Addressing potentially inappropriate prescribing in primary care: results from the OPTI-SCRIPT cluster randomised controlled trial

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on behalf of the OPTI-SCRIPT research team

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Background

Potentially inappropriate prescribing (PIP) (medicines that introduce a greater risk of adverse drug-related events where a safer, as effective alternative is available to treat the same condition) are common in older people and can result in increased morbidity, adverse drug events and hospitalisations. (1-2) The prevalence of PIP in Ireland in people aged ≥ 70 years has been estimated at 36% in 2007 with an associated expenditure of over €45 million (9% of pharmaceutical expenditure in that age group). (3)

Objectives

To determine the effectiveness of a multifaceted intervention in reducing PIP in primary care.

Methods

Design: Cluster randomized controlled trial (RCT) with process evaluation.
Setting: 21 general practices based in the greater Dublin area.
Participants : 196 patients aged 70 years and over with PIP.
Intervention: Practices allocated by minimisation to intervention or control (Figure 1). Routinely collected national primary care reimbursement service data (PCRS) were also analysed, acting as an additional contemporary national comparison.
Primary outcome measures: Proportion of participant patients with PIP and the mean number of potentially inappropriate prescriptions per arm.
Secondary outcome measures: Drug-specific outcomes and patient-reported outcomes of well-being (WBQ-12) and beliefs about medicines (BMQ).
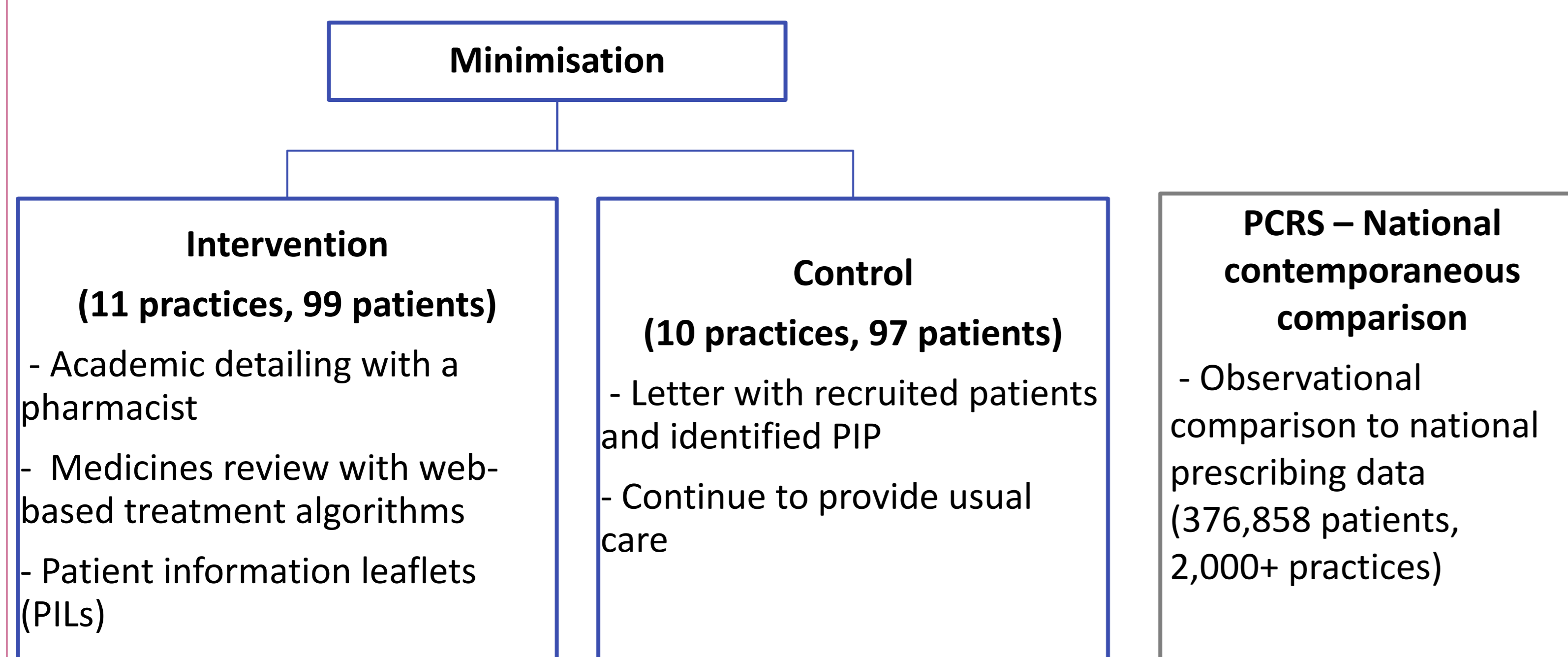*Process evaluation:* Mixed methods.

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                    Minimisation
   ┌───────────────────┼───────────────────┐
Intervention        Control          PCRS – National
(11 practices,    (10 practices,     contemporaneous
99 patients)       97 patients)       comparison
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Intervention (11 practices, 99 patients)
- Academic detailing with a pharmacist
- Medicines review with web-based treatment algorithms
- Patient information leaflets (PILs)

Control (10 practices, 97 patients)
- Letter with recruited patients and identified PIP
- Continue to provide usual care

PCRS – National contemporaneous comparison
- Observational comparison to national prescribing data (376,858 patients, 2,000+ practices)

Figure 1 Study overview

Results

Table 1 Baseline characteristics

Characteristic	Intervention		Control	
	N	%	N	%
Practice				
Mean number GPs	4.1		4.1	
Mean patients 70+	712		788	
Median deprivation score*	0.5		1.4	
Patient				
Male	55	55.6	50	51.5
Mean age	77.1		76.4	
Marital status				
Married	56	56.6	51	53.1
Widowed	26	26.3	32	33.3
Single	14	14.1	10	10.4
GMS card holder	88	88.9	95	97.9
Mean number of repeat medications	10.2		9.5	
PIP present	99	100	97	100
Mean PIP	1.31		1.39	
Most prevalent PIP indicator: Proton Pump Inhibitors (PPI)	53	53.3	65	67.7

* Large values are more deprived

Primary outcomes

All practices were retained and 6 patients were lost to follow-up (3 intervention, 3 control). At intervention completion, 47% of the intervention group had no PIP compared to 23% in the control group (Figure 2). This difference was statistically significant, for patients in the intervention group, the adjusted odds of not having PIP were 3 times higher than the odds in the control (odds ration 3.06, 95% CI 1.4,6.5; P=0.004).
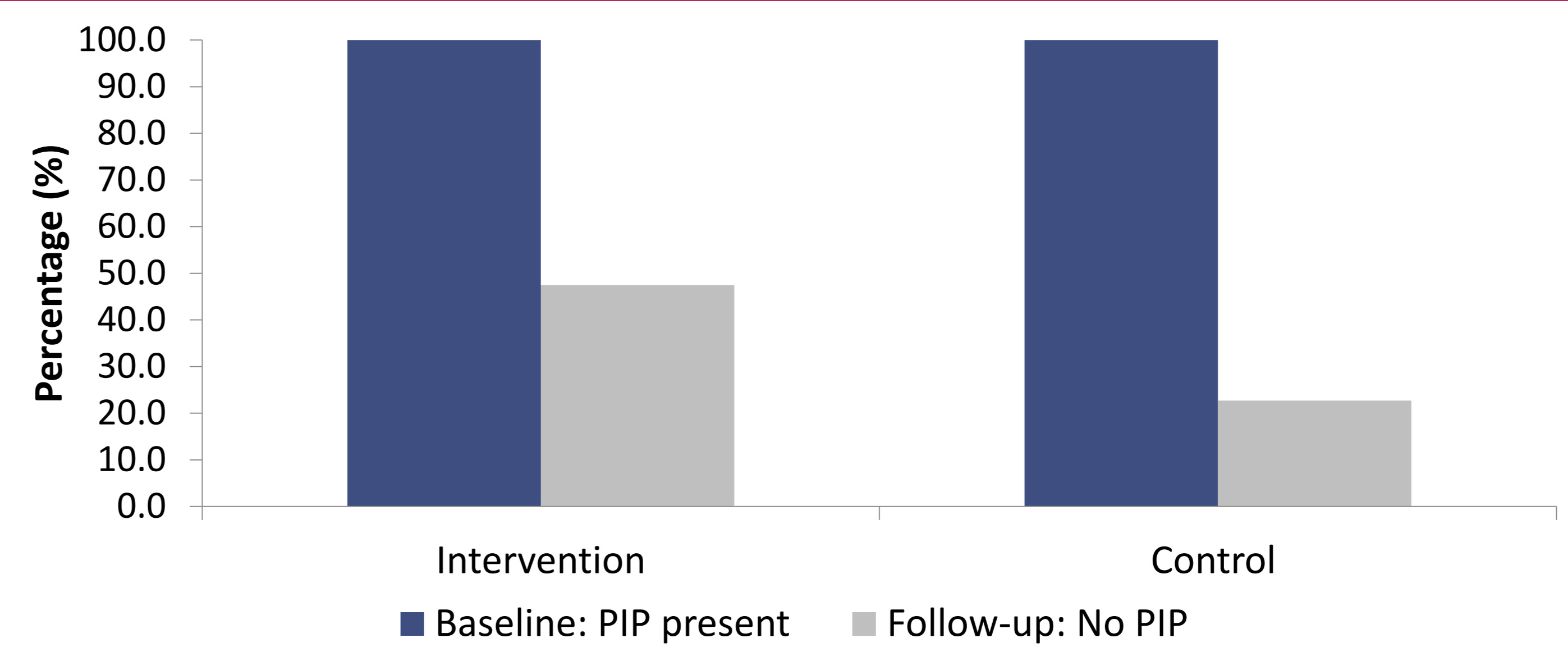.

Figure 2 Proportion PIP: Baseline and follow-up

The average PIP in the intervention group was also significantly lower than control (0.70 v 1.19 p=0.004) at follow-up. A random effects poisson regression found that in the control group, the incidence rate for PIP was 1.4 the incidence for the intervention group (Table 2).

Table 2 Poisson regression model for number of PIP at follow-up

Covariate	Adjusted IRR*	Std. Err	p value	95% CI
Group	1.42	0.26	0.06	0.98, 2.04

Adjusted for gender, age, baseline PIP, number repeat medications, GP practice size

Secondary outcomes

The intervention had a significant effect on PPI prescribing but not on the other drug specific outcomes. For patients in the intervention group, the odds of not having a PPI at follow-up were 3 times higher than the odds of in the control group (OR 3.4, 95% CI, 1.4 to 8.1, *p* = 0.006). No statistically significant difference in the patient reported outcomes of well-being and beliefs about medicine was found between groups.

National contemporaneous comparison

Analysis of national PCRS data confirmed the effectiveness of the intervention and that there was little evidence to believe the OPTI-SCRIPT control group behaved differently from national trends (Table 3).

Table 3 OPTI-SCRIPT intervention group compared to national PCRS data

Crude odds of having no PIP in OPTI-SCRIPT intervention compared to odds of having no PIP in the national comparison (PCRS)	2.5 (95% CI 1.68, 3.69)
Crude odds of having a decrease in OPTI-SCRIPT intervention compared to odds of having a decrease in the national comparison (PCRS)	2.5 (95% CI 1.83, 4.07)

Process evaluation

• Intervention delivery varied, despite receiving a standardised academic detailing session - two practices conducted reviews without patients present
• Outcomes of reviews conducted with and without patients were comparable, but more medications were completely stopped when patients were present
• PILs were not used by any of the practices as they did not find them necessary
• The intervention was valued by GPs and patients, as an opportunity to improve prescribing practices and reduce unnecessary medications in older patients
• Barriers identified by GPs and patients included time, resources, funding and poor communication between prescribers and between prescribers and patients.

Conclusions

The study found that the OPTI-SCRIPT intervention, with the exception of the PILs, was effective in reducing PIP. This reduction in PIP was attributable to reduction in PPI prescribing. Implementing a system of structured reviews for older patients with PIP in Irish primary care may be effective but barriers such as time and formal resourcing of such services would need to be considered.

References:

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