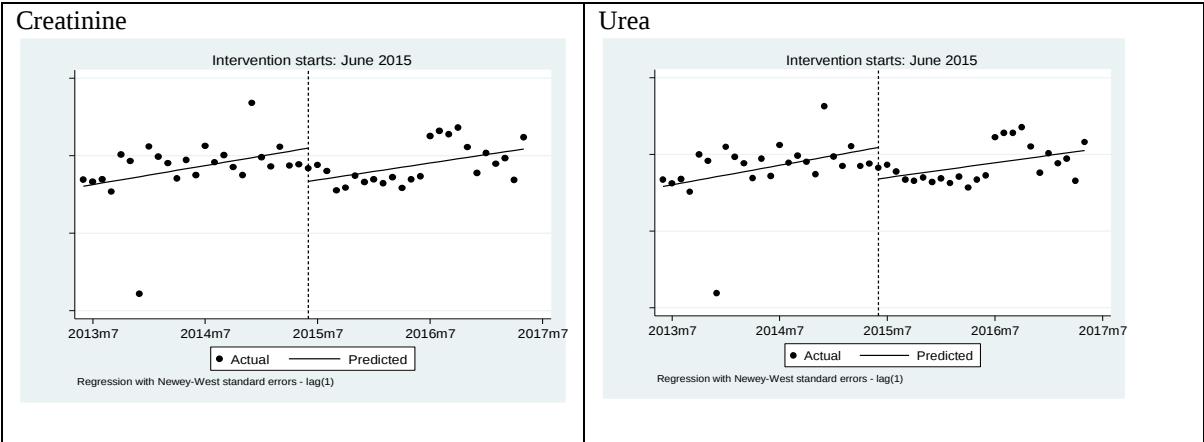


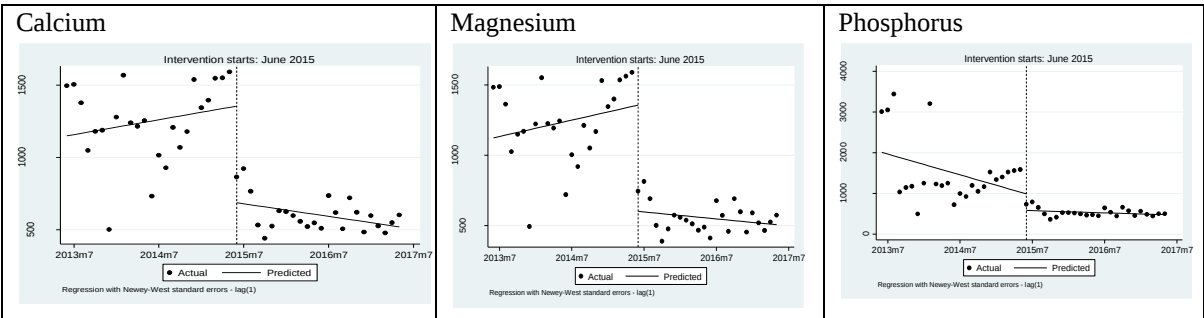
Supplementary File (Figures and tables)



SUPPLEMENTARY FIGURE 1. Trends on expenditure for Urea and Creatinine. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 1: Regression results for Urea and Creatinine. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

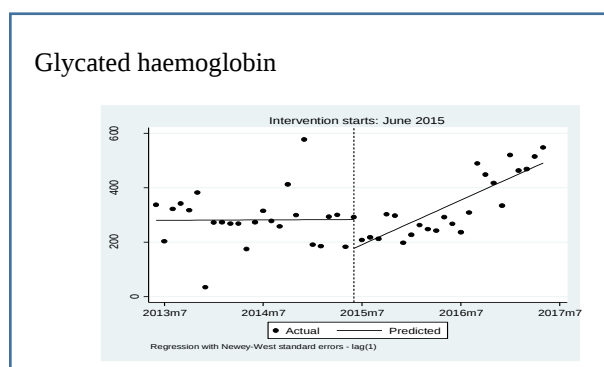
Test type	Coefficient	p value	[95%CI]	
Creatinine	B ₀ : 5169.95	<0.001	4562.81	5777.08
	B ₁ : 40.96	0.022	6.31	75.62
	B ₂ : -856.95	0.002	1382.89	-331.01
	B ₃ : -4.67	0.826	-47.35	38.01
	<i>Post intervention linear trend</i>	<i>0.007</i>	<i>10.27</i>	<i>62.31</i>
Urea	B ₀ : 5122.02	<0.001	4513.10	5730.94
	B ₁ : 42.31	0.017	7.85	76.77
	B ₂ : -817.60	0.002	1310.12	-325.09
	B ₃ : -10.20	0.623	-51.74	31.33
	<i>Post intervention linear trend</i>	<i>0.011</i>	<i>7.91</i>	<i>56.31</i>



SUPPLEMENTARY FIGURE 2. Trends on expenditure for calcium, magnesium and phosphate. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 2: Regression results for calcium, magnesium and phosphate. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

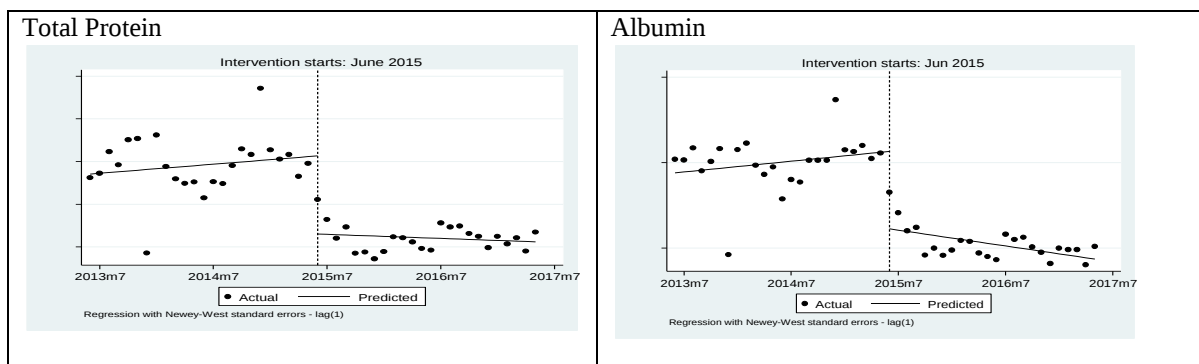
Test type	Coefficient	p value	[95%CI]	
Calcium	B ₀ : 1140.75	<0.001	847.98	1433.52
	B ₁ : 8.56	0.362	-10.19	27.32
	B ₂ : -667.38	<0.001	-944.63	-390.13
	B ₃ : -15.82	0.147	-37.38	5.75
	<i>Post intervention linear trend</i>	<i>0.139</i>	<i>-16.95</i>	<i>2.44</i>
Magnesium	B ₀ : 1114.25	<0.001	815.61	1412.89
	B ₁ : 9.68	0.314	-9.47	28.83
	B ₂ : -754.78	<0.001	-1025.83	-483.74
	B ₃ : -13.81	0.198	-35.09	7.48
	<i>Post intervention linear trend</i>	<i>0.328</i>	<i>-12.54</i>	<i>4.28</i>
Phosphate	B ₀ : 2051.49	<0.001	1029.44	3073.55
	B ₁ : -42.41	0.164	-102.72	19.91
	B ₂ : -408.63	0.178	-1010.80	193.55
	B ₃ : 37.95	0.218	-23.26	99.14
	<i>Post intervention linear trend</i>	<i>0.290</i>	<i>-12.85</i>	<i>3.93</i>



SUPPLEMENTARY FIGURE 3. Trends on expenditure for HbA1c. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 3: Regression results for HbA1c. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

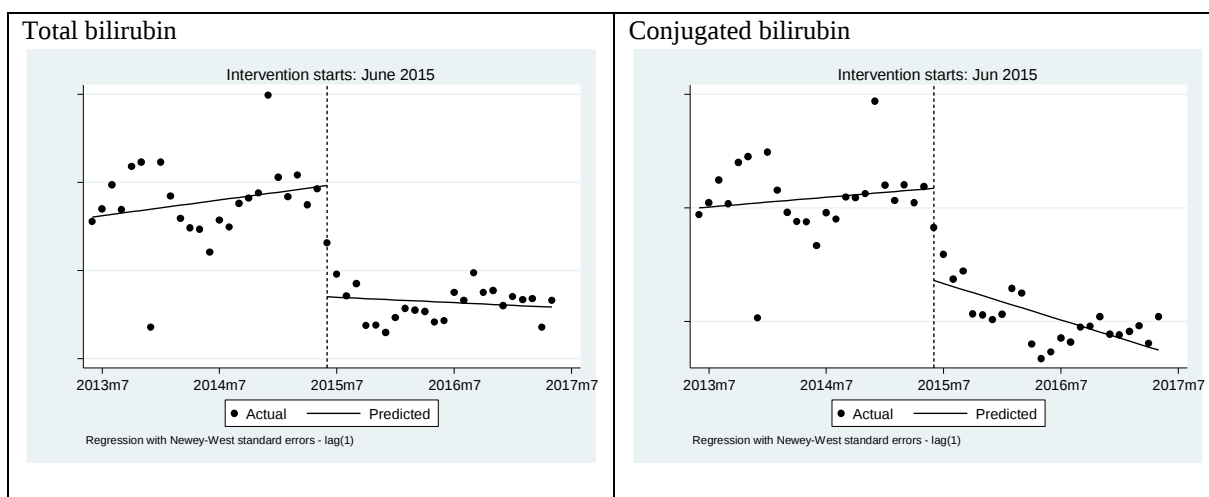
Test type	Coefficient	p value	[95%CI]	
HbA1c	B ₀ : 280.24	<0.001	213.90	346.57
	B ₁ : 0.12	0.964	-5.19	5.43
	B ₂ : -105.84	0.057	-214.80	3.11
	B ₃ : 13.50	<0.001	7.35	19.65
<i>Post intervention linear trend</i>	<i>13.62</i>	<i><0.001</i>	<i>9.78</i>	<i>17.45</i>



SUPPLEMENTARY FIGURE 4. Trends on expenditure for total protein and albumin. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 4: Regression results for total protein and albumin. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

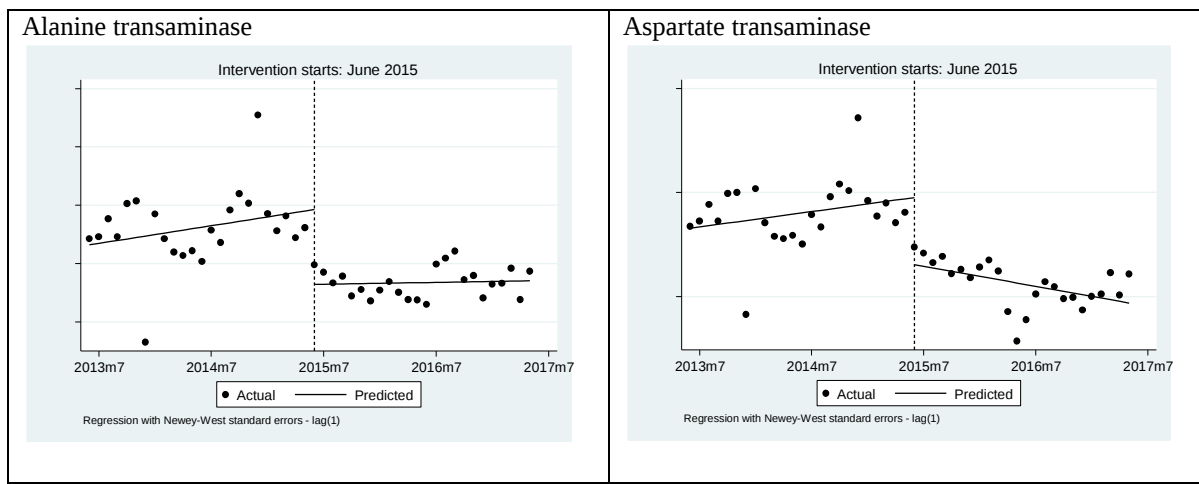
	Coefficient	p value	[95%CI]	
Total protein	B ₀ : 1844.45	<0.001	1599.68	2089.22
	B ₁ : 8.85	0.301	-8.18	25.89
	B ₂ : -914.47	<0.001	-1253.35	-575.59
	B ₃ : -12.83	0.219	-33.58	7.92
	<i>Post intervention linear trend</i>	<i>0.522</i>	<i>-16.40</i>	<i>8.45</i>
Albumin	B ₀ : 3736.99	<0.001	3248.15	4225.83
	B ₁ : 20.98	0.161	-8.70	50.61
	B ₂ : -1813.12	<0.001	-2401.82	-1224.4
	B ₃ : -51.67	0.012	-91.55	-11.79
	<i>Post intervention linear trend</i>	<i>0.026</i>	<i>-57.50</i>	<i>-3.93</i>



SUPPLEMENTARY FIGURE 5. Trends on expenditure for total bilirubin and conjugated bilirubin. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 5: Regression results for total bilirubin and conjugated bilirubin. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

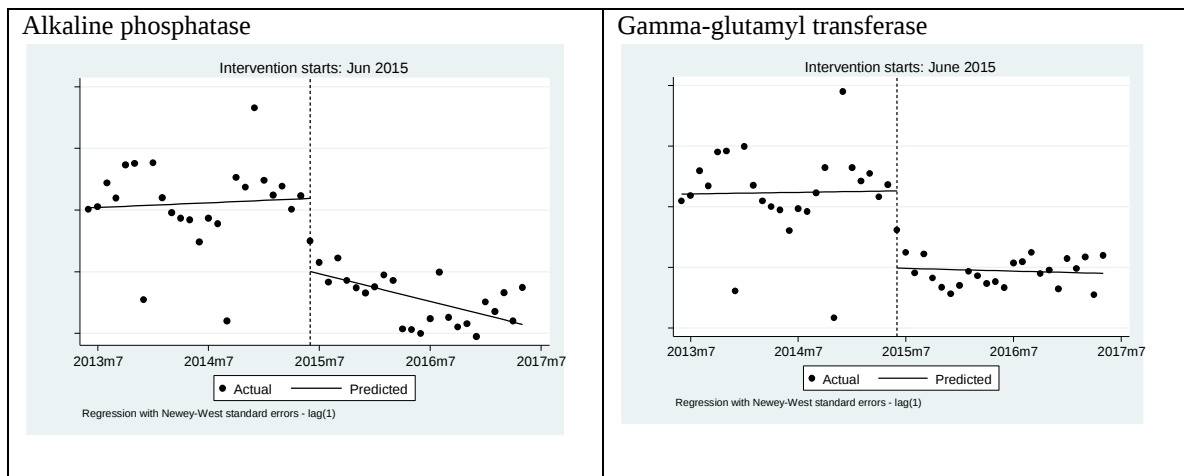
Test type	Coefficient	p value	[95%CI]	
Total bilirubin	B ₀ : 2592.19	<0.001	2259.27	2925.10
	B ₁ : 14.81	0.179	-7.04	36.66
	B ₂ : -1259.99	<0.001	-1711.70	-808.28
	B ₃ : -19.88	0.173	-48.83	9.06
<i>Post intervention linear trend</i>	-5.07	0.596	-24.21	14.06
Conjugated bilirubin	B ₀ : 1992.92	<0.001	1752.27	2233.56
	B ₁ : 7.13	0.355	-8.26	22.54
	B ₂ : -810.57	<0.001	-1145.42	-475.71
	B ₃ : -33.76	0.004	-56.35	-11.17
<i>Post intervention linear trend</i>	-26.62	0.002	-43.01	-10.24



SUPPLEMENTARY FIGURE 6. Trends on expenditure for alanine transaminase and aspartate transaminase. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 6. Regression results for alanine transaminase and aspartate transaminase. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

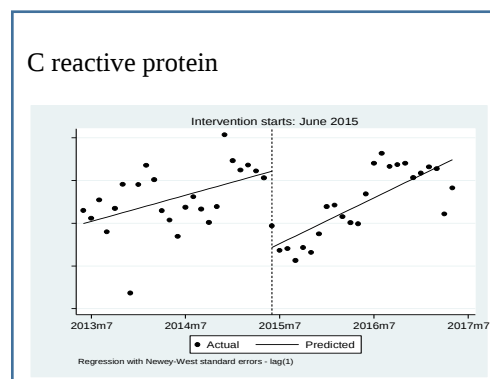
Test type	Coefficient	p value	[95%CI]	
ALT	B ₀ : 3294.78	<0.001	2835.89	3753.67
	B ₁ : 25.20	0.146	-9.15	59.56
	B ₂ : -1283.30	<0.001	-1879.07	-687.53
	B ₃ : -22.46	0.219	-58.77	13.85
<i>Post intervention linear trend</i>	2.74	0.683	-10.69	16.17
AST	B ₀ : 3289.77	<0.001	2851.11	3728.43
	B ₁ : 24.55	0.140	-8.36	57.46
	B ₂ : -1288.06	<0.001	-1904.92	-671.20
	B ₃ : -56.63	0.005	-95.41	-17.85
<i>Post intervention linear trend</i>	-32.08	0.004	-53.54	-10.62



SUPPLEMENTARY FIGURE 7. Trends on expenditure for alkaline phosphatase and gamma-glutamyl transferase. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 7: Regression results for alkaline phosphatase and gamma-glutamyl transferase. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

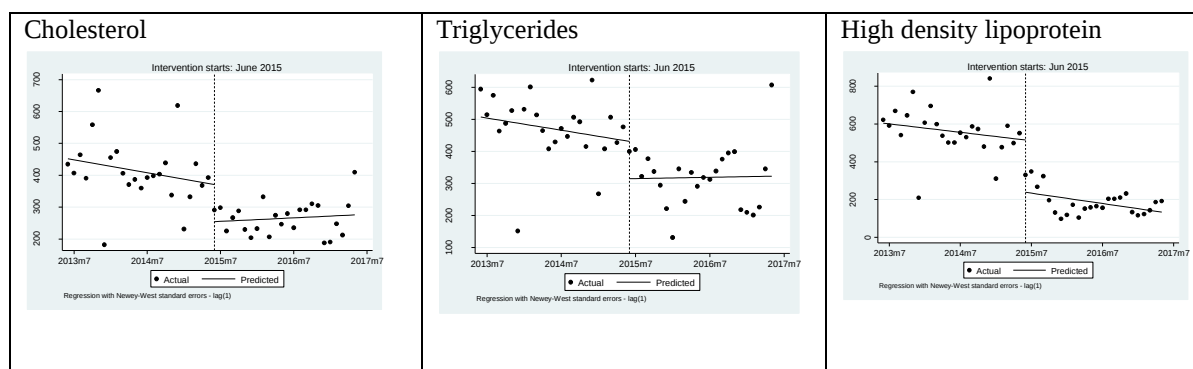
Test type	Coefficient	p value	[95%CI]	
ALP	B ₀ : 3028.49	<0.001	2621.76	3435.21
	B ₁ : 6.36	0.690	-25.57	38.29
	B ₂ : -1183.30	<0.001	-1808.99	-556.62
	B ₃ : -43.63	0.028	-82.40	-4.86
	<i>Post intervention linear trend</i>	<i>0.001</i>	<i>-59.01</i>	<i>-15.53</i>
GGT	B ₀ : 3206.25	<0.001	2789.96	3622.54
	B ₁ : 2.18	0.887	-28.48	32.84
	B ₂ : -1272.27	<0.001	-1846.81	-697.73
	B ₃ : -5.91	0.748	-42.76	30.93
	<i>Post intervention linear trend</i>	<i>0.704</i>	<i>-23.43</i>	<i>15.96</i>



SUPPLEMENTARY FIGURE 8. Trends on expenditure for C-reactive protein The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 8. Regression results for c-reactive protein. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

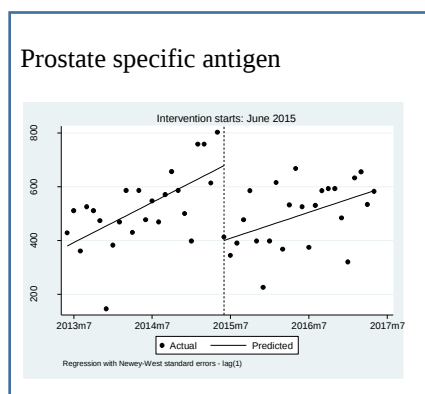
Test type	Coefficient	p value	[95%CI]	
CRP	B ₀ : 2938.91	<0.001	2466.79	3411.03
	B ₁ : 51.04	0.001	20.75	81.34
	B ₂ : -1784.05	<0.001	-2428.15	-1139.95
	B ₃ : 38.22	0.128	-11.45	87.90
<i>Post intervention linear trend</i>	89.26	<0.001	49.59	128.93



SUPPLEMENTARY FIGURE 9. Trends on expenditure for cholesterol, triglycerides, high density lipoprotein. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 9. Regression results for cholesterol, triglycerides, high density lipoprotein. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

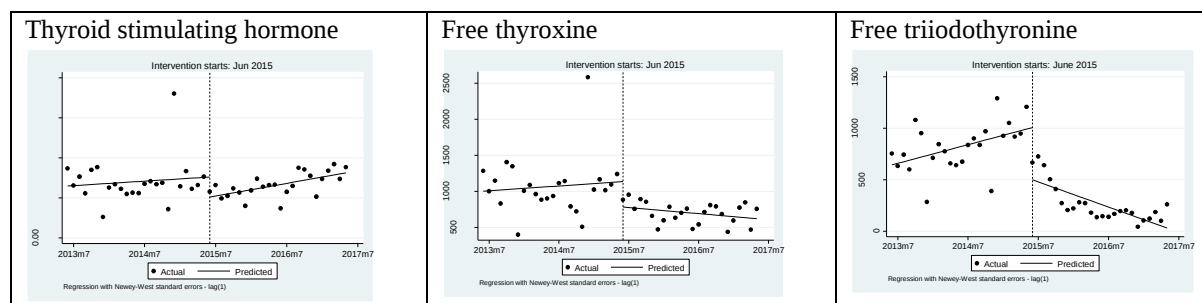
Test type	Coefficient	p value	[95%CI]	
Cholesterol	B ₀ : 454.86	<0.001	379.19	530.53
	B ₁ : -3.36	0.148	-7.96	1.24
	B ₂ : -116.26	0.001	-183.43	-49.09
	B ₃ : 4.29	0.173	-1.95	10.52
<i>Post intervention linear trend</i>	0.92	0.658	-3.26	5.10
Triglycerides	B ₀ : 510.27	<0.001	428.56	591.97
	B ₁ : -3.16	0.191	-7.94	1.63
	B ₂ : -116.33	0.026	-218.16	-14.50
	B ₃ : 3.49	0.478	-6.35	13.34
<i>Post intervention linear trend</i>	0.34	0.937	-8.18	8.85
High density lipoprotein	B ₀ : 607.96	<0.001	527.34	688.58
	B ₁ : -3.72	0.151	-8.85	1.41
	B ₂ : -276.38	<0.001	-386.24	-166.53
	B ₃ : -0.83	0.824	-8.32	6.66
<i>Post intervention linear trend</i>	-4.55	0.093	-9.89	0.79



SUPPLEMENTARY FIGURE 10. Trends on expenditure for prostate specific antigen. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 10. Regression results for prostate specific antigen. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

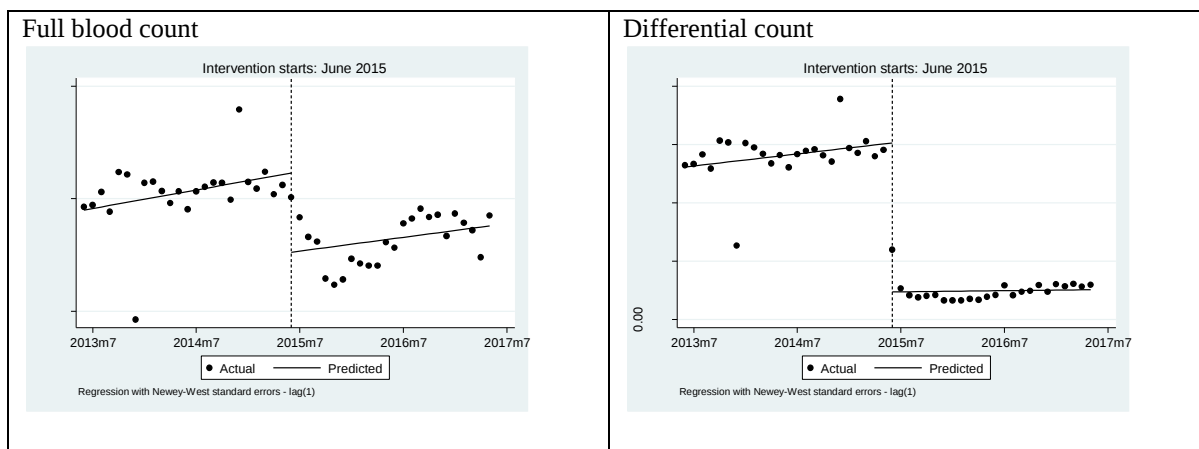
Test type	Coefficient	p value	[95%CI]	
PSA	B_0 : 367.40	<0.001	264.80	469.99
	B_1 : 12.44	0.001	5.36	19.53
	B_2 : -278.20	<0.001	-404.15	-152.26
	B_3 : -4.39	0.332	-13.42	4.64
Post intervention linear trend	8.05	0.005	2.51	13.58



SUPPLEMENTARY FIGURE 11. Trends on expenditure for thyroid stimulating hormone, thyroxine, tri-iodothyronine. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 11. Regression results for thyroid stimulating hormone, thyroxine, tri-iodothyronine. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

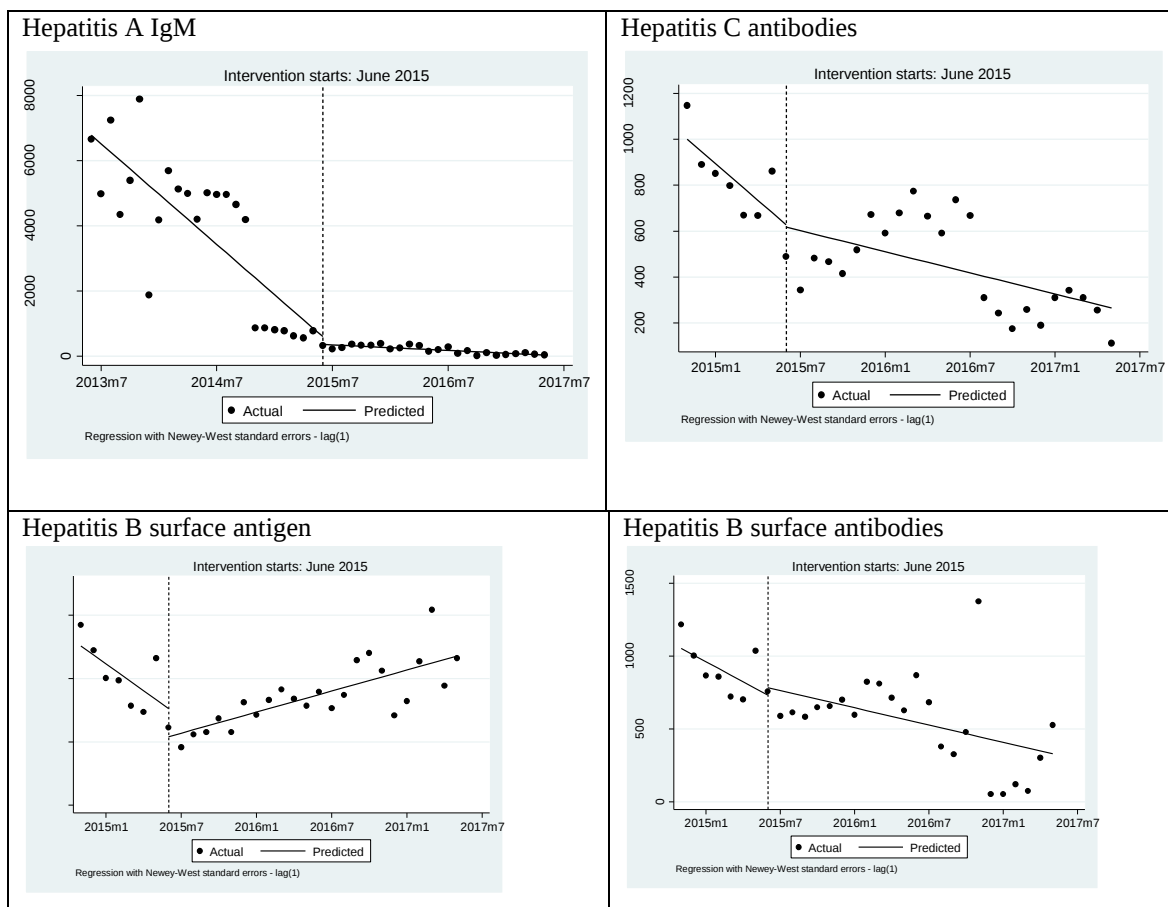
Test type	Coefficient	p value	[95%CI]	
TSH	B ₀ : 1287.02	<0.001	988.94	1585.10
	B ₁ : 9.39	0.477	-16.96	35.74
	B ₂ : -500.21	0.041	-977.97	-22.44
	B ₃ : 16.87	0.247	-12.09	45.83
	<i>Post intervention linear trend</i>	<i><0.001</i>	<i>14.30</i>	<i>38.22</i>
FT4	B ₀ : 996.65	<0.001	780.14	1213.16
	B ₁ : 5.53	0.566	-13.76	24.81
	B ₂ : -352.03	0.053	-709.53	5.47
	B ₃ : -12.59	0.240	-33.91	8.73
	<i>Post intervention linear trend</i>	<i>0.114</i>	<i>-15.88</i>	<i>1.76</i>
FT3	B ₀ : 629.38	<0.001	472.72	786.05
	B ₁ : 15.09	0.003	5.27	24.90
	B ₂ : -506.62	<0.001	-709.56	-303.67
	B ₃ : -35.41	<0.001	-50.98	-19.83
	<i>Post intervention linear trend</i>	<i>0.001</i>	<i>-31.73</i>	<i>-8.91</i>



SUPPLEMENTARY FIGURE 12. Trends on expenditure for full blood count and differential count. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 12. Regression results for full blood count and differential count. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

Test type	Coefficient	p value	[95%CI]	
FBC	B ₀ : 9426.11	<0.001	8306.47	10545.75
	B ₁ : 68.50	0.044	1.83	135.17
	B ₂ : -3518.21	<0.001	-5232.42	-1804.00
	B ₃ : -17.61	0.749	-127.93	92.70
	<i>Post intervention linear trend</i>	<i>0.264</i>	<i>-39.79</i>	<i>141.56</i>
DIFF	B ₀ : 5193.98	<0.001	4594.78	5793.17
	B ₁ : 34.4	0.056	-0.96	69.76
	B ₂ : -5103.73	<0.001	-5813.29	-4394.18
	B ₃ : -31.17	0.192	-78.61	16.26
	<i>Post intervention linear trend</i>	<i>0.848</i>	<i>-30.46</i>	<i>36.92</i>



SUPPLEMENTARY FIGURE 13. Trends on expenditure for Hepatitis A IgM, Hepatitis B surface antigen, Hepatitis B surface antibody, Hepatitis C antibody. The dotted vertical line on June 2015 indicates the beginning of the intervention. The dotted trend indicates the actual test expenditures and the solid trend indicates the predicted test expenditures.

SUPPLEMENTARY TABLE 13: Regression results for Hepatitis A IgM, Hepatitis B surface antigen, Hepatitis B surface antibody, Hepatitis C antibody. The coefficient shows the amount by which the expenditure is expected to increase if the coefficient is positive or decrease if the coefficient is negative. The p-value indicates the statistical significance of the expenditure increase or decrease.

Test type	Coefficient	p value	[95%CI]	
HAM	B ₀ : 7031.93	<0.001	6023.4	8040.81
	B ₁ : -257.11	<0.001	-326.59	-187.62
	B ₂ : -238.47	0.673	-1369.64	892.71
	B ₃ : 242.95	<0.001	173.32	312.58
	<i>Post intervention linear trend</i>	<0.001	-18.46	-9.86
HBSAG	B ₀ : 1162.97	<0.001	923.61	1402.32
	B ₁ : -56.53	0.094	-123.44	10.38
	B ₂ : -177.74	0.281	-509.22	153.74
	B ₃ : 78.70	0.025	10.70	146.70
	<i>Post intervention linear trend</i>	<0.001	13.89	30.46
HBSAB	B ₀ : 1098.02	<0.001	836.87	1359.16
	B ₁ : -45.75	0.186	-114.91	23.41
	B ₂ : 52.07	0.776	-319.51	423.67
	B ₃ : 26.01	0.458	-44.93	96.95
	<i>Post intervention linear trend</i>	0.023	-36.57	-2.91

HCAB	B ₀ : 1052.36	<0.001	850.07	1254.65
	B ₁ : -53.03	0.186	-104.66	-1.39
	B ₂ : -10.58	0.776	-328.12	306.97
	B ₃ : 37.71	0.458	-13.90	89.32
<i>Post intervention linear trend</i>	<i>-15.31</i>	<i>0.007</i>	<i>-26.15</i>	<i>-4.47</i>

SUPPLEMENTARY TABLE 14. Test expenditure, test volumes and hospital patient volumes. The table shows the volumes on inpatients days, outpatients, the number of tests done and expenditure 24 months before and 24 months during the EGK intervention

Month	Year	Inpatient days	Outpatient head count	No of tests	Amount (\$)	Year	Inpatient days	Outpatient head count	No of tests	Amount (\$)
Pre EGK						During EGK				
June	2013	13658	6257	27798	71 052,96	2015	14769	13791	22696	55 701,49
July	2013	13882	7648	27668	68 741,58	2015	15688	14670	20660	50 623,09
Aug	2013	14177	7895	20660	75 718,08	2015	15313	13854	18795	46 171,73
Sep	2013	14261	7693	25884	63 692,11	2015	14930	15052	18819	46 065,70
Oct	2013	13524	8470	30192	75 754,47	2015	15400	16378	16565	41 404,52
Nov	2013	14079	7976	30942	79 038,85	2015	15026	15407	16723	40 995,06
Dec	2013	11583	3712	12258	30 285,50	2015	13576	10485	16336	40 048,53
Jan	2014	13678	6775	29433	74 246,46	2016	13769	11486	17414	43 056,22
Feb	2014	13136	7552	28964	75 497,72	2016	14149	12777	18068	45 633,98
Mar	2014	14877	7170	26481	68 446,72	2016	14616	12166	17741	44 238,42
Apr	2014	13960	13615	25076	64 480,97	2016	14660	12811	16197	40 863,29
May	2014	15290	13479	25904	65 676,31	2016	14536	15475	16365	41 297,28
Jun	2014	13906	12963	23129	60 090,50	2016	14460	14995	16653	41 565,58
Jul	2014	15012	13989	26485	68 282,08	2016	16351	14578	19419	49 544,08
Aug	2014	14867	11362	25705	66 910,66	2016	16045	15067	19587	50 320,66
Sep	2014	15289	13989	27046	68 556,99	2016	14823	15647	19602	51 140,94
Oct	2014	14875	15174	27544	70 497,93	2016	14581	15436	19368	50 031,85
Nov	2014	14174	14187	26130	65 212,05	2016	14333	16791	18952	49 855,38
Dec	2014	12224	10595	36962	96 054,60	2016	13683	10587	16256	41 537,59
Jan	2015	13440	12095	28344	71 586,24	2017	13433	12925	18449	47 325,44
Feb	2015	13302	14085	27501	70 330,20	2017	13849	14646	17886	46 903,67
Mar	2015	14929	15097	29284	73 507,86	2017	14241	15284	18473	48 669,25
Apr	2015	13930	13465	28000	68 073,74	2017	12601	13537	15215	41 306,86
May	2015	14230	13024	29328	72 022,14	2017	13972	15866	18551	50736,26
Total		336283	258267	646 718	1 663 756,72		348804	339 711	434 790	1 105 036,88