

Report

Compliance Project

Surrey, February, 2010

The current report is based on analysis of a database with over 10,000 records of prescriptions dispensed to anonymised patients before and after an intervention. The analysis of the database highlights results measuring the impact of the intervention on the compliance rate in individual treatment categories.

The analysis shows a significant overall improvement in patient compliance after the intervention, resulting in a significant increase in the numbers of treatment days dispensed to patients who were previously under compliant. Excessive consumption by previously overly compliant patients was also reduced. The net increase in dispensed treatment days was 14% for the duration of the observation.

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Table 1: Description of the Sample

Parameters of the sample	Number	%
Patients in the sample	217	
Average number of therapies per patient	5	
Prescription items	10871	
Rejected prescription items	190	
Patient Medication Categories for which the Rate of Compliance could be calculated	1108	
Patient Medication Categories for which the Rate of Compliance could not be calculated before and/or after the intervention	526	(47%)
Patient Medication Categories for which the Rates of Compliance could be calculated both before and after the intervention	582	(53%)
Rejected therapies	19	

Table 2: Demographic Characteristics of the Patients

	Male	Female	Total
Aged under 20	0	1	1
Aged 20 to 39	4	4	8
Aged 40 to 59	25	42	67
Aged 60 to 79	42	69	111
Aged 80 and over	13	17	30
Total	84	133	217

Table 3: Time Periods

	Start	End
Intervention took place between	07 .03.2009	04 .09.2009
Dispensing events took place between	01.10.2007	27.10.2009

Table 4: Rate of Compliance

$$\text{Rate of Compliance} = \frac{\text{The sum of the number of days supplied for all but the last prescriptions}^*}{\text{The number of days between the first prescription and the last repeat}^{**}}$$

* Number of days medication supplied within the refill interval

** Number of days in the refill interval



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Table 5: Statistical Results

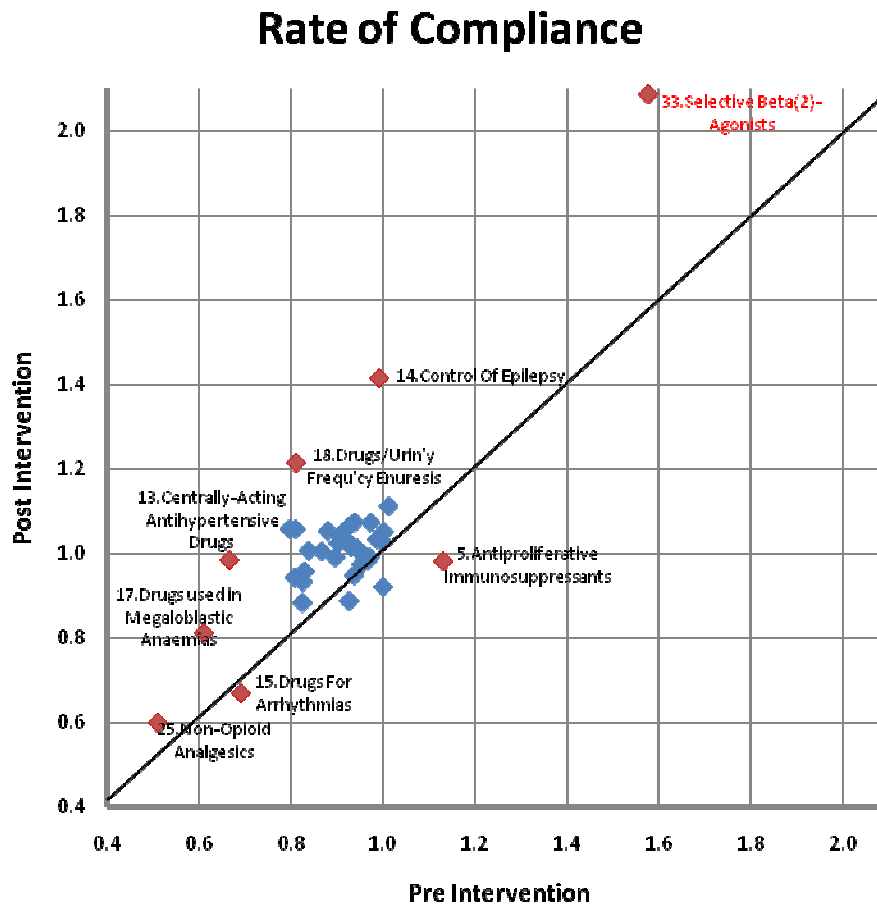
	Rate of Compliance Pre Intervention	Rate of Compliance Post Intervention
Number	582	582
Mean	0,90	1,02
Median	0,97	1,00
Mode	1,00	1,00
Std. Deviation	0,32	0,36
Minimum	0,08	0,13
Maximum	5,31	5,57

Table 6: Rate of Compliance per BNF Sub Paragraph

No	BNF Sub Paragraph	Number [†]	RoC Pre Intervention	RoC Post Intervention
1	Alpha-Adrenoceptor Blocking Drugs	14	1,00	1,05
2	Angiotensin-Converting Enzyme Inhibitors	52	0,91	1,04
3	Angiotensin-II Receptor Antagonists	20	0,81	1,06
4	Antiplatelet Drugs	50	0,93	1,01
5	Antiproliferative Immunosuppressants	1	1,13	0,98
6	Antipsychotic Drugs	7	0,80	1,06
7	Beta-Adrenoceptor Blocking Drugs	41	0,93	1,02
8	Biguanides	27	0,93	1,06
9	Biphosphonates and Other Drugs	10	0,87	1,00
10	Breast Cancer	5	0,81	0,94
11	Calcium-Channel Blockers	36	0,90	1,02
12	Cardiac Glycosides	5	0,97	0,98
13	Centrally-Acting Antihypertensive Drugs	2	0,67	0,99
14	Control Of Epilepsy	11	0,99	1,42
15	Drugs For Arrhythmias	2	0,69	0,67
16	Drugs For Urinary Retention	3	0,99	1,03
17	Drugs used in Megaloblastic Anaemias	2	0,61	0,81
18	Drugs/Urinary Frequency Enuresis & Incont	3	0,81	1,21
19	Gout & Cytotoxic Induced Hyperuricaemia	6	0,94	1,01
20	Hypnotics	9	1,01	1,11
21	Lipid-Regulating Drugs	75	0,88	1,05
22	Loop Diuretics	13	0,84	1,01
23	Male Sex Hormones And Antagonists	6	0,94	1,07
24	Nitrates	8	0,97	0,99
25	Non-Opioid Analgesics	29	0,51	0,60
26	Non-Steroidal Anti-Inflammatory Drugs	6	0,94	0,95
27	Oestrogens And Hrt	1	1,00	0,92
28	Opioid Analgesics	10	0,83	0,96
29	Other Antianginal Drugs	3	0,93	0,89
30	Other Antidepressant Drugs	5	0,83	0,93
31	Other Antidiabetics	4	0,83	0,88
32	Proton Pump Inhibitors	37	0,95	0,97
33	Selective Beta(2)-Agonists	8	1,58	2,09
34	Selective Serotonin Re-Uptake Inhibitors	15	0,95	1,00
35	Sulphonylureas	11	0,97	1,07
36	Thiazides And Related Diuretics	22	0,91	1,04
37	Thyroid Hormones	18	1,00	1,03
38	Tricyclic & Related Antidepressant Drugs	5	0,90	0,99
Total		582	0,90	1,02

[†] Patient Medication Categories for which the Rates of Compliance could be calculated both before and after the intervention

Graph 1a: Rate of Compliance (all BNF sub-paragraph categories)



Graph 1b: Rate of Compliance (expanded selection from Graph 1a:)

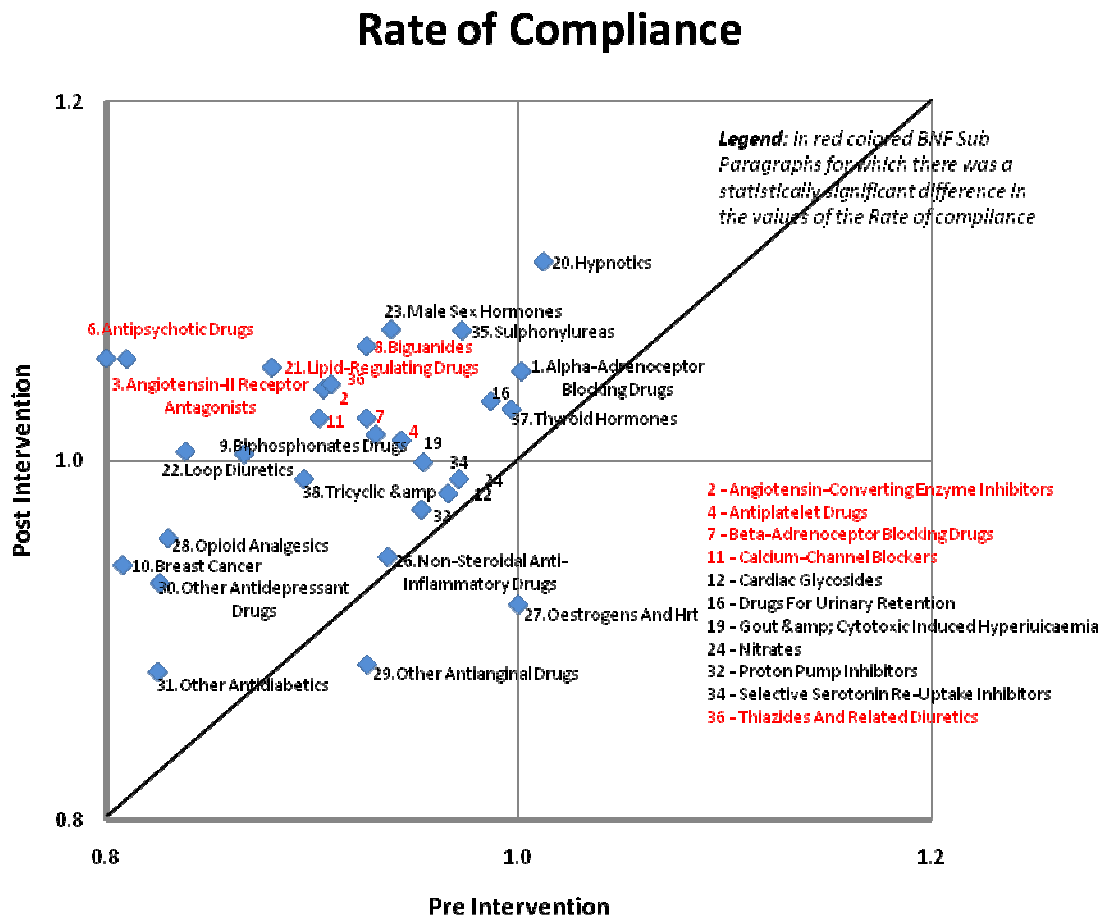


Table 7: Extra Prescriptions per BNF Sub Paragraph

No	BNF Sub Paragraph	Total Number of Therapy Days	Total prescription dispensing events	Average prescription size	Additional treatment days	Extra prescriptions
1	Alpha-Adrenoceptor Blocking Drugs	7766	148	52	122	2
2	Angiotensin-Converting Enzyme Inhibitors	29791	636	47	612	13
3	Angiotensin-II Receptor Antagonists	9596	179	54	388	7
4	Antiplatelet Drugs	29158	657	44	427	10
5	Antiproliferative Immunosuppressants	588	13	45	-19	0
6	Antipsychotic Drugs	3012	89	34	183	5
7	Beta-Adrenoceptor Blocking Drugs	22336	401	56	360	6
8	Biguanides	15004	483	31	282	9
9	Biphosphonates and Other Drugs	4795	118	41	83	2
10	Breast Cancer	2544	72	35	52	1
11	Calcium-Channel Blockers	20443	461	44	500	11
12	Cardiac Glycosides	2810	46	61	2	0
13	Centrally-Acting Antihypertensive Drugs	1008	17	59	37	1
14	Control Of Epilepsy	6215	151	41	305	7
15	Drugs For Arrhythmias	969	23	42	-2	0
16	Drugs For Urinary Retention	2068	46	45	8	0
17	Drugs used in Megaloblastic Anaemias	352	6	59	37	1
18	Drugs/Urinary Frequency Enuresis & Incontinence	1848	41	45	156	3
19	Gout & Cytotoxic Induced Hyperuricaemia	3458	57	61	35	1
20	Hypnotics	5410	148	37	81	2
21	Lipid-Regulating Drugs	40548	961	42	1403	33
22	Loop Diuretics	6403	122	52	187	4
23	Male Sex Hormones And Antagonists	3609	166	22	107	5
24	Nitrates	4835	88	55	42	1
25	Non-Opioid Analgesics	9087	372	24	206	8
26	Non-Steroidal Anti-Inflammatory Drugs	3007	65	46	36	1
27	Oestrogens And Hormones	672	12	56	-4	0
28	Opioid Analgesics	4382	180	24	114	5
29	Other Antianginal Drugs	1560	24	65	-14	0
30	Other Antidepressant Drugs	1993	50	40	71	2
31	Other Antidiabetics	2024	36	56	-10	0
32	Proton Pump Inhibitors	19631	458	43	98	2
33	Selective Beta(2)-Agonists	9170	111	83	236	3
34	Selective Serotonin Re-Uptake Inhibitors	7246	211	34	-28	-1
35	Sulphonylureas	7061	240	29	126	4
36	Thiazides And Related Diuretics	12646	223	57	216	4
37	Thyroid Hormones	10927	173	63	34	1
38	Tricyclic & Related Antidepressant Drugs	2459	71	35	34	1
Total		316431	7355	43	6505	151



Table 7a: Net change in Treatment Days dispensed Post Intervention

Treatment Days dispensed to patients for whom a RoC could be computed both before and after the intervention	316,431
Number of these that were dispensed after the intervention	53,768
Number that would have been dispensed after the intervention had RoCs remained unchanged	47,263
Increased number of Treatment Days attributable to the intervention	6,505
% increase in Treatment Days dispensed attributable to the intervention	+14%

Table 8: Wilcoxon Test for all TherapiesH₀: RoC Pre Intervention = RoC Post Intervention; H₁: RoC Pre Intervention ≠ RoC Post Intervention

N= Patient Medication Categories for which the Rates of Compliance could be calculated both before and after the intervention

No	BNF Sub Paragraph	RoC Post – RoC Pre	N	Z	Asymp. Sig. (2-tailed)	Exact Sig. (2-tailed) (If N<20)	H ₀ /H ₁ P=95%
1	Alpha-Adrenoceptor Blocking Drugs	0,05	14	-0,490	0,62	0,65	H ₀
2	Angiotensin-Converting Enzyme Inhibitors	0,13	52	-3,653	0,00		H ₁
3	Angiotensin-II Receptor Antagonists	0,25	20	-3,473	0,00	0,00	H ₁
4	Antiplatelet Drugs	0,08	50	-2,646	0,01		H ₁
5	Antiproliferative Immunosuppressants	-0,15	1	-	-	-	H ₀
6	Antipsychotic Drugs	0,26	7	-2,117	0,03	0,05	H ₁
7	Beta-Adrenoceptor Blocking Drugs	0,10	41	-2,387	0,02		H ₁
8	Biguanides	0,14	27	-2,882	0,00		H ₁
9	Biphosphonates and Other Drugs	0,14	10	-1,122	0,26	0,29	H ₀
10	Breast Cancer	0,13	5	-0,944	0,35	0,44	H ₀
11	Calcium-Channel Blockers	0,12	36	-2,788	0,01		H ₁
12	Cardiac Glycosides	0,02	5	-0,184	0,85	1,00	H ₀
13	Centrally-Acting Antihypertensive Drugs	0,32	2	-0,447	0,65	1,00	H ₀
14	Control Of Epilepsy	0,42	11	-0,983	0,33	0,35	H ₀
15	Drugs For Arrhythmias	-0,02	2	-1,342	0,18	0,50	H ₀
16	Drugs For Urinary Retention	0,05	3	-1,342	0,18	0,50	H ₀
17	Drugs used in Megaloblastic Anaemias	0,20	2	-1,342	0,18	0,50	H ₀
18	Drugs/Urinary Frequency Enuresis & Incont	0,40	3	-1,604	0,11	0,25	H ₀
19	Gout & Cytotoxic Induced Hyperuricaemia	0,07	6	-1,802	0,07	0,13	H ₀
20	Hypnotics	0,10	9	-0,297	0,77	0,82	H ₀
21	Lipid-Regulating Drugs	0,17	75	-5,341	0,00		H ₁
22	Loop Diuretics	0,17	13	-1,224	0,22	0,24	H ₀
23	Male Sex Hormones And Antagonists	0,14	6	-1,160	0,25	0,34	H ₀
24	Nitrates	0,02	8	-1,014	0,31	0,38	H ₀
25	Non-Opioid Analgesics	0,09	29	-1,891	0,06	0,06	H ₀
26	Non-Steroidal Anti-Inflammatory Drugs	0,01	6	-0,135	0,89	1,00	H ₀
27	Oestrogens And Hrt	-0,08	1	-	-	-	
28	Opioid Analgesics	0,13	10	-1,244	0,21	0,25	H ₀
29	Other Antianginal Drugs	-0,04	3	-0,816	0,41	0,75	H ₀
30	Other Antidepressant Drugs	0,11	5	-0,405	0,69	0,81	H ₀
31	Other Antidiabetics	0,06	4	-0,365	0,72	0,88	H ₀
32	Proton Pump Inhibitors	0,02	37	-0,991	0,32		H ₀
33	Selective Beta(2)-Agonists	0,51	8	-2,521	0,01	0,01	H ₁
34	Selective Serotonin Re-Uptake Inhibitors	0,05	15	-1,307	0,19	0,20	H ₀
35	Sulphonylureas	0,10	11	-1,891	0,06	0,06	H ₀
36	Thiazides And Related Diuretics	0,13	22	-2,372	0,02	0,02	H ₁
37	Thyroid Hormones	0,03	18	-1,200	0,23	0,24	H ₀
38	Tricyclic & Related Antidepressant Drugs	0,09	5	-0,944	0,35	0,44	H ₀
Total		0,12	582	-10,561	0,00		H₁



Table 9: Wilcoxon Test for Therapies with Pre-Intervention Rate of Compliances Less than 1.H₀: RoC Pre Intervention = RoC Post Intervention; H₁: RoC Pre Intervention ≠ RoC Post Intervention

N= Patient Medication Categories for Under-compliant Patients with Rate of Compliances Less than 1

No	BNF Sub Paragraph	RoC Post – RoC Pre Intervention	N	Z	Asymp. Sig. (2- tailed)	Exact Sig. (2-tailed) (if N<20)	H ₀ /H ₁ P=95%
1	Alpha-Adrenoceptor Blocking Drugs	0,30	6	-1,782	0,08	0,09	H ₀
2	Angiotensin-Converting Enzyme Inhibitors	0,27	29	-4,236	0,00		H ₁
3	Angiotensin-II Receptor Antagonists	0,24	16	-3,233	0,00	0,00	H ₁
4	Antiplatelet Drugs	0,16	25	-3,201	0,00		H ₁
5	Antiproliferative Immunosuppressants		0	-			
6	Antipsychotic Drugs	0,36	5	-2,023	0,04	0,06	H ₀
7	Beta-Adrenoceptor Blocking Drugs	0,17	23	-3,381	0,01		H ₁
8	Biguanides	0,26	13	-3,182	0,02	0,00	H ₁
9	Biphosphonates and Other Drugs	0,28	7	-1,859	0,06	0,08	H ₀
10	Breast Cancer	0,19	4	-1,095	0,27	0,38	H ₀
11	Calcium-Channel Blockers	0,23	20	-3,604	0,00	0,00	H ₁
12	Cardiac Glycosides	0,10	2	-1,342	0,18	0,50	H ₀
13	Centrally-Acting Antihypertensive Drugs	0,65	1	-			
14	Control Of Epilepsy	0,15	7	-1,703	0,09	0,12	H ₀
15	Drugs For Arrhythmias	-0,03	1	-			
16	Drugs For Urinary Retention	0,12	1	-			
17	Drugs used in Megaloblastic Anaemias	0,38	1	-			
18	Drugs/Urinary Frequency Enuresis & Incont	0,46	2	-1,342	0,18	0,50	H ₀
19	Gout & Cytotoxic Induced Hyperuricaemia	0,08	5	-2,032	0,04	0,06	H ₀
20	Hypnotics	0,06	4	-1,134	0,26	0,50	H ₀
21	Lipid-Regulating Drugs	0,25	50	-5,696	0,00		H ₁
22	Loop Diuretics	0,46	6	-2,201	0,03	0,03	H ₁
23	Male Sex Hormones And Antagonists	0,22	2	-1,342	0,18	0,50	H ₀
24	Nitrates	0,11	5	-2,023	0,04	0,06	H ₀
25	Non-Opioid Analgesics	0,09	28	-1,891	0,06		
26	Non-Steroidal Anti-Inflammatory Drugs	0,27	2	-1,342	0,18	0,50	H ₀
27	Oestrogens And Hrt		0	-			
28	Opioid Analgesics	0,20	6	-1,214	0,23	0,31	H ₀
29	Other Antianginal Drugs	-0,12	1	-			
30	Other Antidepressant Drugs	0,41	3	-1,604	0,11	0,25	H ₀
31	Other Antidiabetics	0,06	4	-0,365	0,72	0,88	H ₀
32	Proton Pump Inhibitors	0,15	19	-2,859	0,00	0,00	H ₁
33	Selective Beta(2)-Agonists	0,28	4	-1,826	0,07	0,13	H ₀
34	Selective Serotonin Re-Uptake Inhibitors	0,22	10	-2,805	0,01	0,00	H ₁
35	Sulphonylureas	0,12	6	-1,782	0,08	0,09	H ₀
36	Thiazides And Related Diuretics	0,23	13	-2,832	0,00	0,02	H ₁
37	Thyroid Hormones	0,14	8	-2,524	0,01	0,01	H ₁
38	Tricyclic & Related Antidepressant Drugs	0,17	4	-1,826	0,07	0,13	H ₀
Total		0,21	343	-13,430	0,00		H₁

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Graph 2: Rate of Compliance for Therapies with Pre-Intervention Values Less than 1

