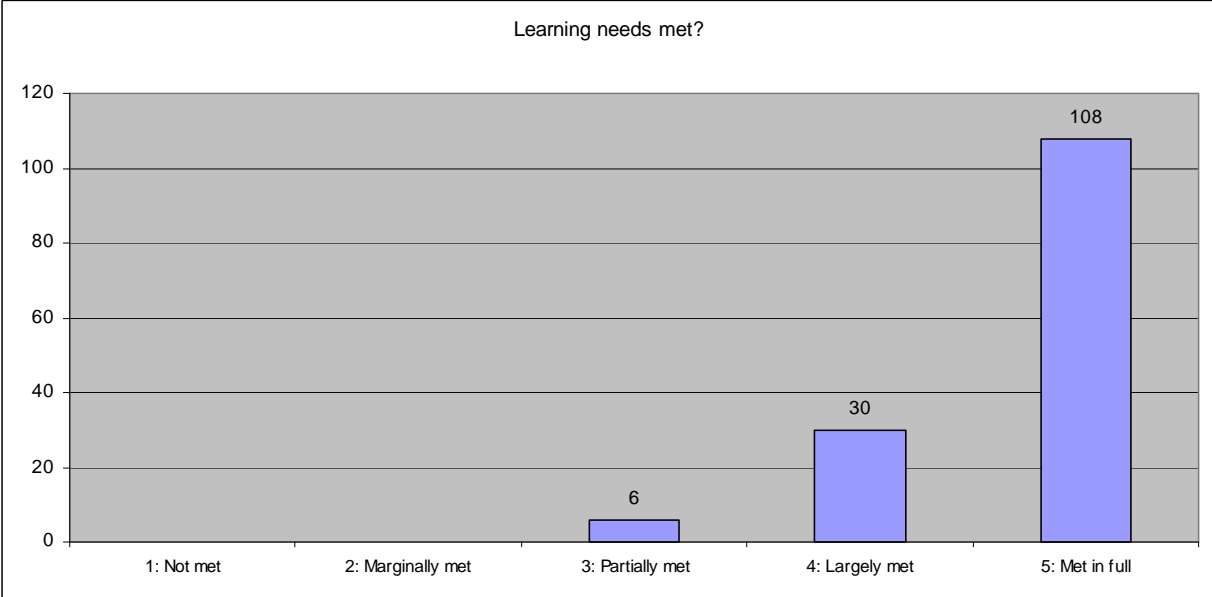
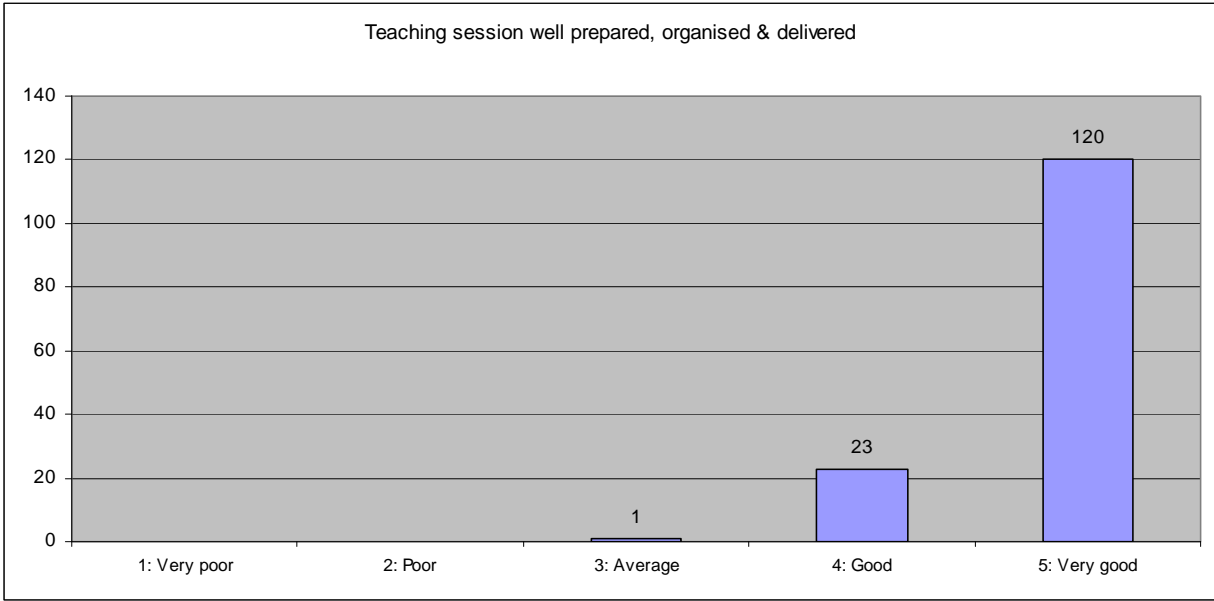


Figure 9 – Delivery of the ADR education session



5b Training delivered to patients

Engagement with patient groups

In July 2013, YCC Scotland published an article on YC reporting in the Chest Heart & Stroke Scotland’s newsletter.

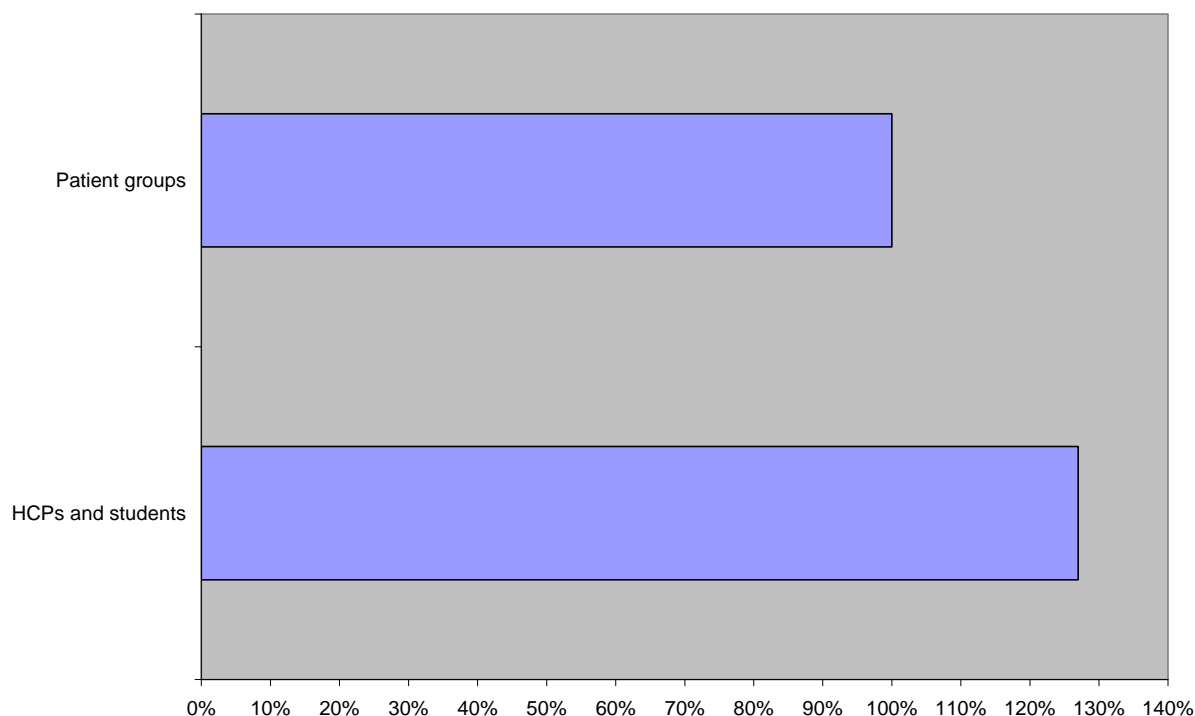
In December 2013, YCC Scotland contacted five diverse patient support groups: Scotland Patients Association; Parkinson’s Self-Help Group; Epilepsy West Lothian; Chest Heart & Stroke Scotland and Asthma Scotland. In the letter a brief description of the role of YCC Scotland was provided together with a link to further information on the Yellow Card scheme. Each group was invited to engage with YCC Scotland so that we could offer them further details on side effects of medicines and how these can be reported. This has resulted in at least three meetings arranged with Patient Groups for 2014/15 so far, the first of which was successfully conducted on 3rd April 2014.

YCC Scotland has obtained agreement with the Scottish Government Chief Pharmacist's office for a 4-week slot within the Community Pharmacists Health Promotion Campaign from 9th February to 8th March 2015 for the promotion of ADR reporting. The key message and exact nature of support material has yet to be finalised but will possibly focus on increasing awareness of the increase in ADR definition to include medication errors resulting in harm to patients.

5c – Achievement of engagement with patient groups, Healthcare professionals and undergraduates against objective

Figure 10 shows the achievement against the objectives set by the MHRA for YCC Scotland for engagement with patient groups and healthcare professionals. Both of these objectives were met in full in 2013/2014.

Figure 10 - Engagement with patient groups and HCPs and students compared against agreed 1.2 and 2.2 objectives (Annex 1)



5d Lectures delivered (invited)

Invited lectures in 2013/14 included the following:

- “Update on adverse drug reactions and the Yellow Card Scheme” presented by Melinda Cuthbert at Lothian Nursing, Midwifery and Allied Healthcare Professionals Prescribing Update Day, Royal Infirmary of Edinburgh (24th April 2013)
- “What’s new in adverse drug reactions” presented by Melinda Cuthbert at the Nursing, Midwifery and Allied Healthcare Professionals Prescribing Event, Stirling Management Centre (3rd May 2013)
- “Update on adverse drug reactions and the Yellow Card Scheme” presented by Melinda Cuthbert at Ayrshire & Arran Nursing, Midwifery and Allied Healthcare Professionals conference Crosshouse Hospital (4th November 2013)

5e Materials developed for YCS promotion

Display banner promoting YCC Scotland and Yellow Card reporting first used at the NHS Scotland 2-day event when introducing the new e-Learning ADR modules and subsequently displayed at other presentations

Fliers developed to promote the new e-Learning ADR modules, January 2014.

5f Internal communications

Ongoing quarterly teleconferences have been held between the YCCs and the MHRA and these are proving very useful for information sharing and planning.

6. Publications & posters

Al-Hourani K, Mansi R, Pettie J, Dow M, Bateman DN, **Dear JW**. The predictive value of hospital admission serum alanine transaminase activity in patients treated for paracetamol overdose. *QJM*. 2013;106(6):541-546.

Antoine DJ*, **Dear JW***, Starkey Lewis PJ*, Platt V, Coyle J, Masson M, Thanacoody RH, Gray AJ, Webb DJ, Moggs JG, Bateman DN, Goldring CE, Park K. Mechanistic biomarkers provide early and sensitive detection of acetaminophen-induced acute liver injury at first presentation to hospital. *Hepatology*. 2013;58(2):777-787. * co-first authors.

Bateman DN, **Dear JW**, Thanacoody HKR, Thomas SHL, Eddleston M, Sandilands EA, Coyle J, Cooper JG, Rodriguez A, Butcher I, Lewis SC, Vliegenthart ADB, Veiraiah A, Webb DJ, Gray A. Reduction of adverse effects from intravenous acetylcysteine treatment of paracetamol poisoning: a randomised controlled trial. *Lancet* 2014;383(9918):697-704.

Dear JW, Antoine DJ. Stratification of paracetamol overdose patients using new toxicity biomarkers: current candidates and future challenges. *Expert Review of Clinical Pharmacology*. 2014;7(2):181-189.

Dear JW, Street J, Bailey MA. Urinary exosomes: a reservoir for biomarker discovery and potential mediators of intra-renal signaling. *Proteomics*. 2013;13(10-11):1572-1580.

Gibson KR, Qureshi ZU, Ross MT, **Maxwell SR**. Junior doctor-led 'near-peer' prescribing education for medical students. *British Journal of Clinical Pharmacology*. 2014; 77(1):122-9.

Gray A, **Dear J**, Thanacoody R, Thomas S, Eddleston M, Sandilands E, Coyle J, Cooper J, Rodriguez A, Butcher I, Lewis S, Vliegenthart A, Veiraiah A, Webb D, Bateman N. Reducing adverse effects from intravenous N-acetylcysteine treatment of paracetamol poisoning: principal results of the Scottish and Newcastle antiemetic treatment for paracetamol poisoning (SNAP) randomised controlled trial. *Emergency Medicine Journal*. 2013; 30(10):867-8.

Mackay A. You can help improve medicine safety in Scotland. Take Heart Chest Heart & Stroke Scotland Newsletter. Lothian Edition, Autumn 2013

Menzies RI, Zammit-Mangion A, Hollis LM, Lennen RJ, Jansen MA, Webb DJ, Mullins JJ, **Dear JW**, Sanguinetti G, Bailey MA. An anatomically unbiased approach for analysis of renal BOLD magnetic resonance images. *American Journal of Physiology: Renal Physiology*. 2013;305(6):F845-52.

Malek M, **Cuthbert M**, Kinnear M, Johnson J. Does a patient medicines information helpline improve patient safety and outcomes? Presented at the UK Medicines Information Professional Development Seminar, Birmingham (September 2013). Available at <http://www.ukmi.nhs.uk/filestore/ukmiamt/PDS13FPposters9-12.pdf> [Accessed 27 August 2014].

Oosthuyzen W, Sime NEL, Ivy JR, Turtle EJ, Street JM, Pound J, Bath LE, Webb DJ, Gregory CD, Bailey MA, **Dear JW**. Quantification of human urinary exosomes by nanoparticle tracking

analysis. *Journal of Physiology*. 2013;591(23):5833-42.

Payne RA, Abel GA, Simpson CR, **Maxwell SRJ**. Association between prescribing of cardiovascular and psychotropic medications and hospital admission with falls or fractures. *Drugs & Aging*. 2013;30(4):247-54.

Qureshi Z, Rodrigues M, Parisinos C, Hall N, Ross M, **Maxwell S**. Developing junior doctor delivered teaching. *Clinical Teacher*. 2013;10(2):118–123.

Ryan C, Ross S, Davey P, Duncan EM, Fielding S, Francis JJ, Johnston M, Ker J, Lee AJ, Macleod MJ, **Maxwell S**, McKay G, McLay J, Webb DJ, Bond C. Junior doctors' perceptions of their self-efficacy in prescribing, their prescribing errors and the possible causes of errors. *British Journal of Clinical Pharmacology*. 2013;76(6):980-7.

Sandilands E, Dhaun N, **Dear J**, Webb DJ. Measurement of renal function in patients with chronic kidney disease. *British Journal of Clinical Pharmacology*. 2013;76(4):504-515.

Tallentire VR, Hale RL, Dewhurst NG, **Maxwell SR**. The contribution of prescription chart design and familiarity to prescribing error: a prospective, randomised, cross-over study. *BMJ Quality & Safety*. 2013;22(10):864-9.

Thanacoody HK, Gray A, **Dear JW**, Coyle J, Sandilands EA, Webb DJ, Lewis S, Eddleston M, Thomas SH, Bateman DN. Scottish and Newcastle Antiemetic Pre-treatment for paracetamol poisoning study (SNAP). *BMC Pharmacology & Toxicology*. 2013;14:20.

Turtle EJ, **Dear JW**, Webb DJ. A systematic review of the effect of paracetamol on blood pressure in hypertensive and non-hypertensive subjects. *British Journal of Clinical Pharmacology*. 2013;75(6):1396-1405.

7. Documents uploaded to Citrix Share File

There was a total of 39 items uploaded in 2013/14 to the Citrix Shared Space. These included the following:

- Education and training materials for patient groups (1); podiatrists (2); biopharmaceuticals (1); GPs (3); Napier University non-medical prescribers (3); Queen Margaret University non-medical prescribers (3); University of Dundee (8); and Biomedical undergraduate students (1).
- Invited talks at conferences (2).
- Annual report (1) and health board annual reports (14).

8. YCC Website

8a Website update The YCC Scotland Website is maintained and updated regularly including the newsfeed. <http://www.yccscotland.scot.nhs.uk>. Links to it have been added to various external sites including the NES website and the NES ADR training modules so it is anticipated that these figures should improve over time.

8b Number of website hits

The YCC Scotland website has received a total of 3087 page views between 1/4/13 and 31/3/14

9. Research

Following receipt of an ISAC application in March 2012 for Yellow Card reporting data to assess the impact of the Scottish Public Health Campaign via community pharmacies on patient reporting of ADRs, including herbal medicines, an MSc Student from the University of Strathclyde was identified to analyse these data. In order to conduct a time-series analysis additional data were requested and received from ISAC. The project will commence in May 2014.

10. Conclusion

Yellow Card reporting in Scotland has increased by 37% during 2013/14 compared with the previous year. A number of factors may have contributed to this increase:

- YCC Scotland continues to provide a constantly updated training and education programme for both undergraduate and postgraduate healthcare professionals highlighting the importance ADRs, how they can be identified and reported and who can report them.
- YCC Scotland has been actively engaging with key stakeholders within Scotland to promote Yellow Card reporting and ensure that there is easy access to the electronic Yellow Card
- The MHRA Yellow Card strategy has been actively promoting Yellow Card reporting to a wide range of healthcare professionals and the public.
- The three new vaccines programmes have stimulated Yellow Card reporting both from healthcare professionals working in primary care and from parents and patients.

It is anticipated that the preparatory work undertaken in 2013/14 involving the ADR eLearning Modules; the integration of the electronic Yellow Card into GP computer systems; and collaboration on the reporting of adverse events and ADRs through Health Improvement Scotland Adverse Events reporting will result in an ongoing increase in ADR reporting in Scotland

11. Annex 1

ANNEX 1 – Progress report summary against objectives

General Objectives	Performance measures and targets	Progress at end of year 2013/14
1. Education – <i>To educate and inform stakeholders including healthcare professionals and patients about the Yellow Card Scheme</i>	1.1. To develop and update on-going training programmes for students, including undergraduates and postgraduates, and all healthcare professional stakeholders, including GPs, community pharmacists, hospital pharmacists, hospital doctors and hospital nurses	Achieved - Each lecture/presentation updated prior to delivery to all groups. Content for 6 new e-learning ADR modules delivered.
	1.2. To provide at least 15 lectures, workshops or other events per year, to educate students and healthcare professionals about ADRs, medications errors, pharmacovigilance and the Yellow Card Scheme	Achieved (i.e. 19)
	1.3. To maintain and expand current network of stakeholders	Achieved
2. Patient Reporting – <i>To increase patient awareness of Yellow Card reporting and help drive an increase in patient reporting</i>	2.1. To engage with community pharmacists to increase patient awareness of Yellow Card reporting	4 week slot has been booked with Scottish Government Pharmaceutical division for a Yellow Card reporting promotional campaign via Community Pharmacy (i.e. 9 th February to 8 th March 2015). Promotional information on e-ADR materials will be sent to all community pharmacies in Scotland in Q3 2014/15 prior to the campaign.
	2.2. To engage or make contact with five local patient groups per financial year, including giving presentations and talks	Achieved. 3 face-to-face education sessions with patients booked in 2014/15 as a result to date.
	2.3. To develop and maintain strategy programmes which can include talks, for sharing information such as Yellow Card data, case studies and reporting trends with stakeholders including local patient groups, hospital pharmacists and GPs to promote patient awareness of patient Yellow Card reporting	Ongoing for patients groups and GPs. Consideration is required in 2014/15 for hospital pharmacists.
3. External/Stakeholder communications – <i>To communicate information about the Yellow Card Scheme to stakeholders</i>	3.1. To develop and maintain the YCC website, ensuring that they contain easily accessible information on the reporting of ADRs	Achieved and ongoing
	3.2. To ensure that the YCC websites contain accessible links to agreed Yellow Card partners	Achieved
	3.3. YCCs that wish to communicate information to stakeholders through educational material on their websites are to develop and update these training and resource materials accordingly on their websites, including promoting e-learning modules where e-learning modules are available	Achieved and ongoing. Monthly dissemination of Dear Healthcare Professional letters summary from the MHRA to key contacts within each health board for onward cascade. The YCC Scotland Annual report and individual annual reports for each health board across

Scotland on reporting via the Yellow Card Scheme were disseminated to each health board.

In addition to this other engagement meetings with stakeholders include:

- YCC Scotland Advisory Group meeting (September 2013)
- Meeting between MHRA, Healthcare Improvement Scotland, YCC Scotland, Scottish Government Pharmaceutical Division, Royal Pharmaceutical Society in Scotland and Community Pharmacy Scotland regarding medicines safety network (February 2014)
- Healthcare Improvement Scotland compact work between YCC Scotland Lead Pharmacist and Laura McIver (Chief Pharmacist HIS) on the adverse events workstream requires ongoing liaison and progress discussions. In addition the following meetings attended in this capacity:
 - Adverse Event Reference Group (1 meeting)
 - Adverse Event measurement/infrastructure working group meetings (5 meetings)
 - Adverse Event Stakeholders workshop (1 meeting)
 - Adverse Events Health Board pre-meeting and audit (1 health board)
- NHS Education Scotland and Aurion—ongoing communications and work to deliver the 6 e-learning modules on ADRs.
- Association of Scottish MI Pharmacists (quarterly meetings)
- Teleconference with Vision and Professor Tom MacDonald regarding development of electronic yellow card capabilities
- NHS Scotland Non-medical Prescriber Leads (1 meeting)
- NHS Lothian Medical Director Patient Safety and quality meeting regarding ADR

		<ul style="list-style-type: none"> reporting in Lothian (1 meeting) Robert Gordon University Pharmacy Programme representative
	3.4. YCCs to promote and disseminate safety messages from MHRA to YCC stakeholders as required, such as drug safety updates, pharmacovigilance issue, and e-learning modules	Achieved and ongoing
	3.5. To monitor the number of hits on YCC websites	Achieved and ongoing
4. Facilitation – To raise awareness and encourage facilitation of direct ADR reporting from healthcare systems	4.1. Raise awareness of electronic reporting methods in primary and secondary care such as MiDatabank and SystmOne	<p>The continued promotion of reporting of suspected ADRs via MiDatabank is ongoing with Association of Scottish Medicines Information Pharmacists group to foster awareness and uptake of reporting via this platform.</p> <p>SystmOne is not available in Scotland. Electronic yellow card reporting via e-systems is on the HEPMA agenda within Scotland.</p>
	4.2. To identify potential local contacts for further development in this area	Ongoing compact work with Healthcare Improvement Scotland and liaisons with the Scottish government on medicines safety continue to foster ongoing developments within this area in Scotland
	4.3. To provide input to the MHRA on strategy and development of the Yellow Card Information Standard for the GP System of Choice	In addition to MHRA work in this area, a GP IT request form was completed in December 2013 to request the addition of a functionality to allow electronic submission of Yellow Cards from Scottish GP preferred systems (i.e. Vision and EMIS). This application was completed by YCC Scotland in collaboration with MHRA and Dr Libby Morris.
5. Internal communications – To communicate with the MHRA on a regular basis regarding Yellow Card Strategy and ADR reporting from the YCC regions	5.1. Annual report - YCCs to produce an annual report describing their activities over the past year. The report should be produced and sent to the MHRA within three months of receipt of annual Yellow Card data from the MHRA	Achieved.
	5.2. Quarterly Teleconference - To participate in a quarterly teleconference between the YCCs and MHRA to discuss progress and share information	Achieved. Representatives from YCC Scotland in attendance for all meetings.
	5.3. Yellow Card Strategy – To provide views and input into the Yellow Card Strategy	Achieved via input at YCC/MHRA quarterly teleconference.

	5.4. YCCs to provide further information and updates on research and education strategies	Ongoing via YCC/MHRA quarterly teleconference and Annual General Meeting.
6. Analysis – <i>To analyse quarterly supply of Yellow Card data and identify targets for improvement</i>	6.1. To identify local geographical areas of low Yellow Card reporting by analysing Yellow Card quarterly data	Achieved. Local identified areas will be targeted via Health Board report and cover letter to Chair of ADTC. E-learning ADR resources that are also available via LearnPro will be promoted and health boards asked to consider promoting them for completion by healthcare professionals within their organisation(s).
	6.2. To promote the Yellow Card Scheme with the intent of increasing reporting in these areas of low Yellow Card reporting	The 6 new e-learning ADR modules will be promote ADR awareness and the Yellow Card scheme. Currently have been accessed across Scotland and the UK; and internationally.
	6.3. To identify low reporting groups and engage with them to promote the Yellow Card Scheme with the intent of increasing reporting	Ongoing, Community pharmacists will be targeted within the next financial year.
	6.4. To provide MHRA with updates on any other actions taken with the quarterly statistics	YCC/MHRA quarterly teleconference allows for this discussion. From 2014 onward the new datasets being delivered quarterly allow for more intensive analysis.