Surveillance of adverse events following immunisation

Dr Mim Morgan
Public Health Medicine Registrar
NBMLHD

Overview

- Pre registration requirement
- Post registration requirement
- Adverse event reporting
  - Current
  - How can it more effective?

Pre registration

- Information about safety and efficacy from clinical trials
  - Strict inclusion and exclusion criteria
- Extensive research and testing can’t identify every SE or AE when used more broadly in the population
  - Especially rare, late onset and unexpected events
  - New vaccine safety signals difficult to identify in vaccine trials

Post registration

- Safety and efficacy of a therapeutic product including vaccine is reliant upon reporting of AE's
- AE reporting contributes to understanding AE's outside clinical trials
- Regulatory process to safeguard and enhance the health of Australians

Adverse event reporting

- Definition:
  - unintended sign, symptom or disease associated with the use of vaccine
  - incorrect handling and/or administration of vaccine

- Everyone can play a role in monitoring the safety of therapeutic goods by reporting suspected AE's

- Importantly: AE not always caused by the therapeutic good itself

AE reporting

- Anyone can report – all reports go to TGA
  - Australian Adverse Drug Reaction Reporting System (ARDS) database
- National Adverse Events Following Immunisation (AEFI) reporting form
- Sponsors – companies who market the goods (sometimes big pharma)
- Health department, HCP, consumers
- Black Triangle Scheme – additional monitoring for new medicines, or new use

Response to AE reporting

- Alerts – information and recommendations
  - Not necessarily considered unsafe eg supply
- Recall – action taken to resolve a problem with a good where there are issues or deficiencies with safety, quality, efficacy or presentation
- Early warning system: –
  - monitoring communication – to encourage more reporting
  - alert communication – following investigation – safety/efficacy information

Significance

- Estimated 1 in 10 pt's would have AE in the last 6 months
  - ½ would be moderate to severe
  - most unreported

- Eg: 400,000 GP consultations annually for medicine-related problem
  - TGA received 17,500 reports (2013)
  - 700 or 4% were from GP's
  - 2015: 48% via NSW Health– remainder directly to TGA: 27% doctors/HCP, 13% by public, 7% by drug companies, 5% by hospitals

- GP reports very important to maintain up to date risk-benefit profiles

Outcomes and reactions

- Excluded if:
  - No temporal association between vaccine & event
  - Not enough information to make assessment
  - Clinical explanation for other causes

- Serious: death, life-threatening, hospitalisation, significant/persistent disability/incapacity, is a congenital/birth defect, medically important

- Non-serious

AE reports 2015 by reaction (510)

- Serious 17%
  - No death
  - Febrile convulsion
  - Anaphylaxis
  - Guillain Barré Syndrome (GBS)
  - Interssusception
  - Hypotonic-hyporesponsive episodes
  - Rash
  - Vomiting
  - Headache
  - Injection site reaction 7%
- Most frequent
  - Injection site reactions 19%
  - Rash 18%
  - Pyrexia 17%
  - Headache 9%
  - Syncope 19%
  - Pre-syncope 6%
- Non serious 83%
  - Dizziness

AE by vaccine 2015

Table 2. Vaccine types listed as 'suspected' in records of adverse events following immunisation (AEFI), NSW, 2015

Suspected vaccine type	AEFI records		One suspected vaccine only[a]		'Serious'		Age group[b] <7 years		Age group[b] ≥7 years	
	n	(%)	*n*	(%)[c]	*n*	(%)[c]	*n*	(%)[c]	*n*	(%)[c]
Influenza	114	(22.4)	105	(92)	15	(13)	7	(6)	103	(90)
HPV	98	(19.2)	43	(44)	15	(15)	3	(3)	94	(96)
dTpa	76	(14.9)	31	(41)	9	(12)	3	(4)	73	(96)
MMR	75	(14.7)	21	(28)	11	(15)	67	(89)	8	(11)
DTPa-IPV-HepB-Hib	63	(12.4)	7	(11)	20	(32)	62	(98)	1	(2)
PCV13	55	(10.8)	0	(0)	18	(33)	55	(100)	0	(0)
DTPa-IPV	53	(10.4)	28	(53)	12	(23)	53	(100)	0	(0)
Rotavirus	53	(10.4)	10	(19)	18	(34)	52	(98)	1	(2)
23vPPV	34	(6.7)	25	(74)	0	(0)	3	(9)	31	(91)
Hib-MenC	34	(6.7)	4	(12)	6	(18)	33	(97)	1	(3)
Varicella	22	(4.3)	3	(14)	5	(23)	1	(5)	20	(91)
MMRV	15	(2.9)	13	(87)	5	(33)	15	(100)	0	(0)
Meningococcal B	11	(2.2)	8	(73)	3	(27)	7	(64)	4	(36)
Hepatitis B	8	(1.6)	6	(75)	1	(13)	1	(13)	6	(75)
dT	6	(1.2)	4	(67)	0	(0)	0	(0)	6	(100)
Q fever	5	(1)	5	(100)	0	(0)	0	(0)	5	(100)
Hepatitis A	4	(0.8)	2	(50)	0	(0)	0	(0)	4	(100)
Typhoid	3	(0.6)	2	(67)	0	(0)	0	(0)	3	(100)
Hepatitis A + B	2	(0.4)	2	(100)	0	(0)	0	(0)	2	(100)
Rabies	1	(0.2)	1	(1)	1	(100)	0	(0)	1	(100)
Hepatitis A-Typhoid	1	(0.2)	0	(0)	0	(0)	0	(0)	1	(100)
Zoster	1	(0.2)	1	(100)	1	(100)	0	(0)	1	(100)
Yellow fever	1	(0.2)	0	(0)	0	(0)	0	(0)	1	(100)
Hib	1	(0.2)	0	(0)	0	(0)	0	(0)	1	(100)
BCG	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Cholera	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Tetanus	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Japanese encephalitis	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Total[d]	510	(100)	322	(63)	85	(17)	203	(40)	298	(58)

[a] AEFI records where only one vaccine was suspected of involvement in a reported adverse event

http://www.health.nsw.gov.au/immunisation/Documents/2015-NSW-AEFI-report.pdf

Future direction

- Report, report, report

- Public Health Unit
  - AEFI notifications into NCIMS
  - Happy to take AE reports from GP practice
    - PHU follow up pt to resolution
  - Report AE from school programs

References

- https://www.tga.gov.au/
- http://www.health.nsw.gov.au/immunisation/Documents/2015-NSW-AEFI-report.pdf