

Supplementary Data

Table S1: Socio-demographic description of the inhabitants of Norrtälje in proportions (%) and means from 2000-2015

	Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Variables	N=	10,249	10,460	10,660	10,801	10,921	11,114	11,330	11,704	12,242	12,832	13,103	13,893	14,580	15,039	15,481	16,011
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Sex	Male	45.29	45.38	45.54	45.72	45.83	46.07	46.44	46.69	46.80	47.11	47.15	47.47	47.79	48.05	48.08	47.98
	Female	54.71	54.62	54.46	54.28	54.17	53.93	53.56	53.31	53.20	52.89	52.85	52.53	52.21	51.95	51.92	52.02
Age Age groups	Mean in years	75.69	75.7	75.71	75.71	75.69	75.66	75.56	75.43	75.19	74.98	74.75	74.71	74.57	74.61	74.69	74.78
	65–79 years	74.82	73.85	72.74	72.49	72.53	72.70	72.44	73.11	73.89	74.49	75.74	75.83	76.88	77.12	77.24	77.70
	80+ years	25.18	26.15	27.26	27.51	27.47	27.30	27.56	26.89	26.11	25.51	24.26	24.17	23.12	22.88	22.76	22.30
Income	Group 1 (low)	31.00	29.75	29.37	35.54	36.59	35.62	31.29	31.64	31.23	30.75	30.95	30.43	29.21	29.29	28.95	28.22
	Group 2	21.98	23.15	22.32	22.07	21.32	21.51	20.56	20.30	19.80	19.54	19.64	20.15	25.33	25.32	25.21	25.14
	Group 3	19.01	18.12	19.32	17.33	17.21	16.72	18.87	19.28	19.84	20.60	20.38	2.50	17.25	17.90	17.74	18.27
	Group 4	14.06	14.56	14.50	14.95	14.74	15.25	16.92	17.06	16.76	16.97	16.96	34.38	15.49	15.07	15.35	15.30
	Group 5 (high)	9.02	9.71	9.55	9.99	10.03	10.80	12.10	11.44	12.18	11.86	11.77	12.27	11.98	11.69	11.99	12.39
Country of Birth	Missing	4.94	4.71	4.94	0.11	0.11	0.10	0.26	0.28	0.19	0.29	0.31	0.26	0.75	0.72	0.75	0.67
	Other	8.76	9.14	9.45	9.65	9.92	10.13	10.61	10.73	10.65	10.50	10.46	10.57	10.58	10.59	10.70	10.66
	Sweden	91.24	90.86	90.55	90.35	90.08	89.87	89.39	89.27	89.35	89.50	89.54	89.43	89.42	89.41	89.30	89.34
Living situation	Cohabiting	55.75	51.63	52.14	51.28	54.69	54.67	54.43	54.94	55.61	56.11	56.45	56.55	55.85	55.62	55.61	55.30
	Alone	44.25	43.30	43.02	43.74	45.31	45.33	45.57	45.06	44.39	43.89	43.55	43.45	44.15	44.38	44.39	44.70
ED utilisation	Missing		5.08	4.84	4.98												
	Died	4.84	4.58	4.84	4.98	4.77	4.87	4.57	4.37	4.23	4.11	4.25	4.05	3.61	3.78	3.40	3.49
	None	70.29	69.93	68.12	68.93	69.28	68.95	69.22	68.75	67.64	67.99	68.26	67.4	67.52	68.05	69.32	69.13
	1 visits	16.93	17.2	17.9	17.36	16.55	16.54	16.8	16.97	18.1	17.97	17.71	18.4	17.7	17.95	16.36	17.18
	2–3 visits	9.53	9.85	10.49	10.05	10.16	10.5	10.1	10.3	10.52	10.29	10.32	10.22	10.51	10.17	10.24	9.83
ED visits	4+ visits	3.25	3.02	3.49	3.67	4.01	4.01	3.87	3.98	3.74	3.76	3.72	3.97	4.27	3.83	4.08	3.85
	Mean no. visits	0.57	0.57	0.62	0.61	0.63	0.63	0.61	0.63	0.63	0.62	0.62	0.65	0.66	0.64	0.64	0.62

Table S2: Socio-demographic description of the inhabitants aged 65+ years of the rest of Stockholm County in proportions (%) and means from 2000-2015

	Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Variables	N=	261,608	262,922	262,398	263,688	265,654	268,125	272,192	278,409	286,508	296,660	307,293	316,813	326,014	334,981	343,047	349,958
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Sex	Male	40.19	40.41	40.66	40.97	41.27	41.6	41.88	42.25	42.7	43.08	43.44	43.71	43.94	44.15	44.33	44.57
	Female	59.81	59.59	59.34	59.03	58.73	58.4	58.12	57.75	57.3	56.92	56.56	56.29	56.06	55.85	55.67	55.43
Age groups	Mean in years	76.1	76.14	76.18	76.16	76.12	76.09	75.99	75.81	75.58	75.35	75.17	75.02	74.92	74.86	74.88	74.92
	65–79 years	68.06	67.19	66.67	66.41	66.27	66.22	66.62	67.45	68.41	69.56	70.47	71.39	72.24	73.08	73.65	74.08
Income	80+ years	31.94	32.81	33.33	33.59	33.73	33.78	33.38	32.55	31.59	30.44	29.53	28.61	27.76	26.92	26.35	25.92
	Group 1 (low)	18.47	18.17	18.5	19.21	19.13	19.14	19.33	19.37	19.37	19.39	19.35	20.03	19.33	19.31	19.33	19.4
	Group 2	18.86	18.9	18.51	19.88	19.93	19.84	19.9	19.9	19.93	19.84	19.96	19.66	19.51	19.47	19.52	19.59
	Group 3	18.97	18.95	19.31	20	20.04	20.15	19.91	19.94	19.89	19.87	19.88	19.87	19.87	19.87	19.85	19.88
	Group 4	19.17	19.27	19.12	20.1	20.12	20.11	20.01	20	20.05	20.01	20.01	20.02	19.94	19.96	19.97	20.03
	Group 5 (high)	19.23	19.29	19.17	20.26	20.26	20.25	20.16	20.19	20.19	20.17	20.21	20.26	20.11	20.12	20.11	20.16
Country of Birth	Missing	5.31	5.43	5.4	0.56	0.52	0.5	0.69	0.6	0.58	0.71	0.6	0.16	1.24	1.26	1.22	0.95
	Other	16.53	17.06	17.6	18.06	18.53	18.96	19.35	19.41	19.47	19.48	19.5	19.76	20.09	20.4	20.75	21.19
Living situation	Sweden	83.47	82.94	82.4	81.94	81.47	81.04	80.65	80.59	80.53	80.52	80.5	80.24	79.91	79.6	79.25	78.81
	Cohabiting	48.66	45.41	45.76	45.84	48.9	48.93	48.97	49.25	49.64	50.01	50.39	50.7	49.91	50.22	50.38	50.53
	Alone	51.23	49.07	49.31	49.3	51	50.97	50.84	50.57	50.18	49.81	49.45	49.14	50.09	49.78	49.62	49.47
	Missing	0.12	5.53	4.93	4.86	0.1	0.11	0.19	0.19	0.18	0.18	0.16	0.16				
ED utilisation	Died	4.83	4.79	4.93	4.86	4.68	4.69	4.64	4.61	4.42	4.13	4.15	4.04	3.93	3.73	3.77	3.8
	None	71.02	70.75	71.29	71.35	72.36	72.1	69.02	67.99	69.02	70.62	70.63	70.24	70.77	71.02	71.55	70.11
	1 visits	15.98	16.41	16.12	16.3	16	16.32	17.66	17.58	17.23	16.7	16.68	16.73	16.57	16.52	16.3	17.22
	2–3 visits	9.77	9.71	9.52	9.38	8.91	8.9	10.13	10.65	10.18	9.56	9.55	9.75	9.52	9.4	9.22	9.55
ED visits	4+ visits	3.23	3.13	3.07	2.98	2.73	2.67	3.18	3.78	3.57	3.13	3.14	3.28	3.14	3.06	2.93	3.13
	Mean no. visits	0.56	0.56	0.55	0.54	0.52	0.51	0.59	0.64	0.61	0.56	0.56	0.58	0.56	0.55	0.54	0.57

Table S3: Description of ED care utilisation among stratified sub-groups in Norrtälje and the rest of Stockholm County.

	Norrtälje		Rest of Stockholm	
	2000-06	2006-15	2000-06	2006-15
All inhabitants				
N=	10,726	13,680.3	264,398.9	312,187.4
Average no. per quarter	1614.2	2137.7	33,037.5	39,043.95
Average no. per quarter per person	0.1503	0.1562	0.1250	0.1252
Rate per quarter per 10,000 persons	1503.5	1562.7	1249.9	1251.5
Age adjusted rate per quarter per 10,000 persons	1478.84	1584.17	1210.8	1262.3
Males				
N=	4,899.6	6,490	108,124.6	135,840.5
Average no. per quarter	798.1	1052.1	13,812.8	16,731.2
Average no. per quarter per person	0.163	0.162	0.128	0.125
Rate per quarter per 10,000 persons	1627.1	1620.4	1278.3	1252.3
Age adjusted rate per quarter per 10,000 persons	1674.5	1728.0	1308.7	1338.1
Females				
N=	5826.4	7,190.3	156,266.3	176,346.8
Average no. per quarter	816.1	1085.6	19224.7	22061.8
Average no. per quarter per person	0.14	0.15	0.12	0.13
Rate per quarter per 10,000 persons	1399.5	1510.6	1230.3	1251.8
Age adjusted rate per quarter per 10,000 persons	1336.6	1493.6	1135.2	1217.1
65-79 years				
N=	7427.7	9957.4	176,590.6	221,647
Average no. per quarter	905.2	1280.7	17880.2	21705.8
Average no. per quarter per person	0.12	0.13	0.10	0.098
Rate per quarter per 10,000 persons	1218.1	1287.5	1012.7	980.9
Age adjusted rate per quarter per 10,000 persons	822.7	891.5	681.7	681.8
80+ years				
N=	3,298.3	3,722.9	87,800.2	90,540.4
Average no. per quarter	708.9	857	15157.2	17330.2
Average no. per quarter per person	0.22	0.23	0.17	0.19
Rate per quarter per 10,000 persons	2145.8	2298.3	1727.0	1915.0
Age adjusted rate per quarter per 10,000 persons	660.05	700.57	529.3	580.4
Lowest income				
N=	3,536	4,060	49,630	60,637.3
Average no. per quarter	563.1	646.5	6843.5	7934.1
Average no. per quarter per person	0.158	0.159	0.14	0.13
Rate per quarter per 10,000 persons	1582.2	1593	1377.8	1307.4
Age adjusted rate per quarter per 10,000 persons	1449.6	1553.1	1261.9	1289.5
Living alone				
N=	4,744.1	6,061.2	132,660.9	155,606.1
Average no. per quarter	784.5	1071.2	17902.2	22492.0
Average no. per quarter per person	0.17	0.18	0.13	0.15
Rate per quarter per 10,000 persons	1650.3	1764.4	1349.2	1445.2
Age adjusted rate per quarter per 10,000 persons	1538.2	1676.6	1249.7	1360.9
Born outside of Sweden				
N=	1,026	1,451	47,216.8	62,437.7
Average no. per quarter	150.1	245.4	5679.6	7925.4
Average no. per quarter per person	0.15	0.17	0.12	0.13
Rate per quarter per 10,000 persons	1452.4	1683.0	1204.1	1268.3
Age adjusted rate per quarter per 10,000 persons	1591.5	1748.0	1250.0	1312.8

Supplementary figures corresponding to stratified analysis of socio-demographic sub-groups in Norrtälje municipality, the figures correspond to the estimates present in Table 1 of the main text.

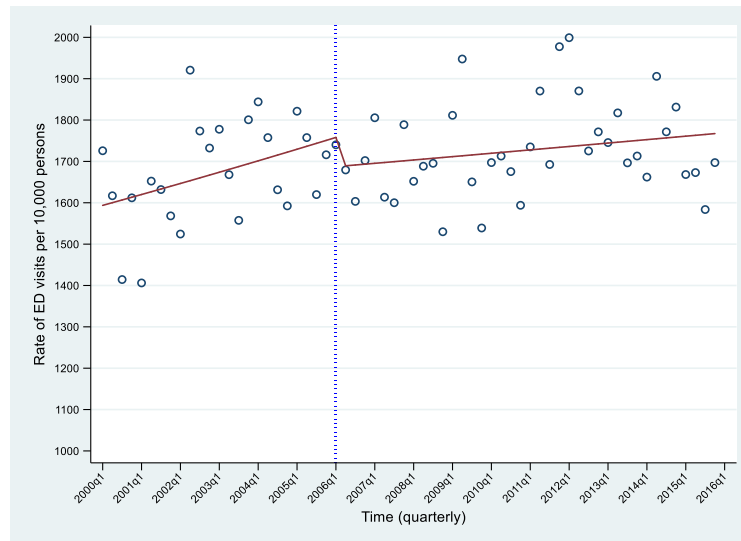


Figure S1: The trend in the rate of ED visits among male inhabitants in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid lines represent the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

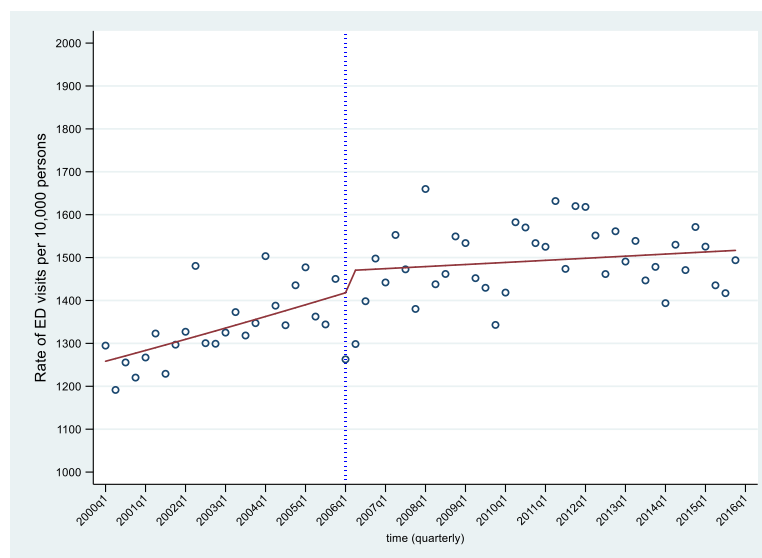


Figure S2: The trend in the rate of ED visits among female inhabitants in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid lines represent the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

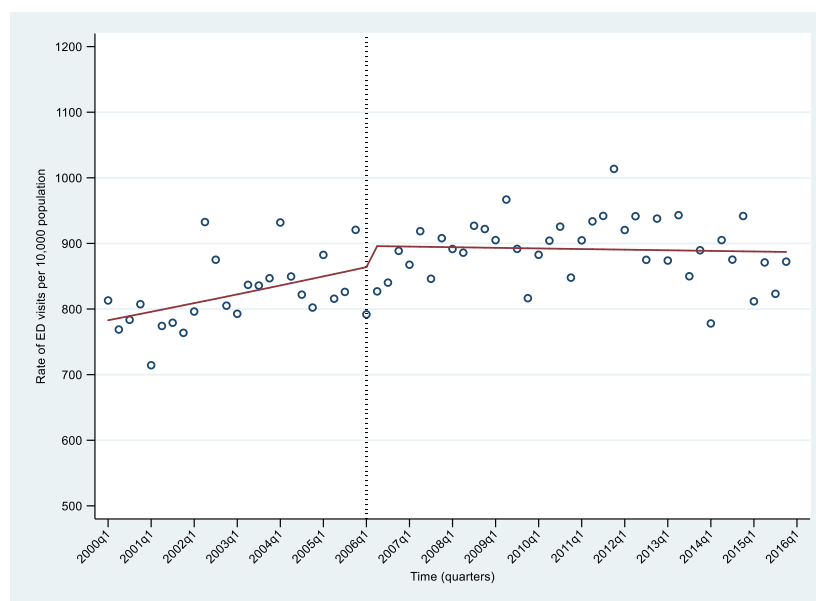


Figure S3: The trend in the rate of ED visits among all those 65-79 years in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid lines represent the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

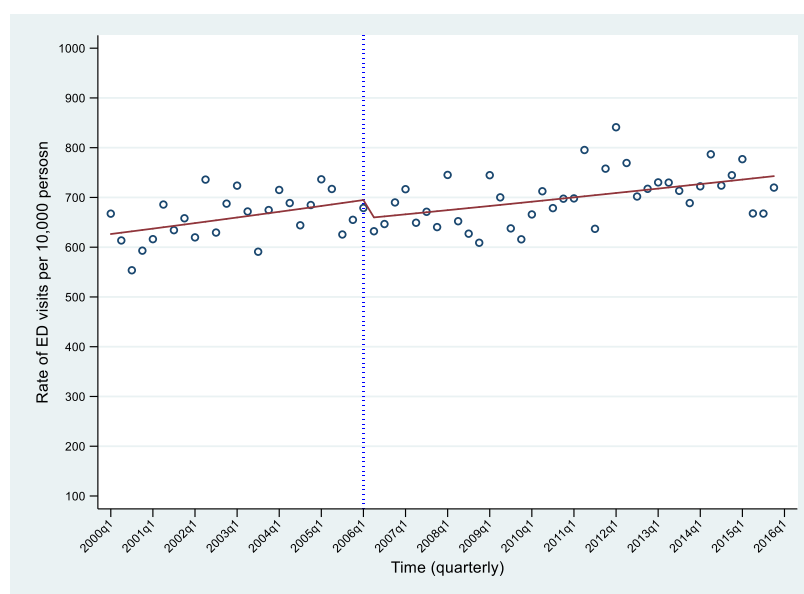


Figure S4: The trend in the rate of ED visits among all those 80+ years in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid lines represent the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

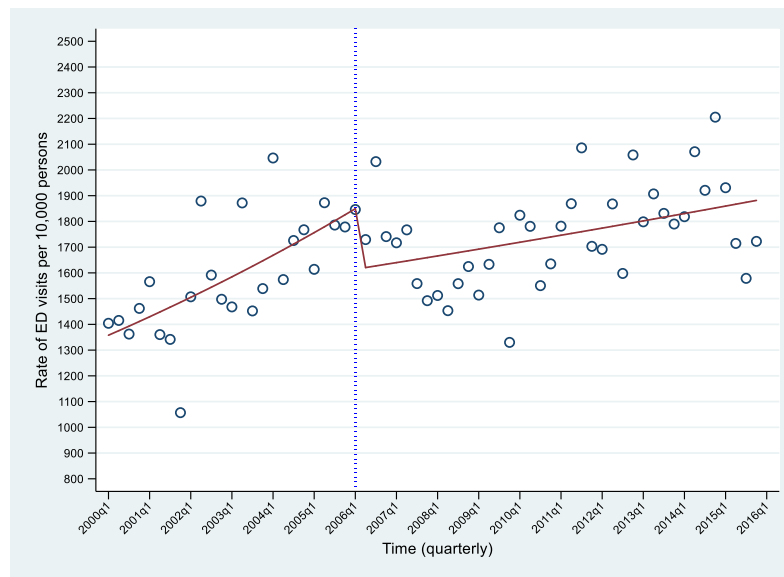


Figure S5: The trend in the rate of ED visits among all those born outside of Sweden living in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid line represents the smooth trend of the rate of ED visits.

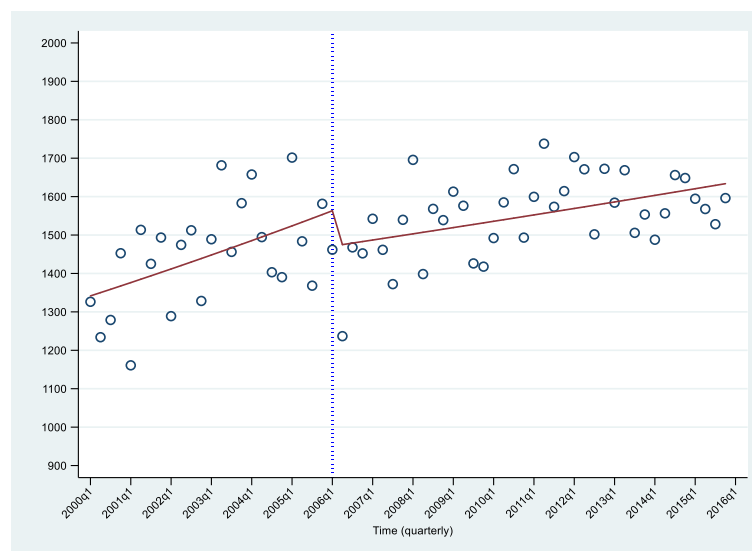


Figure S6: The trend in the rate of ED visits among all those in the lowest income group in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid line represents the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

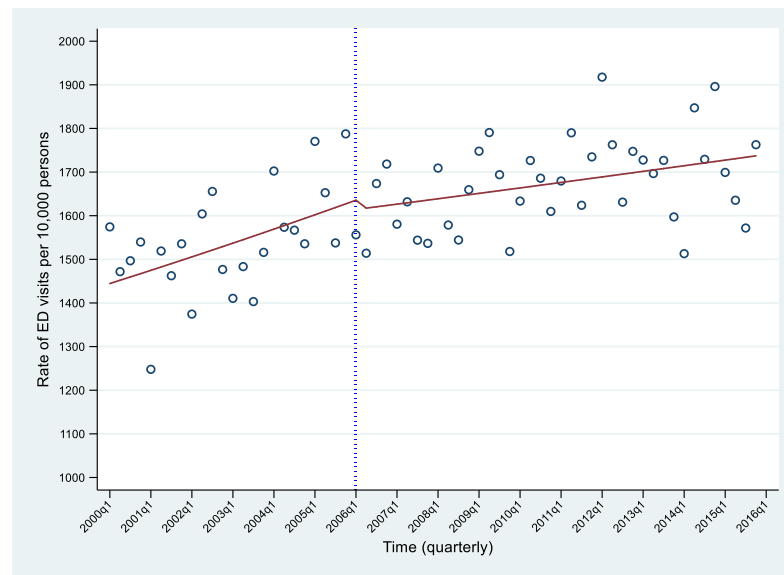


Figure S7: The trend in the rate of ED visits among all those living alone in Norrtälje from 2000q1 to 2015q4. The circles represent the observed rate of ED visits per quarter per 10,000 persons, the vertical line represents the point where IC was implemented in Norrtälje. The solid lines represent the changes in the trend of the rate of ED visits in the pre-and post-intervention periods.

Sensitivity Analysis

In the pre-intervention period 2000q1 to 2005q4 the trend of the rate of ED visits was increasing, following the implementation of IC, there was no significant level change (IRR: 0.971 CI 0.908 to 1.038), followed by a moderately decreasing change in the trend (IRR: 0.999 CI: 0.996 to 1.01) in the post-intervention period relative to the pre-intervention period, however, this trend change was not significant. Though the changes in the rate of ED visits were not significant during the shortened study period 2000-2008. The trend follows the same direction as the observed in the main text figure 2, but the change was not as strong with the shorter follow-up period 2000-2008.

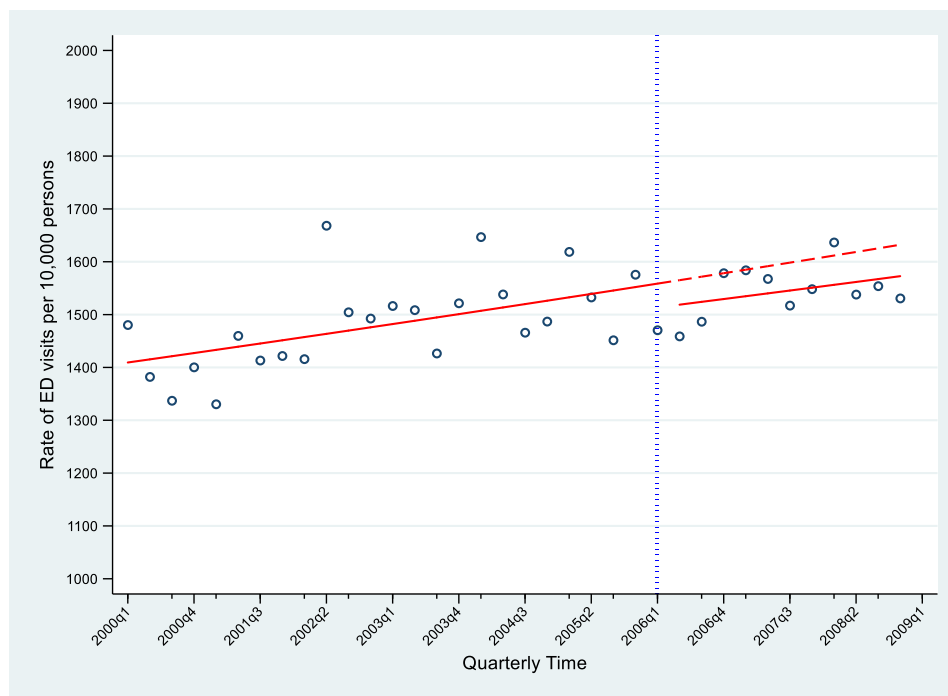


Figure S8: The trend in the rate of ED visits among all inhabitants 65+ years in Norrtälje from 2000q1 to 2008q4. The circles represent the observed rate of ED visits per 10,000 persons, the vertical line represents the implementation of integrated care (post-intervention trend from 2006q1) The solid line represents the temporal trend, and the step at the postintervention period is the estimated effect and the dashed red line represents the counterfactual trend if integrated care was not implemented in Norrtälje.