

Risk prediction model (Original study)	IV country	IV region	IV population size	Model Design	IV outcome measure	IV model discrim.	Linked intervention IV	IV impact assessment	EV outcome measure	First author	Study design	EV country	EV region	EV population size	EV model discrim.	Linked intervention EV	EV impact assessment
Charlson Comorbidity Index (Charlson et al. 1987) [84]	US	New York	685	Weighted scores	Mortality	RR = 2.0 (1.6-2.4)	-	-	Access of primary care services	Brilleman et al. (2014)	Observational study	UK	England	86,100	R2 = 0.26	-	-
										Shadmi et al. (2011)	Observational study	Israel	-	270,000	R2 = 0.18	-	-
									Emergency department attendance	Haas et al. (2013)	Observational study	US	Minnesota	83,187	C = 0.57	-	-
										Wallace et al. (2016)	Observational study	Ireland	-	862	C = 0.58	-	-
									Healthcare costs	Brilleman et al. (2014)	Observational study	UK	England	86,100	R2 = 0.41	-	-
										Charlson et al. (2008)	Observational study	US	-	5,861	R2 = 0.22	-	-
										Haas et al. (2013)	Observational study	US	Minnesota	83,187	C = 0.70 (>90th centile)	-	-
									Hospital admissions	Haas et al. (2013)	Observational study	US	Minnesota	83,187	C = 0.67	-	-
										Inouye et al. (2008)	Observational study	US	Boston	3,919	C = 0.72	-	-
										Lemke et al. (2012)	Observational study	US	-	4,700,000	C = 0.78	-	-
										Shadmi et al. (2011)	Observational study	Israel	-	270,000	R2 = 0.11	-	-
										Van Houtte et al. (2022)	Observational study	New Zealand	Wellington	319,943	C = 0.75	-	-
									Mortality	Brilleman et al. (2013)	Observational study	UK	-	95,372	R2 = 0.42	-	-
										Rea et al. (2019)	Observational study	Italy	Lombardy	5,400,000	C = 0.62	-	-
Chen Model (Chen et al. 2020) [67]	US	Ohio, Georgia & Alabama	41,076	Machine Learning (Decision Tree)	Emergency department attendance	C = 0.84	-	-	-	-	-	-	-	-	-	-	-
					Hospital admissions	C = 0.79	-	-	-	-	-	-	-	-	-	-	-

Chronic Illness and Disability Payment System (CDPS) (Kronick et al. 2000) [53]	US	California, Colorado, Georgia, Michigan, Missouri, Ohio & Tennessee	900,000	Regression	Healthcare costs	R2 = 0.18	-	-	Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.20	-	-
									Access of primary care services	Liu et al. (2003)	Observational study	US	-	126,076	R2 = 0.25	-	-
Chronic Related Score (CReSc) (Rea et al. 2019) [41]	Italy	Lombardy	2,700,000	Regression	Mortality	C = 0.79	-	-	-	-	-	-	-	-	-	-	-
Combined Predictive Model (Wennberg, Dixon & Billings et al. 2006) [83]	UK	England	280,000	Regression	Hospital admissions	PPV for predicted vs actual admission in 10,000 highest risk patients = 0.29	-	-	Hospital admissions	Reilly et al. (2011)	Retrospective cohort study	UK	Greater Manchester	867	-	Case management	Significant reduction, AD = -0.9 (score), Z = 4.7, p < 0.001
Elder Risk Assessment Index (Crane et al. 2010) [66]	US	Minnesota	450	Regression	Hospital admissions	C = 0.70	-	-	Emergency department attendance	Takahsahi et al. (2012)	RCT	US	Minnesota	205	-	Telemonitoring	Non-significant increase, AD 7.1%, p = 0.27
									Hospital admissions	Takahsahi et al. (2012)	RCT	US	Minnesota	205	-	Telemonitoring	Non-significant increase, AD 8.3%, p = 0.24
									Mortality	Takahsahi et al. (2012)	RCT	US	Minnesota	205	-	Telemonitoring	Significant increase, AD 10.8%, p = 0.008
Episode Risk Groups [82]	US	-	Information unavailable	Regression	Healthcare costs	Information unavailable	-	-	Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.23	-	-
Forming and Identifying New Groups of Expected Risks (FINGER) (Orueta et al. 2018) [44]	Spain	Basque Country	973,400	Regression	Healthcare costs (>95th percentile)	C = 0.83 * (>95th percentile)	-	-	-	-	-	-	-	-	-	-	-
					Hospital admissions	C = 0.80	-	-	-	-	-	-					
					Mortality	C = 0.89	-	-	-	-	-	-					
Hierarchical Condition Category (Pope et al. 2000) [81]	US	-	Information unavailable	Regression	Healthcare costs	R2 = 0.12	-	-	Access of primary care services	Boult et al. (2013)	RCT	US	Baltimore, Washington D.C.	850	-	Care coordination Case management	Non-significant increase, OR = 1.02 (0.91–1.14)
									Access of primary care services	Liu et al. (2003)	Observational study	US	-	126,076	R2 = 0.26	-	-
									Emergency department attendance	Boult et al. (2013)	RCT	US	Baltimore, Washington D.C.	850	-	Care coordination Case management	Non-significant increase, OR = 1.04 (0.81–1.34)

										Haas et al. (2013)	Observational study	US	Minnesota	83,187	C = 0.58	-	-
									Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.22	-	-
								Dudley et al. (2003)		Observational study	US	-	-	319,209	R2 = 0.08	-	-
								Fishman et al. (2003)		Observational study	US	Minnesota & Ohio	-	1,500,000	R2 = 0.15	-	-
								Haas et al. (2013)		Observational study	US	Minnesota	-	83,188	C = 0.70 (>90th centile)	-	-
								Boult et al. (2013)		RCT	US	Baltimore, Washington D.C.	850	-	-	Care coordination Case management	Non-significant reduction, OR = 0.79 (0.53–1.16)
								Hospital admissions	Haas et al. (2013)	Observational study	US	Minnesota	83,188	C = 0.68	-	-	
									Mosley et al. (2009)	Observational study	US	-	3,954	C = 0.64	-	-	
									Petersen et al. (2001)	Observational study	US	-	3,069,168	C = 0.88	-	-	
									Petersen et al. (2001)	Observational study	US	-	3,069,168	C = 0.88	-	-	
								Mortality	Petersen et al. (2001)	Observational study	US	-	3,069,168	C = 0.88	-	-	
								Readmission	Boult et al. (2013)	RCT	US	Baltimore, Washington D.C.	850	-	-	Care coordination Case management	Non-significant increase, OR = 1.01 (0.83–1.23)
Johns Hopkins ACG System [80]	US	-	Information unavailable	Regression	Hospital admissions	Information unavailable	-	-	Access of primary care services	Brilleman et al. (2014)	Observational study	UK	England	86,100	R2 = 0.37	-	-
										Juncosa et al. (1999)	Observational study	Spain	Catalonia	2,467	R2 = 0.64	-	-
										Liu et al. (2003)	Observational study	US	-	126,076	R2 = 0.21	-	-
										Orueta et al. (2018)	Spain	Spain	Basque Country	84,136	C = 0.53	-	-
										Shadmi et al. (2011)	Observational study	Israel	-	270,000	R2 = 0.54	-	-

										Sibley et al. (2010)	Observational study	Canada	Ontario	25,558	R2 = 0.33	-	-	
										Wahls et al. (2004)	Observational study	US	-	40,825	R2 = 0.30	-	-	
										Emergency department attendance	Haas et al. (2013)	Observational study	US	Minnesota	83,187	C = 0.67	-	-
										Sylvia et al. (2008)	Prospective cohort study	US	Maryland	150	-	Care coordination Case management	Non-significant reduction, AD = 0.16 attendances, p = 0.200	
										Healthcare costs	Aguado et al. (2008)	Observational study	Spain	Catalonia	65,630	R2 = 0.39	-	-
										Brilleman et al. (2014)	Observational study	UK	England	86,100	R2 = 0.41	-	-	
										Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.17	-	-	
										Fishman et al. (2003)	Observational study	US	Minnesota & Ohio	1,500,000	R2 = 0.10	-	-	
										Haas et al. (2013)	Observational study	US	Minnesota	83,188	C = 0.76 (>90th centile)	-	-	
										Juncosa et al. (1999)	Observational study	Spain	Catalonia	2,467	R2 = 0.31	-	-	
										Reid et al. (2001)	Observational study	Canada	Manitoba & British Columbia	4,547,397	R2 = 0.23	-	-	
										Sicras-Mainar et al. (2013)	Observational study	Spain	Catalonia	227,235	R2 = 0.37	-	-	
										Sylvia et al. (2008)	Prospective cohort study	US	Maryland	150	-	Care coordination Case management	Non-significant reduction, AD = \$1378 / 6 months, p = 0.347	
										Hospital admissions	Haas et al. (2013)	Observational study	US	Minnesota	83,188	C = 0.73	-	-
										Juncosa et al. (1999)	Observational study	Spain	Catalonia	2,467	R2 = 0.44	-	-	
										Lemke et al. (2012)	Observational study	US	-	4,700,000	C = 0.80	-	-	

Medicaid Rx	US	California	Information unavailable	Information unavailable	Healthcare costs	Information unavailable	-	-	Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.20	-	-
Modello Statistico Combinato (MoSaCo) (Falasca et al. 2011) [62]	Italy	Ravenna	147,654	Regression	Hospital admissions	C = 0.77	-	-	-	-	-	-	-	-	-	-	-
Nairn Case Finder (Baker et al. 2012) [73]	UK	Scotland	96	Regression	Hospital admissions	C = 0.79	Case management	Significant reduction AD = 42.5%, p = 0.002	-	-	-	-	-	-	-	-	-
PacifiCare's Medicare Risk Program (Wilber et al. 2003) [79]	US	California	Information unavailable	Weighted scores	Hospital admissions	Information unavailable	-	-	Emergency department attendance	Shannon et al. (2006)	RCT	US	Los Angeles	823	-	Case management	Non-significant reduction, OR = 0.57 (0.31–1.05)
									Hospital admissions	Shannon et al. (2006)	RCT	US	Los Angeles	823	-	Case management	Telemonitoring
Patients At Risk for Re-hospitalisation algorithm (PARR) (Billings et al. 2006) [78]	UK	England	Information unavailable	Regression	Readmission	C = 0.69	-	-	Hospital admissions	Reilly et al. (2011)	Retrospective cohort study	UK	Greater Manchester	867	-	Case management	Significant reduction, AD = -0.3 (score), Z = 3.9, p < 0.001
Predicting Emergency Admissions Over the Next Year (PEONY) 1 (Donnan et al. 2008) [64]	UK	Scotland	90,522	Regression	Hospital admissions	C = 0.80	-	-	-	-	-	-	-	-	-	-	-
Predicting Emergency Admissions Over the Next Year (PEONY) 2 (Tomlin et al. 2016) [29]	New Zealand	-	704,753	Regression	Hospital admissions	C = 0.72	-	-	-	-	-	-	-	-	-	-	-
Predictive Risk Stratification Model (PRISM) (Snooks et al. 2018) [25]; (Hutchings et al. 2013) [77]	UK	Wales	230,099	Regression	Hospital admissions	Information unavailable	Case management	Significant increase, OR = 1.44 (1.39–1.50), p < 0.001	-	-	-	-	-	-	-	-	-

Primary Care Activity Levels Ash et al. 2013) [74]	US	-	1,668,486	Regression	Healthcare costs	R2 = 0.67	-	-	-	-	-	-	-	-	-	-	-
QAdmissions (Hippisley-Cox et al. 2013) [58]	UK	England	4,333,333	Regression	Hospital admissions	C = 0.78	-	-	Emergency department attendance	Lugo-Palacios et al. (2019)	Prospective cohort study	UK	Heywood, Middleton & Rochdale CCG	235,800	-	Telemonitoring	Non-significant reduction, DiD -76.4 (-264.9–112.1), p = 0.41
									Hospital admissions	Lugo-Palacios et al. (2019)	Prospective cohort study	UK	Heywood, Middleton & Rochdale CCG	235,800	-	Telemonitoring	Significant increase, DiD 79.8 (21.2–138.4), p = 0.01
Rahimian Model (Rahimian et al. 2018) [42]	UK	-	454,424	Machine Learning (Random Forest [RF], Gradient Boosting Classifier [GBC])	Hospital admissions	C = 0.85	-	-	-	-	-	-	-	-	-	-	-
Risk Stratification Index 3.0 (Greenwald et al. 2022) [60]	US	-	272,220	Machine Learning (Random Forest [RF], XGBoost, Auto ML, RuleFit)	Hospital admissions	C = 0.70	-	-	-	-	-	-	-	-	-	-	-
RxGroups	US	-	Information unavailable	Information unavailable	Healthcare costs	Information unavailable	-	-	Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.22	-	-
RxRisk (Fishman et al. 2003) [61]	US	Minnesota & Ohio	106,245	Regression	Healthcare costs	R2 = 0.09	-	-	Access of primary care services	Liu et al. (2003)	Observational study	US	-	126,076	R2 = 0.21	-	-
									Healthcare costs	Cumming et al. (2002)	Observational study	US	-	749,145	R2 = 0.18	-	-
SCAN Health Plan Model (Levine et al. 2011) [76]	US	California & Arizona	22,000	Information unavailable	Healthcare costs	Information unavailable	-	-	Emergency department attendance	Levine et al. (2012)	RCT	US	Los Angeles	298	-	Case management	Non-significant reduction, AD = 4.7%, $\chi^2 = 1.09$, p = 0.19
									Hospital admissions	Levine et al. (2012)	RCT	US	Los Angeles	298	-	Case management	Significant reduction, AD = 11.5%, $\chi^2 = 4.56$, p = 0.02