

Appendix 5 The reliability of the HMPS record review method (n = 15)

Method (Reference)	Country Setting	Study size (no of included hospitals and reviewed records)	Year of studied population	Primary aim of the study	No of screenings criteria (triggers)	Number of reviewers for assessment of AEs	Reviewer experience (reviewed records per reviewer)	Trainings hours	Number of records for reliability study (n)	Prevalence adverse events (%; 95% CI)	Kappa value AE assessment (95% CI)	Rating kappa AE	Prevalence preventable events (%; 95% CI)	Kappa value preventable AE assessment (95% CI)	Rating kappa preventable AE	% agreement
Retrospective case record reviews of preventable deaths (RCRR) ⁴⁸	United Kingdom Hospital	10 hospitals 1,000 records	2009	Measuring AE rate	1 ¹	17	59 (1,000 records/17 reviewers)	One-day training	250	13.1 (10.9–15.1)	0.54 (0.37–0.71) / NR	m	5.2 ¹ (3.8–6.6)	0.49 (0.2–0.8)	m	NR
Modified Harvard Medical Practice Study (HMPS) ^{39 55}	The Netherlands Hospital	20 hospitals 3,996 records	2008	Measuring AE rate	16	20	130 (2,591 records/20 reviewers)	One-day refreshment training	228	8.0 (6.9–9.2)	0.47 (0.33–0.61) / 83	m	2.9 (2.3–3.7)	0.49	m	74
The Dutch Adverse Event study ^{40 56}	The Netherlands Hospital	21 hospitals 7,926 records	2004 (Fieldwork from August 2005 to October 2006)	Measuring AE rate	18	55	157 (4,321 records*2 = double assessment / 55 reviewers)	One day training and frequently repeated half-day training	4,272	5.7 (5.1–6.4)	0.64 (0.61–0.68) / 91.3	s	2.3 (1.9–2.7)	0.72 (0.66–0.79)	s	86.1
Retrospective medical record review study ⁴⁹	Sweden Hospital	28 hospitals 1,967 records	2003 – 2004	Measuring AE rate	18	17	38 (648 records/17 reviewers)	Three-day education programme	642	12.3 (10.8–13.7)	0.80 / 91	a	8.6 (7.4–9.8)	0.76	s	91
Case note review ¹¹	United Kingdom Hospital	1 hospital 1,006 records	2004	Measuring AE rate	18	3	187 (560 records/3 reviewers)	NS	90	8.6 (6.9–10.3)	0.64 / 86	s	2.7 [‡]	0.44	m	83
Ottawa Hospital Patient Safety Study ⁵⁰	Canada Hospital	1 hospital 502 records	2002	Measuring AE rate	16	8	39 (312 records/8 reviewers)	Two-hour training	94	12.7 (10.1–16.0)	0.50 (0.3–0.7) / 77	m	4.8 (3.2–7.0)	NR	NA	NR
The Canadian Adverse Events Study ⁵¹	Canada Hospital	20 hospitals 3,745 records	2000	Measuring AE rate	18	16	95 (1,512 records/16 reviewers)	NS	151	7.5 (5.7–9.3)	0.45 (0.33–0.57) / NR	m	2.8 (2.0–3.6)	0.69 (0.55–0.83)	s	NR

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The New Zealand Adverse Event Study ^{52, 57}	New Zealand Hospital	13 hospitals 6,579 records	1998 (Fieldwork from July 1999 to the end of May 2000)	Measuring AE rate	18	13	317 (4,119 records/13 reviewers)	NS (intensive training course)	615	12.9	0.47 / 87.5	m	6.3	NR	NA	NR
Retrospective Implicit review instrument ³⁰	United States Hospital	7 hospitals 179 records	1995–1996	Examining inter-rater reliability	1 ¹	14	27 (383 reviews/14 reviewers)	NS	35	NR	NR	NA	6.0 (3.4–8.6)	0.34 (ICC)	f	NR
Structured implicit physician review of severe adverse events ³³	United States Hospital	8 hospitals 95 records	1995–1996	Examining inter-rater reliability	5 ²	12	62 (742 record reviews/12 reviewers)	Four- to eight-hour training session	95	NR	0.46 / NR	m	NR	NR	NA	NR
The Utah and Colorado Medical Practice Study (UCMPS) ^{41, 53}	United States Hospital	28 hospitals 14,655 records	1992	Measuring AE rate	19	22	128 (2,820 records/22 reviewers)	One-day training	500	2.9	0.40 (0.30–0.51) / 79	m	1.8 (Utah) 3.2 (Colorado)	0.19 (0.05–0.37)	sl	NR
The Quality in Australian Health Care Study (QAHCS) ⁵⁴	Australia Hospital	28 hospitals 14,179 records	1992	Measuring AE rate	18	21	295 (6,200 records/21 reviewers)	Two-day training course	6,200	16.6 (15.2–17.9)	0.55 / 80	m	8.3 / NR	0.33	f	58
Retrospective chart review ⁴²	United states Hospital	51 hospitals 31,429 records	1984	Measuring AE rate	18	127	119 (15,066 reviews/127 reviewers)	Two hours of training	7,533	18	0.50 (0.47–0.52) / 44	m	NR	NR	NA	NR
The Harvard Medical Practice Study ^{3, 58}	United States Hospital	51 hospitals 30,121 records	1984	Measuring AE rate	18	NR	3,872 (7,743 records/2 reviewers)	NS	318	3.7 (3.2–4.2)	0.61 / 89	s	1.0 (0.8–1.2)	0.24	f	93

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The Medical-Record Administrator Study (MRAs) ³²	United States Hospital	2 hospitals 360 records	1984–1987	Examining inter-rater reliability	18	10	88 (875 reviews/10 reviewers)	Two-hour training session	225	NC	0.57/ NR	m	NC	0.34	f	NR

NR = Not reported; NA = Not Applicable; NS = Not specified; NC = Not to be calculated; ICC = Interclass Correlation Coefficient

‡ = NR: Estimated by calculation

¹ Preventable deaths among hospitalised patients

² Adverse events related to laboratory abnormalities while in the hospital: hypokalemia, hyperkalemia, renal failure, hyponatremia and digoxin toxicity

Rating: sl = slight (K: 0.00-0.20), f = fair (K: 0.21-0.40), m = moderate (K: 0.41-0.60), s = substantial (K: 0.61-0.80), a = almost perfect (K: 0.81-1.00)