Supplementary files

Table S1. Counts of PPI dispensings, discontinuations and switches to any lower strength PPI stratified by medicine and strength, in the year before (April 2014 – April 2015) and the year after (May 2016 – May 2017) the NPS MedicineWise program and Choosing Wisely recommendations.

PPI dispensings, n (%)	**Year before initiatives** April 2014 – April 2015		**Year after initiatives** May 2016 – May 2017	
Any PPI	1,972,328	(100)	2,050,768	(100)
omeprazole	244,730	(12.4)	216,101	(10.5)
standard strength	241,000	(12.2)	211,667	(10.3)
low strength	3730	(0.2)	4434	(0.2)
pantoprazole	569,309	(28.9)	636,847	(31.1)
standard strength	495,503	(25.1)	542,022	(26.4)
low strength	73,806	(3.7)	94,825	(4.6)
lansoprazole	52,831	(2.7)	48,199	(2.4)
standard strength	50,603	(2.6)	45,769	(2.2)
low strength	2228	(0.1)	2430	(0.1)
rabeprazole	272,347	(13.8)	263,896	(12.9)
standard strength	262,340	(13.3)	252,381	(12.3)
low strength	10,007	(0.5)	11,515	(0.6)
esomeprazole	833,111	(42.2)	885,725	(43.2)
high strength	344,739	(17.5)	357,393	(17.4)
standard strength	488,372	(24.8)	528,332	(25.8)
PPI discontinuation, n (%) *	**Year before initiatives** April 2014 – April 2015		**Year after initiatives** May 2016 – May 2017	
Any PPI	180,012	(100)	194,447	(100)
omeprazole	16,463	(9.2)	15,949	(8.2)
standard strength	16,085	(8.9)	15,457	(8.0)
low strength	378	(0.2)	492	(0.3)
pantoprazole	51,622	(28.7)	60,646	(31.2)
standard strength	44,431	(24.7)	51,473	(26.5)
low strength	7191	(4.0)	9173	(4.7)

lansoprazole	3349	(1.9)	3209	(1.7)
standard strength	3166	(1.8)	3002	(1.5)
low strength	183	(0.1)	207	(0.1)
rabeprazole	22,471	(12.5)	21,084	(10.8)
standard strength	21,540	(12.0)	20,054	(10.3)
low strength	931	(0.5)	1030	(0.5)
esomeprazole	86,107	(47.8)	93,559	(48.1)
high strength	50,654	(28.1)	53,144	(27.3)
standard strength	35,453	(19.7)	40,415	(20.8)
rabeprazole	22,471	(12.5)	21,084	(10.8)
standard strength	21,540	(12.0)	20,054	(10.3)
low strength	931	(0.5)	1030	(0.5)
esomeprazole	86,107	(47.8)	93,559	(48.1)
high strength	50,654	(28.1)	53,144	(27.3)
standard strength	35,453	(19.7)	40,415	(20.8)
Switches to any lower strength PPI, n (%)†	**Year before initiatives** April 2014 – April 2015		**Year after initiatives** May 2016 – May 2017	
from any PPI	35,538	(100)	40,201	(100)
from **omeprazole** standard to any low strength	572	(1.6)	642	(1.6)
from **pantoprazole** standard to any low strength	4200	(11.8)	5860	(14.6)
from **lansoprazole** standard to any low strength	154	(0.4)	228	(0.6)
from **rabeprazole** standard to any low strength	911	(2.6)	1195	(3.0)
from **esomeprazole**‡ high to any standard strength	28,272	(79.6)	30,341	(75.5)
from **esomeprazole** high to any low strength	655	(1.8)	899	(2.2)
from **esomeprazole** standard to any low strength	774	(2.2)	1036	(2.6)

*Stratified by first medicine dispensed within the course of treatment.
† Stratified by higher strength medicine person switched from
‡ Esomeprazole was further stratified as it was the only medicine to have both a high and standard strength formulations on market. No low strength esomeprazole was publicly subsidised in Australia

Table S2. Change in the monthly dispensing counts and rates of discontinuation among **concessional beneficiaries** at each intervention point, estimated using autoregressive integrated moving average (ARIMA) models adjusted for seasonality.

	Seasonal ARIMA model specification*	Mean monthly dispensings†	Level shift‡ from April 2015 % (95% CI)	Level shift‡ from May 2016 % (95% CI)
Dispensing counts				
PPIs	$(2,1,0)\ (0,1,0)_{12}$	101,790	0.8 (-0.5 to 2.0)	-1.8 (-2.9 to -0.7)
high strength	$(0,1,1)\ (0,1,0)_{12}$	18,585	1.0 (-1.6 to 3.6)	-0.6 (-2.8 to 2.2)
standard strength	$(2,1,0)\ (0,1,0)_{12}$	78,705	0.8 (-0.5 to 2.1)	-2.2 (-3.2 to -1.1)
low strength	$(0,1,1)\ (0,1,0)_{12}$	4,500	1.2 (-1.3 to 3.8)	-0.2 (-2.7 to 2.4)
statins (control)	$(2,1,0)\ (0,1,0)_{12}$	117,869	0.6 (-1.1 to 2.3)	-2.2 (-3.6 to -0.7)
Treatment discontinuation			**(95% CI)**	**(95% CI)**
PPIs	$(0,0,1)\ (0,1,1)_{12}$		-0.1 (-0.1 to 0.3)	-0.01 (-0.2 to 0.2)
statins (control)	$(0,0,1)\ (0,1,0)_{12}$		-0.03 (-0.2 to 0.2)	0.1 (-0.1 to 0.3)

ARIMA, autoregressive integrated moving average; PPI, proton pump inhibitor; CI, confidence interval

*ARIMA $(p,d,q) \times (P,D,Q)_{12}$ model where 12 indicates seasonal differencing at 12-month lag
†Mean monthly dispensings in the year leading up to NPS program in April 2015
‡A sudden, sustained change for the remainder of the study period

Supplementary figures:

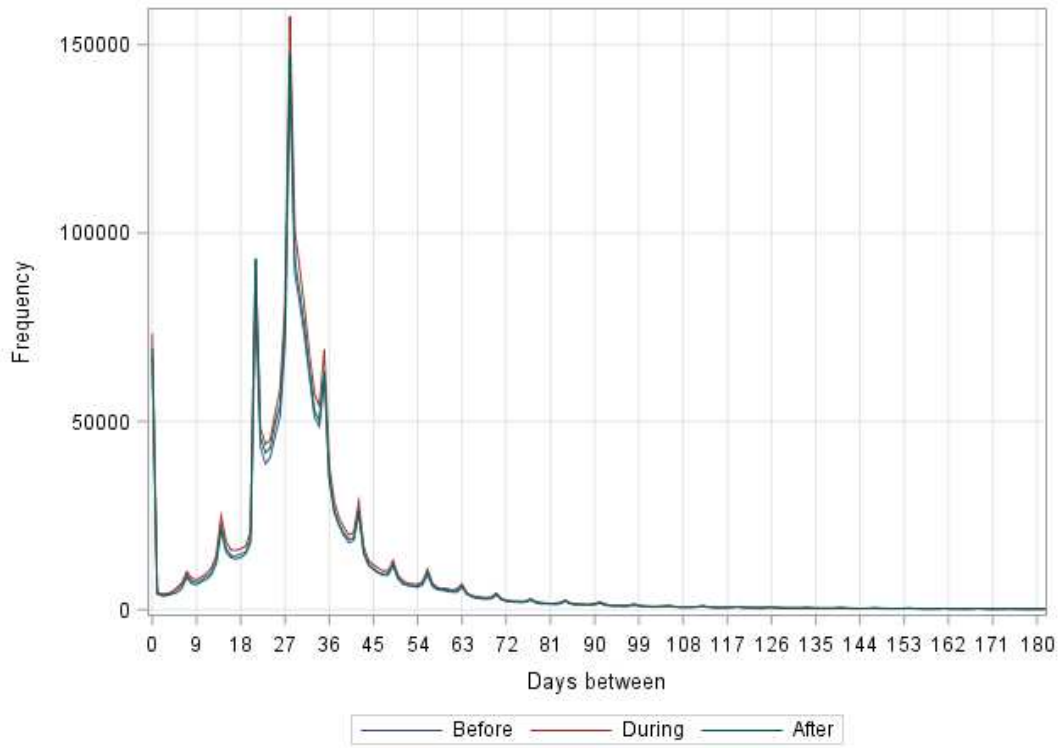

Figure S1. Time between dispensings (days) in the year before (April 2014 – April 2015), during (April 2015 – April 2016) and year after (May 2016 – May 2017) the NPS MedicineWise PPI program and Choosing Wisely recommendations.

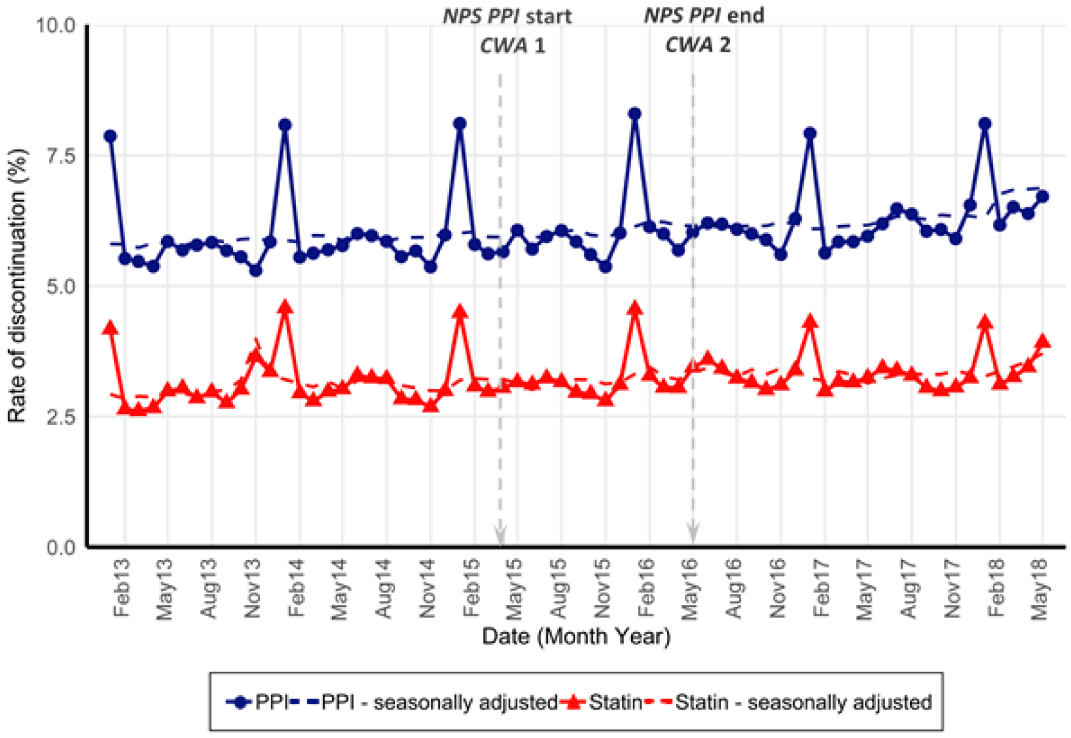

Figure S2. Monthly unadjusted and seasonally adjusted (dashed line) rate (%) of proton pump inhibitors (PPI) and statin discontinuation among those covered by treatment for ***concessional beneficiaries***, from January 2013 to May 2018. NPS MedicineWise's PPI program (NPS PPI) start and end and Choosing Wisely (CWA) recommendations 1 and 2 marked at April 2015 and May 2016.