Small copayments for prescription medicines: cents-ible policies?

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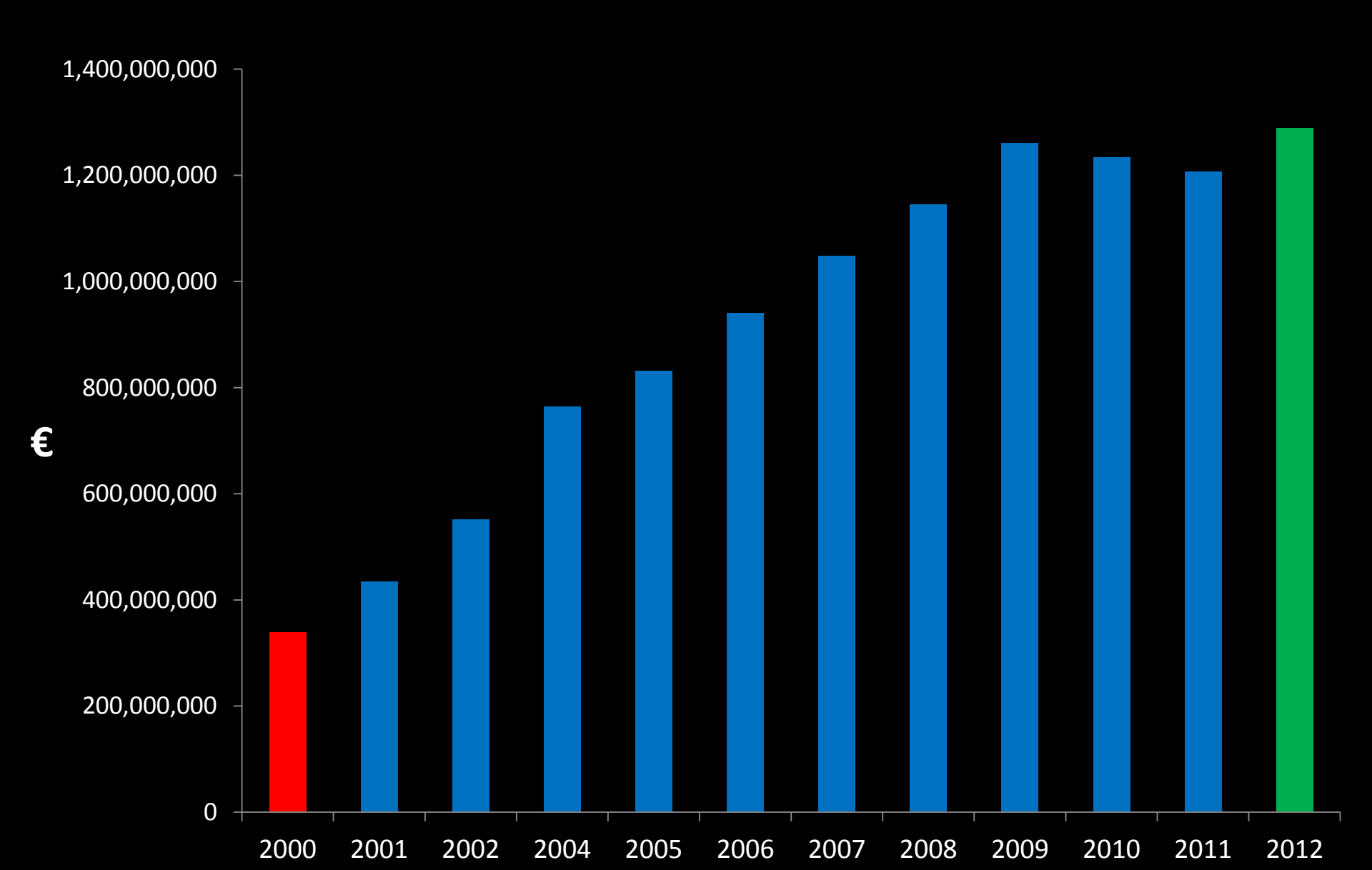
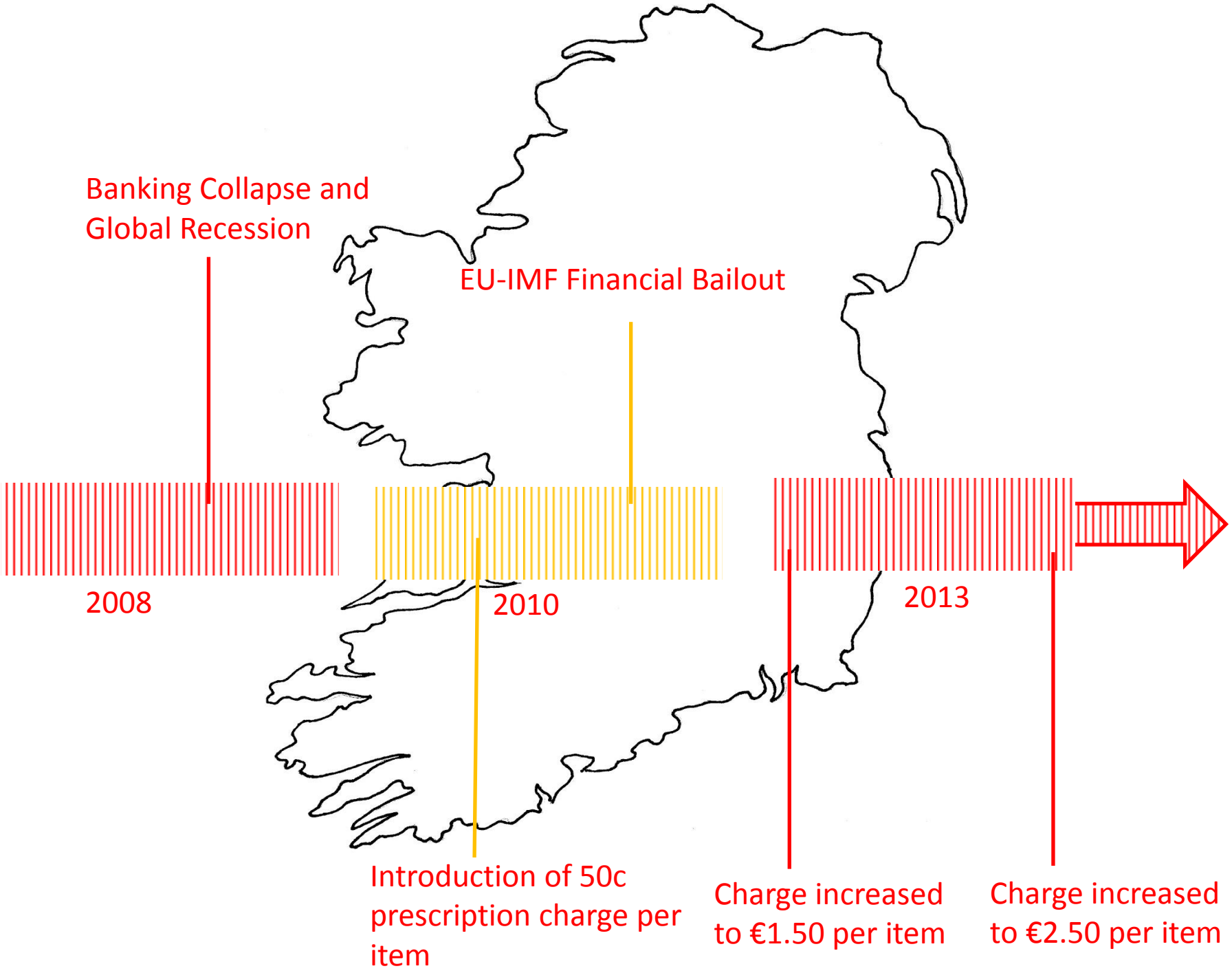
Outline

- Setting context
- Overview of PhD research
- Selected chapter
  - Two copayments
  - Greater reductions to less-essential medicines
  - EXCEPTION – medicines used to treat depression



Expenditure for medicines and devices and the GMS scheme from the years 2000-2012. Data obtained from PCRS Financial and Statistical Analyses accessed from PCRS.ie


Banking Collapse and Global Recession
EU-IMF Financial Bailout
2008
2010
2013
Introduction of 50c prescription charge per item
Charge increased to €1.50 per item
Charge increased to €2.50 per item

What Risk?

ORIGINAL CONTRIBUTION

Adverse Events Associated With Prescription Drug Cost-Sharing Among Poor and Elderly Persons

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Context Rising costs of medications and inequities in access have sparked calls for drug policy reform in the United States and Canada. Control of drug expenditures by prescription cost-sharing for elderly persons and poor persons is a contentious issue because little is known about the health impact in these subgroups.

Objectives To determine (1) the impact of introducing prescription drug cost-sharing on use of essential and less essential drugs among elderly persons and welfare recipients and (2) rates of emergency department (ED) visits and serious adverse events associated with reductions in drug use before and after policy implementation.

Design and Setting Interrupted time-series analysis of data from 32 months before and 17 months after introduction of a prescription coinsurance and deductible cost-sharing policy in Quebec in 1996. Separate 10-month prepolicy control and post-policy cohort studies were conducted to estimate the impact of the drug reform on adverse events.

Participants A random sample of 93 950 elderly persons and 55 333 adult welfare medication recipients.

Main Outcome Measures Mean daily number of essential and less essential drugs used per month, ED visits, and serious adverse events (hospitalization, nursing home admission, and mortality) before and after policy introduction.

Results After cost-sharing was introduced, use of essential drugs decreased by 9.12% (96% confidence interval [CI], 8.7%-9.6%) in elderly persons and by 14.42% (95% CI, 13.3%-15.6%) in welfare recipients; use of less essential drugs decreased by 15.14% (95% CI, 14.4%-15.9%) and 22.39% (95% CI, 20.9%-23.9%), respectively. The rate (per 10 000 person-months) of serious adverse events associated with reductions in use of essential drugs increased from 5.8 in the prepolicy control cohort to 12.6 in the postpolicy cohort in elderly persons (a net increase of 6.8 [95% CI, 5.6-8.0]) and from 14.7 to 27.6 in welfare recipients (a net increase of 12.9 [95% CI, 10.2-15.5]). Emergency department visit rates related to reductions in the use of essential drugs also increased by 14.2 (95% CI, 8.5-19.9) per 10 000 person-months in elderly persons (prepolicy control cohort, 32.8; postpolicy cohort, 47.1) and by 54.2 (95% CI, 33.5-74.8) among welfare recipients (prepolicy control cohort, 69.6; postpolicy cohort, 123.8). These increases were primarily due to an increase in the proportion of recipients who reduced their use of essential drugs. Reductions in the use of less essential drugs were not associated with an increase in risk of adverse events or ED visits.

Conclusions In our study, ... sharing for prescription ... elderly persons and welfare recipients ... reductions in use ... drugs and a higher rate of serious adverse ... visits associated ... reductions.

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POLICY

The Effects of Prescription Drug Cost Sharing: A Review of the Evidence

Teresa B. Gibson, PhD; Ronald J. Ozminkowski, PhD; and Ron Z. Goetzel, PhD

Objectives: To determine whether patients respond to increased cost sharing by substituting less expensive alternatives for medications with higher levels of copayments or coinsurance, and to examine the body of evidence on the relationships between cost sharing and use of essential or maintenance medications, health outcomes, process-of-care measures (such as medication adherence and discontinuation), and costs.

Study Design: Literature review.

Methods: Healthcare reference databases and key journals were searched to identify peer-reviewed empirical studies that examined the effects of variation in the amount of prescription drug copayments or coinsurance on healthcare utilization patterns. Thirty studies met our search criteria.

Results: Higher levels of prescription drug cost sharing generally produce intended effects, namely, decreasing the consumption of prescription drugs and steering patients away from nonpreferred to preferred brand-name drugs. However, patients do not always switch to generic drugs. Although not consistently reported, the most troublesome effects associated with higher levels of cost sharing are treatment disruptions (such as lower levels of treatment adherence, continuation, and initiation) for chronically ill patients. At times, higher levels of cost sharing can affect the use of essential medications and outcomes of care.

Conclusions: Cost sharing reduces the consumption of prescription drugs but may have unintended effects on the process and outcomes of therapy. Further research is warranted in this area. The central question for health plan managers and policy makers is whether we will continue to use cost sharing as is or make modifications to reduce unintended effects.

(*Am J Manag Care. 2005;11:730-740*)

Prescription drug expenditures are one of the fastest growing components of national health expenditures.[1] To control prescription drug costs, health plans and employers have increased prescription drug cost-sharing amounts for patients.[2] Copayments for ... illness ... Employer-sponsored plans have risen ... 2001 to 2004, the mean copayments ... increased 42.9% (from $7 to $10), ... copayment for brand-name ... 51.5% (... payment ... increased 94% (from ... to $33). ... drug ... In addition, increasing the ... sharing amount ... health plans ... to move ... from 1 ... that charge the same amount for all types of drugs and away from 2-tier plans that charge a lower cost-sharing amount for generic drugs and a higher cost-sharing amount for brand-name drugs.[2] As a result, 3-tier plans that assess a third, higher amount for nonpreferred brand-name drugs are now the dominant type of prescription drug benefit; 3-tier plans in 2004 applied to almost two thirds of workers.[2] Although less common (representing 3% of workers), some health plans are introducing plans that assign an even higher fourth tier to cover lifestyle or very expensive medications.[2-4]

In this review, we synthesize and summarize the state of knowledge about the effects of increased prescription drug cost sharing on use, expenditures, and outcomes. First, we address the following question: Do patients respond to increased cost sharing by substituting less expensive medications or delivery methods (eg, mail order) for medications with higher levels of copayments or coinsurance?

Second, concerns have been expressed about the adverse effects of cost sharing on health outcomes and the process of care.[5,6] In light of these concerns, we extend previous reviews of the literature and examine the growing body of evidence on the relationships between cost sharing and the use of essential or maintenance medications, health outcomes, process-of-care measures (such as medication adherence and discontinuation), and costs.

Previous reviews of the prescription drug cost-sharing literature summarized evidence related to the effects of changes in cost sharing on prescription drug use and expenditures, but the results of these studies are dated[7-9] or have a focus that is different from that of this review, such as the effect of cost sharing on ... iors[10,11] or on vu... populations.[12,13] Other re... evaluated the effi... cost sharing within the br...

How Patient Cost-Sharing Trends Affect Adherence and Outcomes

A Literature Review

Michael T. Eaddy, PharmD, PhD; Christopher L. Cook, PharmD, PhD; Ken O'Day, PhD, MPA
Steven P. Burch, PhD, RPh; and C. Ron Cantrell, PhD

ABSTRACT

Objectives: We sought to assess the relationship between patient cost sharing; medication adherence; and clinical, utilization, and economic outcomes.

Methodology: We conducted a literature review of articles and abstracts published from January 1974 to May 2008. Articles were identified using Pubmed, Ovid, MEDLINE, Web of Science, and Google Scholar databases. The following terms were used in the search: adherence, compliance, copay, cost sharing, costs, noncompliance, outcomes, hospitalization, utilization, economics, income, and persistence.

Results: We identified and included 160 articles in the review. Although the types of interventions, measures, and populations studied varied widely, we were able to identify relatively clear relationships between cost sharing, adherence, and outcomes. Most articles that evaluated the relationship between changes in cost sharing and adherence, 85% showed that an increasing patient share of medication costs was significantly associated with a decrease in adherence. For articles that investigated the relationship between adherence and outcomes, the majority noted that increased adherence was associated with a statistically significant improvement in outcomes.

Conclusion: Increasing patient cost sharing was associated with declines in medication adherence, which in turn was associated with poorer health outcomes.

Key words: adherence, cost sharing, copays, outcomes, compliance

INTRODUCTION

Health care spending in the U.S. has climbed to $2.2 trillion annually, up from $1.0 trillion in 2000.[1,2] On a per-capita basis, this amounts to $7,400 spent per person per year and to employers' costs of more than $8,300 for annual family coverage.[3] Although these estimates are astonishing, they are not surprising—the growth in health care spending has been surpassing the growth of the overall economy for more than four decades.[4] Of great interest, however, are the growth within health care service areas. High-growth service areas offer key targets for reform efforts by payers, purchasers, and other cost-conscious stakeholders within the health system. Although prescription drugs are one of the "ticket" service types (at 10% of total spending), they are those target areas.

Spending for drug therapies has increased by 88% from 2000, compared with a rate of only 67% for the "higher" hospital and physician services, which account for more than half of annual health care expenditures.[5] Factors contributing to increased drug spending include not only higher prices for specialty and biotech therapies[6] but also greater use of pharmaceuticals for a wider range of conditions and for longer periods to treat chronic illnesses.[4] Thus, most efforts to manage expenditures have targeted drug utilization by influencing demand for costly therapies via changes in drug coverage and in benefit design.

Strategies that have been commonly used to curb drug utilization include higher copayments, coinsurance plans, more restrictive formulary listings, and a move from brand-name products to less expensive generic brands through mandatory substitution. If these tools are implemented effectively, they can decrease costs by reducing the moral hazard of insurance and by causing patients to realize the true cost of medications through their higher out-of-pocket expenses.

In theory, these steps should deter the overuse of medical therapies and should direct patients toward taking only those that offer a therapeutic benefit at a lower cost, thus increasing value. However, obtaining these results hinges on important assumptions—that high-value and low-value drugs can be differentiated and that patients will actively choose to use high-value drugs to receive the therapeutic benefit. If this assumption is met and if the links between uninterrupted medication use and future disease burden and costs are established, a greater value should be attained in the public benefit, along with, perhaps, a positive return on investment, particularly in conditions for which pharmaceutical therapy can play a crucial role in effective disease management.[7]

There is a need, therefore, to examine the evidence base in support of these assumptions and presumed associations

Disclosure: GlaxoSmithKline provided funding for this literature review. Dr. Eaddy and Dr. O'Day are employees of Xcenda, a part of GlaxoSmithKline, which sponsored the study from which the data in the manuscript were derived. Dr. Cook, Dr. Burch, and Dr. Cantrell report that they have no financial or commercial relationships in regard to this article.

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REVIEW

Prescription Drug Cost Sharing

Associations With Medication and Medical Utilization and Spending and Health

Dana P. Goldman, PhD
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Yuhui Zheng, MPhil

Context Prescription drugs are instrumental to managing and preventing chronic disease. Recent changes in US prescription drug cost sharing could affect access to them.

Objective To synthesize published evidence on the associations among cost sharing features of prescription drug benefits and use of prescription drugs, use of nonpharmaceutical services, and health outcomes.

Data Sources We searched PubMed for studies published in English between 1981 and 2006.

Study Selection and Data Extraction Among 923 articles found in the search we identified 132 articles examining the associations between prescription drug plan cost-containment measures, including co-payments, tiering, or coinsurance (n=65) pharmacy benefit caps or monthly prescription limits (n=11), formulary restriction (n=41), and reference pricing (n=16), and salient outcomes, including pharmacy utilization and spending, medical care utilization and spending, and health outcomes.

Results Increased cost sharing is associated with lower rates of drug treatment, worse adherence among existing users, and more frequent discontinuation of therapy. For each 10% increase in cost sharing, prescription drug spending decreases by 2% to 6%, depending on class of drug and condition of the patient. The reduction in use associated with a benefit cap, which limits either the coverage amount or the number of covered prescriptions, is consistent with other cost-sharing features. For some chronic conditions, higher cost sharing is associated with increased use of medical services, at least for patients with congestive heart failure, lipid disorders, diabetes, and schizophrenia. While low-income groups may be more sensitive to increased cost sharing, there is little evidence to support this contention.

Conclusions Pharmacy benefit design represents an important public health tool for improving patient treatment and adherence. While increased cost sharing is highly correlated with reductions in pharmacy use, the long-term consequences of benefit change on health are still uncertain.

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www.jama.com

MEDICAL PRACTICE IN THE United States has changed dramatically in the last several decades, including an increase in use of prescription drugs. More and better-quality drugs are available to prevent and manage chronic illness, and these drugs reduce mortality, forestall complications, and make patients more productive.[1] Thus, access to outpatient drugs is now a cornerstone of an efficient health care system.

But with recent increases in pharmacy spending, pharmacy benefit managers and health plans have adopted benefit changes designed to reduce pharmaceutical use or steer patients to less-expensive alternatives. The rapid proliferation of mail-order pharmacies, mandatory generic substitution, coinsurance plans, and multitiered formularies has transformed the benefit landscape. In this review, we analyze how the salient cost-sharing features of prescription drug benefits may affect access to prescription drugs and synthesize what is known about how these features may affect medical spending and health outcomes.

Most beneficiaries are now covered by incentive-based formularies ... to one of ... to the ... the names ... substitutes, and ... other factors ... example, ... preferred ... brands ... co-payments ... respectively). ... trast, plans may require beneficiaries to pay coinsurance—ie, a percentage of the total cost of the dispensed prescription. The purpose of tiered co-payments and coinsurance is to give beneficiaries an incentive to use generic or low-cost brand-name medications and to encourage manufacturers to offer price discounts in exchange for inclusion of their brand-name products in a preferred tier. By 2006, ... workers ... -sponsored ... plans ... 3 times ... 27%).[3]

Some plans also impose benefit caps that limit either the coverage amount or the number of covered prescriptions. For example, the standard Medicare Part D benefit offers beneficiaries coverage of up to $2400 in spending in 2007, at which point coverage stops until beneficiaries reach a ...

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IMPACT OF COST SHARING ON MEDICATION USE

Effect of a Medication Copayment Increase in Veterans With Schizophrenia

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Objective: To assess the effect of the 2002 Veterans Millennium Health Care Act, which raised pharmacy copayments from $2 to $7 for lower-priority patients, on medication refill decisions and health services utilization among vulnerable veterans with schizophrenia.

Study Design: Quasi-experimental.

Methods: This study used secondary data contained in the National Psychosis Registry from June 1, 2000, through September 30, 2003, for all veterans diagnosed with schizophrenia and receiving healthcare through the Department of Veterans Affairs (VA). Longitudinal, mixed models were used to observe changes in prescriptions, health services utilization, and pharmacy costs as veterans subject to copayments (N = 40 654) and a control group of exempt individuals (N = 39 983). Analyses controlled for demographics, substance abuse, non-VA utilization, and medical comorbidities. The Health Belief Model supported analytical criteria for factors directly related to medication adherence issues.

Results: Total prescriptions and overall pharmacy costs leveled among veterans with copayments after the medication cost increase. However, psychiatric drug refills dropped substantially, nearly 25%. Although outpatient visits were unaffected, psychiatric admissions and total inpatient days increased slightly, particularly 10 to 20 months after the policy change. Factoring in additional copayment revenue, the VA realized a $14.7-million annual net revenue gain from this subpopulation alone.

Conclusion: These results suggest the new policy successfully reduced utilization and costs, with perhaps minimal clinical consequences to date. However, higher inpatient utilization resulting from cost-related nonadherence is troubling within an already high-risk and poorly adherent population, especially considering the reduction in psychiatric drug refills.

(Am J Manag Care. 2007;13(part 2):335-340)

In 1999, Congress passed the Veterans Millennium Health Care Act (Public Law 106-117), or the "Millennium Bill."[1] Effective in fiscal year 2002 (FY02), this bill raised outpatient prescription copayments from $2 to $7. The goal was ostensibly budgetary, to contain rising pharmacy costs while addressing concerns that patients were increasingly choosing to receive healthcare through the Department of Veterans Affairs (VA) specifically for its generous pharmacy benefits. With nearly 60% of veterans who transferred care citing inexpensive medications as their primary reason,[2] this trend led to observations that the "VA was becoming a drug store." A rapidly aging veteran population serves to escalate challenges faced by the system and its patients.

This predicament is certainly not unique to the VA. Outpatient pharmacy utilization remains the largest slice of many healthcare budgets, and the fastest growing cost sector. For privately insured patients, national prescription drug expenditures were $78.9 billion in 1998, up from $2.7 billion in 1960. With annual growth rates doubling to nearly 15% during that period, medications will represent 16% of total US healthcare expenditures by 2008.[3] Among Medicaid recipients, a population often compared with veterans, prescription payments rose 15.3% annually from $4.4 billion in 1990 to almost $12 billion in 1997.[4]

Antipsychotic medications have traditionally spurred rapid pharmacy cost increases. These expenditures rose by a factor of 7 during the 1990s and were up nearly 20% to $14.7 billion in 2001.[5,6] This exponential growth is attributable to the introduction of newer atypical antipsychotics, along with improved coverage and access to psychiatric treatment.[7] Although the predominant driver of escalating medication costs is generally utilization, the exception is psychotropic drugs: two thirds of rising expenditures is instead due to medication prices.[8]

VA outpatient pharmacy expenditures totaled $2.85 billion in FY01, increasing 19% annually since FY98 while inpatient and outpatient charges rose by merely 1.5%. Drug costs constitute a significant fraction of VA budget, increasing from approximately 6% in the early 1990s to 14% this past year.[9] Outpatient psychiatric medications cost $373.3 million in FY02, with those for depression (selective serotonin reuptake inhibitors) and schizophrenia (atypical antipsychotics) the dominant components (91%) and largest driver of recent increases.

For author information and disclosures, see end of text.

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Pharmaceutical policies: effects of cap and co-payment on rational drug use (Review)

Aastveit-Dahlgren A, Aaserud M, Vist GE, Ramsay C, Oxman AD, Sturm H, Kösters JP, Vernby Å

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http://www.thecochranelibrary.com

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The Effect of Copayments for Prescriptions on Adherence to Prescription Medicines in Publicly Insured Populations; A Systematic Review and Meta-Analysis

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Abstract

Introduction: Copayments are intended to decrease third party expenditure on pharmaceuticals, particularly those regarded as less essential. However, copayments are associated with decreased use of all medicines. Publicly insured populations encompass some vulnerable groups such as older individuals and low income groups, who may be especially susceptible to medication non-adherence when required to pay. Non-adherence has potential consequences of increased morbidity and costs elsewhere in the system.

Objective: To quantify the risk of non-adherence to prescribed medicines in publicly insured populations exposed to copayments.

Methods: The population of interest consisted of cohorts who received public health insurance. The intervention was the introduction of, or an increase, in copayment. The outcome was non-adherence to medications, evaluated using objective measures. Eight electronic databases and the grey literature were systematically searched for relevant articles, along with hand searches of references in review articles and the included studies. Studies were quality appraised using modified EPOC and EHPPH checklists. A random effects model was used to generate the meta-analysis in RevMan v5.1. Statistical heterogeneity was assessed using the I^2 test; p>0.01 indicated a lack of heterogeneity.

Results: Seven out of 41 studies met the inclusion criteria. Five studies contributed more than 1 result to the meta-analysis. The meta-analysis included 1990, 996 people in each of the copayment group and 125,760 people in the non-copayment group. Average age was 71.75years. In the copayment group, (verses the non-copayment group), the odds ratio for non-adherence was 1.11 (95% CI 1.09–1.14; P = <0.00001). An acceptable level of heterogeneity at I^2 = 7%, (p = 0.37) was observed.

Conclusion: This meta-analysis showed an 11% increased odds of non-adherence to medicines in publicly insured populations where copayments for medicines are necessary. Policy-makers should be wary of potential negative clinical outcomes resulting from non-adherence, and also possible knock-on economic repercussions.

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Introduction

In the last decade spending on pharmaceuticals in OECD countries has risen by 50% [1]. This has led to increased financial pressures in health systems and many countries have attempted to scale back public expenditure on pharmaceuticals; the US, Canada, Australia, Ireland and South Korea have introduced copayment policies to offset growing drug bills [2–7]. A copayment is a fixed fee for a prescription. In theory, copayments are intended to reduce drug expenditure by reducing moral hazard associated with medicines supplied at reduced or zero cost. That is, copayments discourage the consumption of medicines that patients do not consume at home or which have no role in improving health – thus reducing waste [8]. A further function of copayment is to generate revenue to offset drug budget costs. The success copayment policies, however, depends on the ability of patient make rational choices about which medications they should should not take [9–14]. Copayments may be disadvantageous they cause a decrease in use of medications that are beneficial health.

The impact of copayment policies in OECD countries has been assessed in various ways, with significant differences populations studied, methodologies employed and outcome measures described.

Vulnerable populations are those who have increased sensit to adverse health outcomes and typically include older people

Research
Open Access

What impact do prescription drug charges have on efficiency and equity? Evidence from high-income countries

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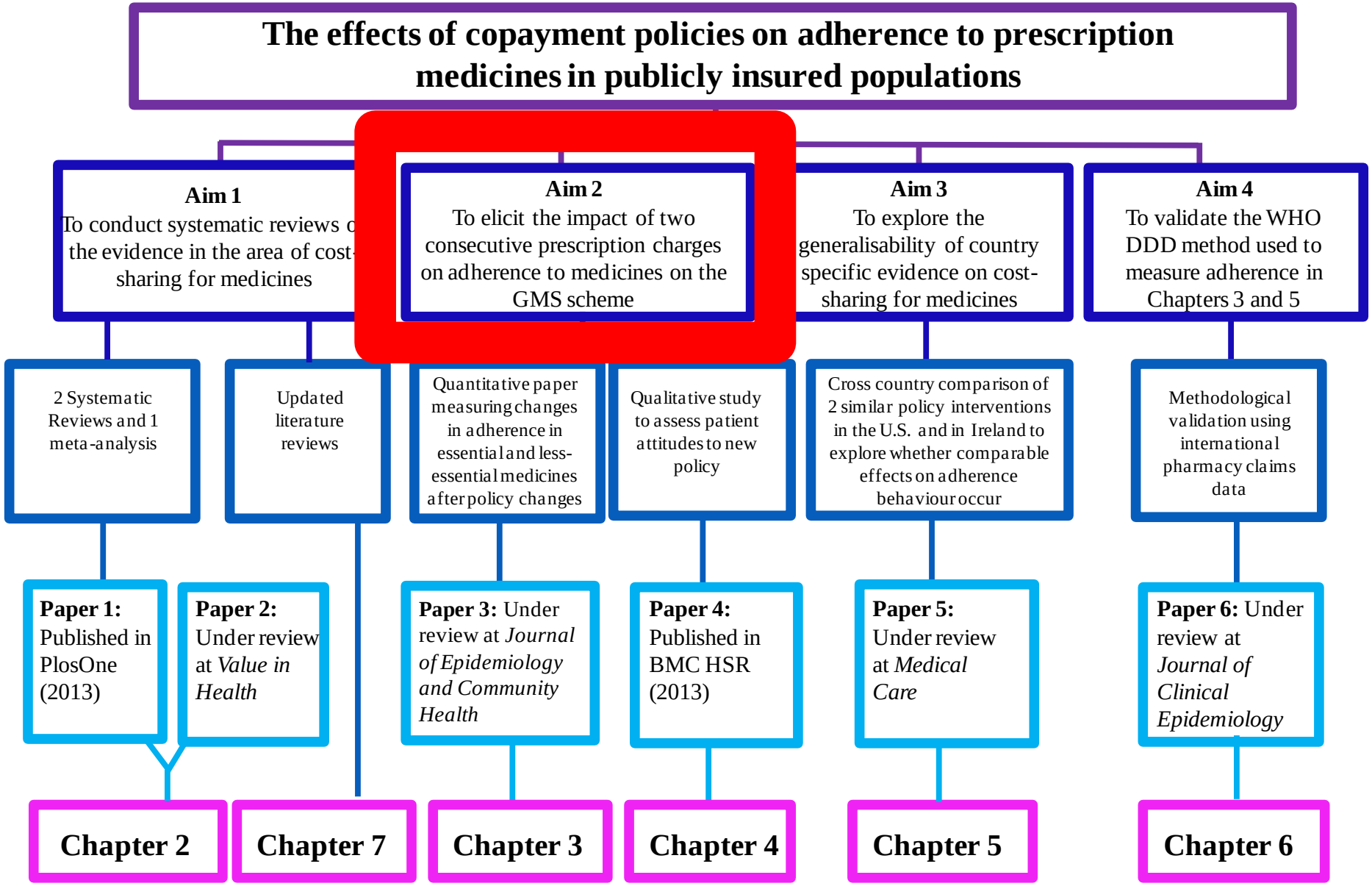
Abstract

As pharmaceutical expenditure continues to rise, third-party payers in most high-income countries have increasingly shifted the burden of payment for prescription drugs to patients. A large body of literature has examined the relationship between prescription charges and outcomes such as expenditure, use, and health, but few reviews explicitly link cost sharing for prescription drugs to efficiency and equity. This article reviews 173 studies from 15 high-income countries and discusses their implications for important issues sometimes ignored in the literature; in particular, the extent to which prescription charges contain health care costs and enhance efficiency without lowering equity of access to care.

1. Background

The notion that user charges improve efficiency is regarded by some as self-evident. Not only do user charges reduce the welfare loss caused by full insurance, but they also help to contain health care costs, encourage patients to choose more cost-effective forms of care, and are a valuable source of revenue for the health system. Yet there is growing evidence to suggest that the reverse might be true. Although user charges consistently lower health care use and, if carefully designed, can steer patients towards cost-effective care, they do not lead to long-term control of pharmaceutical spending and seem unlikely to contain total expenditure on health (not least because they can threaten patients' health). In spite of research suggesting that user charges are unlikely to contribute to health policy goals such as efficiency and equity, all OECD countries charge patients for some health care services, most commonly for prescription drugs. The universal application of prescription drug charges in OECD countries may reflect anxiety about the rapid growth of pharmaceutical budgets [1], although many of these countries applied prescription drug charges before rising drug budgets became a pressing policy matter. Table 1 gives details of different forms of prescription drug charges.

This article reviews the literature on user charges for prescription drugs in high-income OECD countries with a view to assessing their impact on efficiency and equity. The substantial body of literature on prescription drug charges already includes several reviews. However, the remit of most of these reviews is constrained by a focus on, for example, specific populations [2-4]; a sub-set of the literature such as studies from the United States, the United Kingdom, and/or Canada [5-9]; specific types of prescription drug charges such as reference pricing [10,11] and tiered formularies [12]; or the main articles in the area [7,13-16]. We add to existing reviews by covering studies carried out in a wider range of high-income countries and reviewing papers published in languages other than English. We also go beyond them in attempting to assess the


The effects of copayment policies on adherence to prescription medicines in publicly insured populations
Aim 1
To conduct systematic reviews o the evidence in the area of cost- sharing for medicines
Aim 2
To elicit the impact of two consecutive prescription charges on adherence to medicines on the GMS scheme
Aim 3
To explore the generalisability of country specific evidence on cost-sharing for medicines
Aim 4
To validate the WHO DDD method used to measure adherence in Chapters 3 and 5
2 Systematic Reviews and 1 meta-analysis
Updated literature reviews
Quantitative paper measuring changes in adherence in essential and less-essential medicines after policy changes
Qualitative study to assess patient attitudes to new policy
Cross country comparison of 2 similar policy interventions in the U.S. and in Ireland to explore whether comparable effects on adherence behaviour occur
Methodological validation using international pharmacy claims data
Paper 1: Published in PlosOne (2013)
Paper 2: Under review at Value in Health
Paper 3: Under review at Journal of Epidemiology and Community Health
Paper 4: Published in BMC HSR (2013)
Paper 5: Under review at Medical Care
Paper 6: Under review at Journal of Clinical Epidemiology
Chapter 2
Chapter 7
Chapter 3
Chapter 4
Chapter 5
Chapter 6

To assess the impact of the introduction of a 50c copayment and the subsequent increase to €1.50 on adherence to medicines in the Irish General Medical Services (GMS) population.

Methods

Study Design

A longitudinal repeated measures (pre-post)study design, with comparator

Data Sources

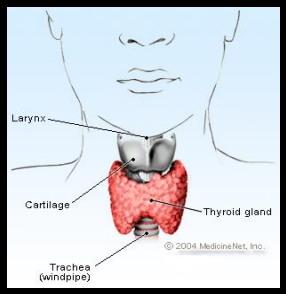
Health Service Executive–Primary Care Reimbursement Services (HSE-PCRS)

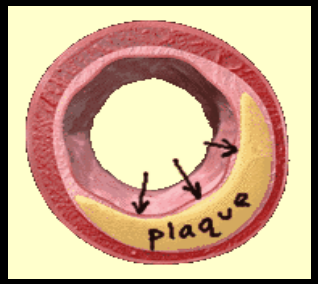
Patients

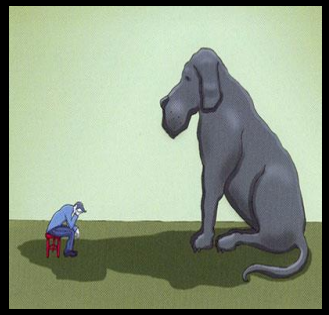
New users of oral medications for essential and less-essential medicines

Soumerai *et al.,* 1993
Grimes *et al.,* 2013, Ray 2002

Essential medicines



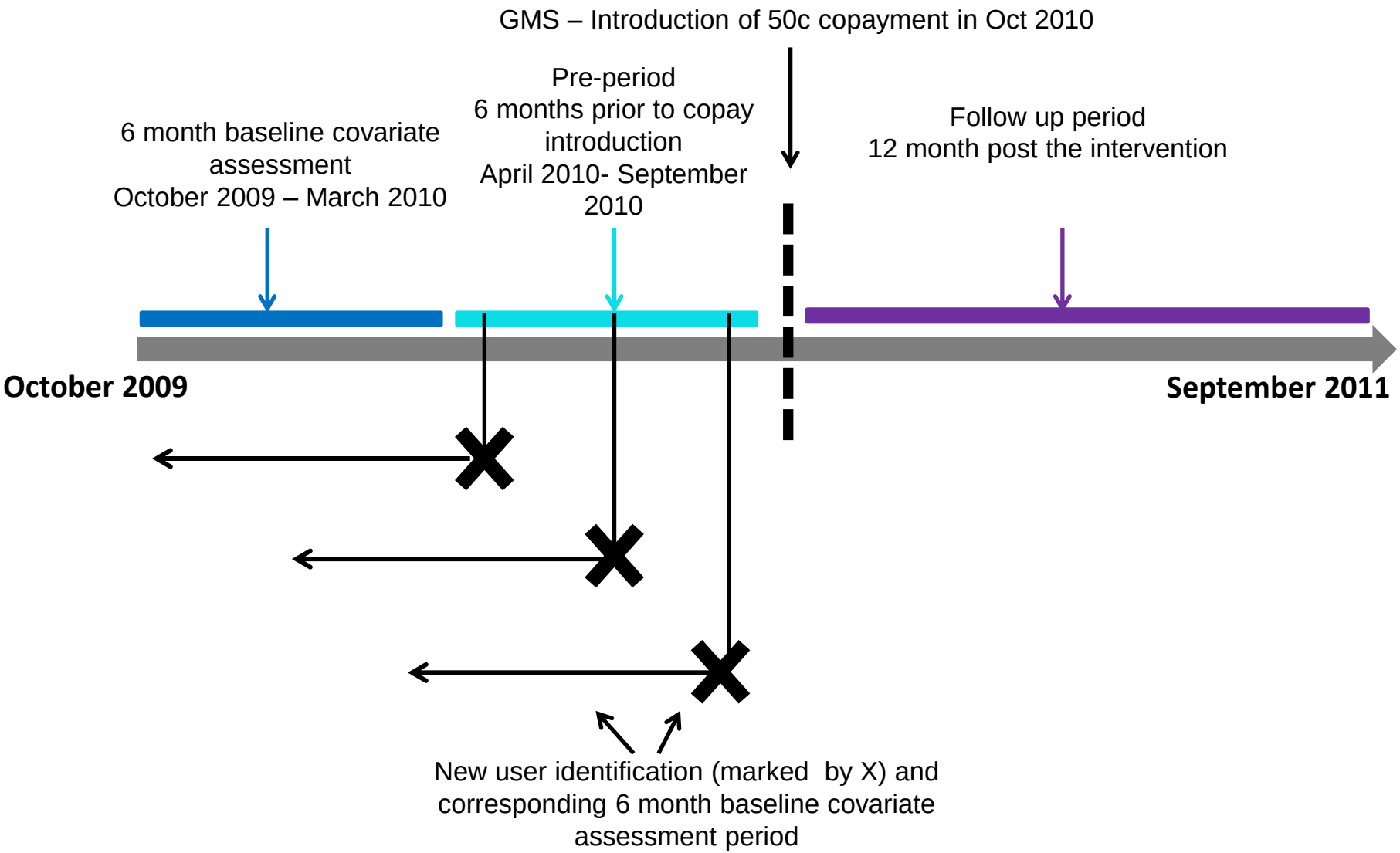




Less-essential medicines

Austvoll-Dahlgren *et al.*, 2008. Cochrane Review

New user design



Methods

Outcome

Monthly adherence to medicines, measured using Proportion of Days Covered (PDC)

Analysis

Segmented regression analysis

Generalised Estimating Equations

- Correlations between measurements for each patient

Subgroup analyses

- Age and gender

Benner *et al.,* 2002

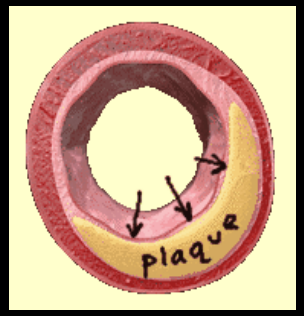
Long Term Illness (LTI)

no copayment during study period

Soumerai *et al.,* 1993

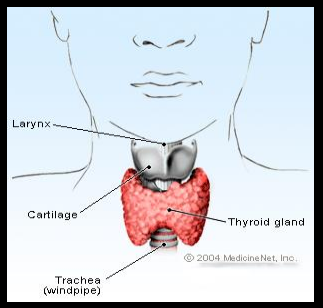
Results

GMS n = 39,314
LTI n = 3,831

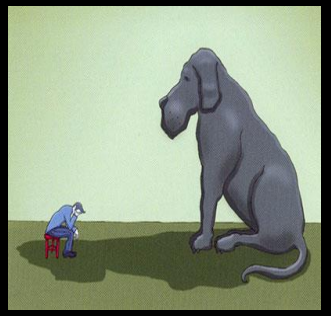


GMS n = 33,394
LTI n = 4,217

GMS n = 7,149
LTI n = 4,076



GMS n = 7,654



GMS n = 39,432

GMS n = 80,264

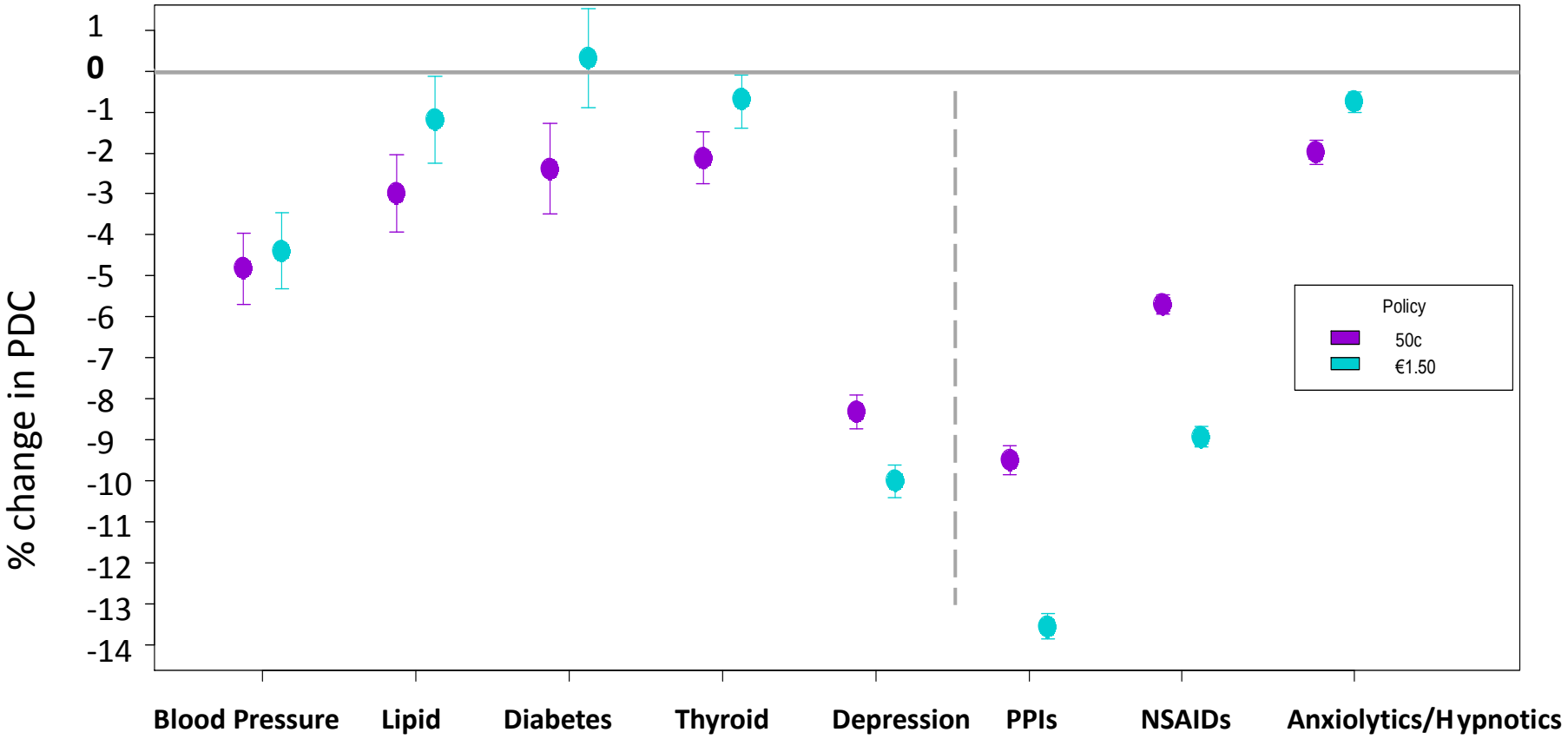
GMS n = 136,111

GMS n = 64,462

Results

	GMS	LTI
Approximate mean age	62 yrs	56 yrs
Approximate female	51%	32%
Baseline medication use		
Oral hypoglycaemics		Higher use
Insulin		Higher Use
Anti-hypertensives	Higher Use	
Anti-hyperlipidaemics	Higher Use	
Aspirin	Higher Use	

Results



Results for short term effects of 50c and €1.50 policies plotted for each medication group. Results plotted for blood pressure lowering, lipid lowering and oral diabetes medicines are relative differences. Results plotted for remaining medicine groups are absolute differences in adherence observed in the GMS group. Adjusted for age and sex.

Discussion

- Less-essential vs essential
  - Austvoll Dahlgren *et al.,* 2008; Gemmil *et al.,* 2008; Goldman *et al.,* 2007; Eaddy *et al.,* 2013
- Exception
  - Reeder *et al.,* 1985; Ong *et al.,* 2003
- Subgroup analyses
  - Varying effects by age and gender
- Adherence fell only very slowly in the months following the changes in copayments
  - Schneeweiss *et al.,* 2007

Conclusion and Policy Implications

- Small copayments may be of value
  - Moral hazard
  - Essential medicine use
- Areas of concern
  - Anti-depressants
- Future research
  - €2.50
  - Heterogeneity across population
  - Other agents
- Very, very careful price-titration

Thank you

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Back ups

Paper 5 - Analysis of Copayment Policy in Ireland

Sinnott *et al. BMC Health Services Research* 2013, **13**:16
http://www.biomedcentral.com/1472-6963/13/16

BMC Health Services Research

RESEARCH ARTICLE **Open Access**

Is 50 cent the price of the optimal copayment? - a qualitative study of patient opinions and attitudes in response to a 50 cent charge on prescription drugs in a publicly funded health system in Ireland

Sarah-Jo Sinnott[1*], Marie Guinane[2], Helen Whelton[3] and Stephen Byrne[2]

Abstract

Background: A 50 cent prescription levy was introduced in 2010 on the General Medical Services (GMS) scheme (Irish public health insurance). This study sought to examine patient attitudes and opinions surrounding the 50 cent copayment. Given the small momentary value of the prescription fee, these results are of interest to policymakers internationally who wish to reduce copayments rather than abolish them.

Methods: A qualitative research design was used; semi structured interviews were carried out. Twenty four GMS eligible participants were interviewed in 23 interviews. Fifteen females and 9 males took part. Ages varied from 31- >70 years. Patients were invited to be interviewed in both independent and chain community pharmacies in three types of setting; 1) a socially deprived urban area, 2) a suburban affluent area and 3) a rural area. The Framework method was used for data management and analysis using QSR International's NVivo 9.2 qualitative data analysis software. The "Francis method" was used to test for data saturation.

Results: Results are of interest to the Irish context and also at a broader international level. Patients were mostly accepting of the prescription levy with some reservations concerning an increased price and the way in which generated revenue would be used by government. Participants identified waste of prescription drugs at the hand of patients (moral hazard), but there was discordant opinion on whether the 50 cent copayment would halt this moral hazard. Interviewees felt the levy was affordable, albeit some may suffer a financial impact more than others.

Conclusions: This qualitative study gives important insights into the experiences of GMS patients with regard to the prescription levy. Information regarding the appropriateness of a 50 cent copayment as a symbolic copayment needs to be confirmed by quantitative analysis. Further insight is required from a younger population.

Qualitative and Quantitative Results

Quantitative

- Disruption in *status quo,* sense of entitlement to free medicines

Qualitative

> *"After working all my life as a xx. . ... I think I was after working for the medical card"* 14MC.

Quantitative

- Results clearly show difference in essential and less-essential medicines.

Qualitative

> *". . ...Like I was told I'd get now, since I got sick – if I was told to stand on my head three times a day I would do it. . ."*

Literature Review

Systematic Reviews

- Powerful tools for policymakers (Lavis *et al.,* 2004)
  - Comprehensive overview
  - Precision
  - Time

Paper 1

- Copayments for prescription meds and adherence
- Publicly insured populations

Paper 2

- Removal/reduction of copayments for prescription medicines
- General populations

Paper 1

OPEN ACCESS Freely available online

PLOS | ONE

The Effect of Copayments for Prescriptions on Adherence to Prescription Medicines in Publicly Insured Populations; A Systematic Review and Meta-Analysis

Sarah-Jo Sinnott[1]*, Claire Buckley[2], David O'Riordan[1], Colin Bradley[2], Helen Whelton[3]

1 Department of Epidemiology and Public Health, University College Cork, Cork, Ireland, **2** Department of General Practice, University College Cork, Cork, Ireland, **3** Oral Health Services Research Centre, University College Cork Dental School, Wilton, Cork, Ireland

Abstract

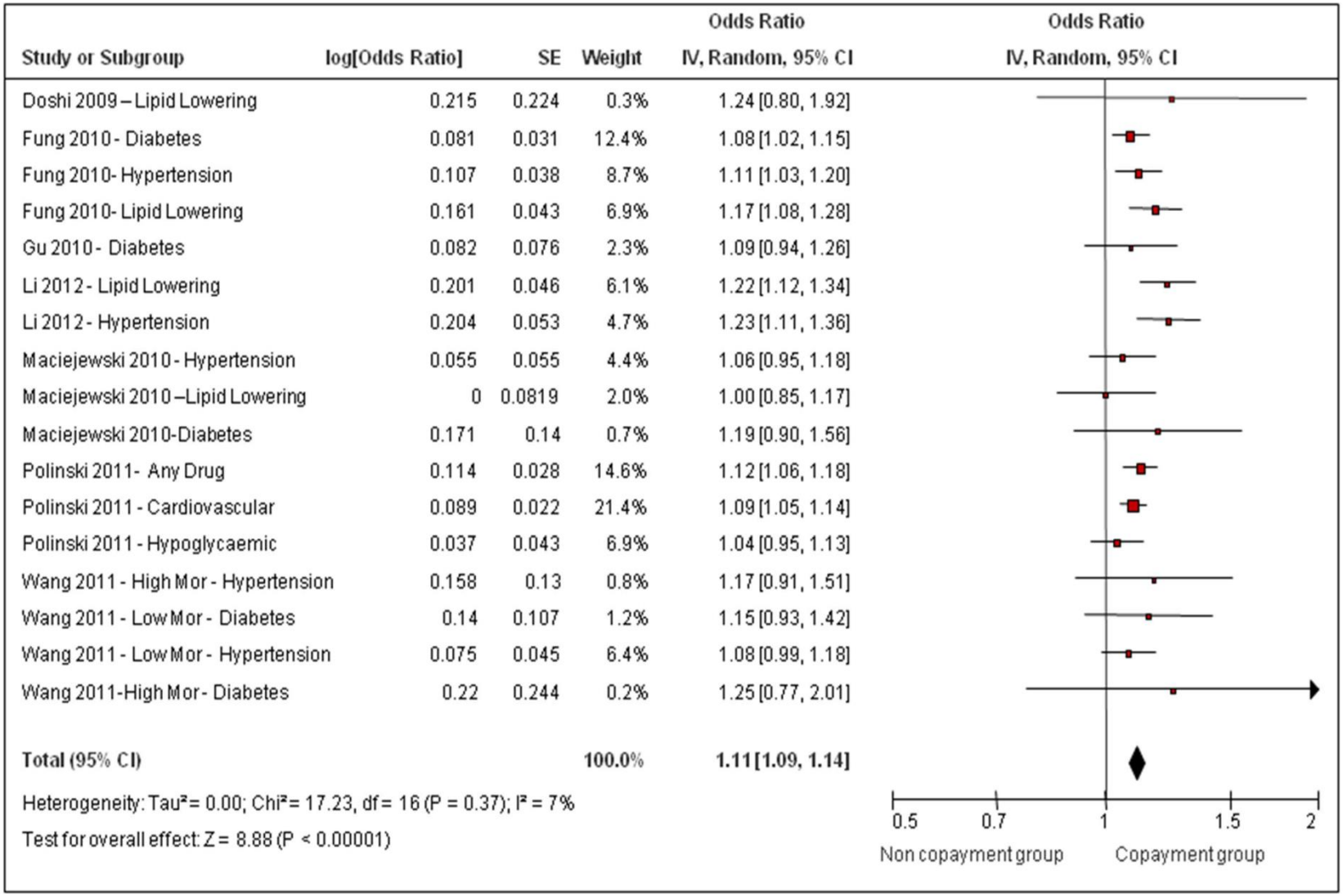
Introduction: Copayments are intended to decrease third party expenditure on pharmaceuticals, particularly those regarded as less essential. However, copayments are associated with decreased use of all medicines. Publicly insured populations encompass some vulnerable patient groups such as older individuals and low income groups, who may be especially susceptible to medication non-adherence when required to pay. Non-adherence has potential consequences of increased morbidity and costs elsewhere in the system.

Objective: To quantify the risk of non-adherence to prescribed medicines in publicly insured populations exposed to copayments.

Methods: The population of interest consisted of cohorts who received public health insurance. The intervention was the introduction of, or an increase, in copayment. The outcome was non-adherence to medications, evaluated using objective measures. Eight electronic databases and the grey literature were systematically searched for relevant articles, along with hand searches of references in review articles and the included studies. Studies were quality appraised using modified EPOC and EHPPH checklists. A random effects model was used to generate the meta-analysis in RevMan v5.1. Statistical heterogeneity was assessed using the I^2 test; $p>0.1$ indicated a lack of heterogeneity.

Results: Seven out of 41 studies met the inclusion criteria. Five studies contributed more than 1 result to the meta-analysis. The meta-analysis included 199, 996 people overall; 74, 236 people in the copayment group and 125,760 people in the non-copayment group. Average age was 71.75years. In the copayment group, (verses the non-copayment group), the odds ratio for non-adherence was 1.11 (95% CI 1.09–1.14; P = <0.00001). An acceptable level of heterogeneity at $I^2=7\%$, ($p=0.37$) was observed.

Conclusion: This meta-analysis showed an 11% increased odds of non-adherence to medicines in publicly insured populations where copayments for medicines are necessary. Policy-makers should be wary of potential negative clinical outcomes resulting from non-adherence, and also possible knock-on economic repercussions.


Study or Subgroup
log[Odds Ratio]
SE
Weight
Odds Ratio
IV, Random, 95% CI
Odds Ratio
IV, Random, 95% CI
Doshi 2009 – Lipid Lowering 0.215 0.224 0.3% 1.24 [0.80, 1.92]
Fung 2010 - Diabetes 0.081 0.031 12.4% 1.08 [1.02, 1.15]
Fung 2010 - Hypertension 0.107 0.038 8.7% 1.11 [1.03, 1.20]
Fung 2010 - Lipid Lowering 0.161 0.043 6.9% 1.17 [1.08, 1.28]
Gu 2010 - Diabetes 0.082 0.076 2.3% 1.09 [0.94, 1.26]
Li 2012 - Lipid Lowering 0.201 0.046 6.1% 1.22 [1.12, 1.34]
Li 2012 - Hypertension 0.204 0.053 4.7% 1.23 [1.11, 1.36]
Maciejewski 2010 - Hypertension 0.055 0.055 4.4% 1.06 [0.95, 1.18]
Maciejewski 2010 – Lipid Lowering 0 0.0819 2.0% 1.00 [0.85, 1.17]
Maciejewski 2010 - Diabetes 0.171 0.14 0.7% 1.19 [0.90, 1.56]
Polinski 2011 - Any Drug 0.114 0.028 14.6% 1.12 [1.06, 1.18]
Polinski 2011 - Cardiovascular 0.089 0.022 21.4% 1.09 [1.05, 1.14]
Polinski 2011 - Hypoglycaemic 0.037 0.043 6.9% 1.04 [0.95, 1.13]
Wang 2011 - High Mor - Hypertension 0.158 0.13 0.8% 1.17 [0.91, 1.51]
Wang 2011 - Low Mor - Diabetes 0.14 0.107 1.2% 1.15 [0.93, 1.42]
Wang 2011 - Low Mor - Hypertension 0.075 0.045 6.4% 1.08 [0.99, 1.18]
Wang 2011 - High Mor - Diabetes 0.22 0.244 0.2% 1.25 [0.77, 2.01]
Total (95% CI) 100.0% 1.11 [1.09, 1.14]
Heterogeneity: Tau² = 0.00; Chi² = 17.23, df = 16 (P = 0.37); I² = 7%
Test for overall effect: Z = 8.88 (P < 0.00001)
0.5
0.7
1
1.5
2
Non copayment group
Copayment group

Results : Dichotomous Measures		
Choudhry 2011	Statins Beta-blockers ACE inhibitors or ARBs All	OR 1.37 (95% CI 1.20-1.56) OR 1.32 (95% CI 1.16-1.49) OR 1.31 (95% CI 1.14-1.49) OR 1.41 (95% CI 1.18-1.67)
Donoghue 2010*	ACE /ARBs No Coverage $150 $350 Beta-blockers No Coverage $150 $350 ACE/ARB plus beta-blocker No Coverage $150 $350 Aldosterone inhibiting diuretics No Coverage $150 $350 Digoxin No Coverage $150 $350	 OR 1.91 (95% CI 1.49-2.45) OR 1.06 (95% CI 0.82-1.37) OR 1.18 (95% CI 1.02-1.36) OR 1.55 (95% CI 1.18-2.05) OR 1.15 (95% CI 0.9-1.47) OR 1.25 (1.07-1.45) OR 2.95 (95% CI 1.85-4.69) OR 1.25 (95% CI 0.76-2.06) OR 1.39 (95% 1.07-1.82) OR 1.08 (95% CI 0.47-2.48) OR 1.33 (95% CI 0.66-2.69) OR 1.18 (95% CI 0.77 -1.81) OR 1.86 (95% CI 0.98-3.51) OR 1.18 (95% CI 0.69-2.01) OR 0.87 (95% CI 0.61-1.25)
Rodin 2009	Statins Sulphonylureas Metformin	18.2% increase (p=0.26) 3% decrease (p=0.93) 2.4% increase (p=0.25)
Zeng 2010	Metformin Sulfonylureas Thiazolidinediones Incretin mimetics DPP-4 inhibitors Insulin	OR 1.56 (95% CI 1.04-2.34)
Zhang 2010^	Anti-hyperlipidaemics No Cov $150 $350 Oral anti-diabetic No Cov $150 $350 Anti-hypertensives No Cov $150 $350	 OR 1.67 (95% CI 1.35-2.07) OR 1.22 (95% CI 1.04-1.43) OR 1.14 (95% CI 1.06-1.24) OR 2.36 (95% CI 1.81-3.08) OR 1.17 (95% CI 0.9-1.51) OR 1.21 (95% CI 1.06-1.39) OR 2.09 (95% CI 1.82-2.4) OR 1.13 (95% CI 0.99-1.29) OR 1.14 (95% CI 1.05-1.23)

Results: Continuous Measures		
Chang 2010	Oral antidiabetes only	5% increase (p<0.0001)
Choudhry 2011	Statins	6.2% (95% CI 3.9-8.5)
	Beta-blockers	4.4% (95% CI 2.3-6.5)
	ACE inhibitors or ARBs	5.6% (95% CI 3.4-7.7)
	All	5.4% (95% CI 3.6-7.2)
Farley 2012 (also representing Maciejewski)	Metformin	5% increase (p<0.001)
	Diuretics	4.5% increase (p<0.001)
	ACE inhibitors	4.8% increase (p<0.001)
	Beta-blockers	4.3% increase (p<0.001)
	Statins	2.3% increase (p<0.001)
	Calcium channel blockers	2.0% increase (p<0.001)
Sedjo2008	Statins	2.53% increase (p<0.001)
Zeng 2013	Oral anti- diabetes medicines and insulin	
	No Coverage	2.75% increase (95% CI 0.17-5.33)
	Partial Coverage	5.95% increase (95% CI 2.48-9.41)
Zhang 2010^	Anti-hyperlipidaemics	
	No Coverage	13.4% increase (95% CI 10.1-16.8)
	$150	7.3% increase (95% CI 4.8-9.8)
	$350	4.4% increase (95% CI 3.3-5.6)
	Oral anti-diabetics	
	No Coverage	17.9% increase (95% CI 13.7-22.1)
	$150	4.5% increase (95% CI 1.0-7.9)
	$350	3.6% increase (95% CI 1.8-5.3)
	Anti-hypertensives	
	No Coverage	13.5% increase (95% CI 11.5-15.5)
	$150	2.6% increase (95% CI 1.2-4.1)
	$350	2.5% increase (95% CI 1.7-3.2)

*Results for Donohue 2010 are shown for three groups: a group which had no prescription coverage prior to the intervention "No Coverage" and two groups which were covered up to $150 and $350 quarterly caps. Controls were a group who had full coverage both before and after the intervention. ^Results for Zhang 2010 are presented for the same groups as Donohue 2010.

Discussion

- Publicly insured populations had an 11% (95% CI 1.09-1.14) increased odds of non-adherence (>80%) to prescription medicines when copayments were required.

- Moderate improvement in adherence ranging from 2% to 17.9% when copayments removed or reduced.
- An improvement in OR 1.2 (95% CI 1.0 to 1.4) to OR 2.9 (95% CI, 1.8 to 4.7) when reported as a binary measure.

Discussion

- Strengths
  - Transparent and comprehensive systematic searches -informed by a Cochrane Review (2009)
  - Quality appraisal – Cochrane EPOC methodology
  - First meta-analysis in this area
  - Potential publication biases
- Limitations
  - Adherence as a surrogate outcome
  - Linked to clinical outcomes in the cost-sharing setting (Tamblyn *et al.* 2001)

- Evidence base for further policy development
- Applied in tandem with assessment of policies in Ireland

Table 1 **Results: Impact of 50c copayment introduction on adherence**

	Short term % change in adherence (95% CI)			**Long term % change in adherence (per month) (95% CI)**		
	GMS	LTI	DIFF	GMS	LTI	DIFF
Chronic Disease Medicines						
Blood pressure lowering medicines	-5.0 (6.8 to -3.4)	-0.2 (-1.1 to 0.6)	-4.8 (-5.7 to -4.0)	-0.5 (-0.9 to -0.1)	-0.9 (-1.2 to -0.7)	0.5 (0.3 to 0.6)
Lipid lowering medicines	-4.7 (-6.5 to -2.9)	-1.7 (-2.6 to -0.8)	-3.0 (-3.9 to -2.1)	-1.2 (-1.5 to -0.7)	-1.1 (-1.3 to -0.8)	-0.1 (-0.2 to 0.1)
Oral diabetes medicines	-4.0 (-6.0 to -1.9)	-1.6 (-2.5 to -0.6)	-2.4 (-3.5 to -1.3)	-0.5 (-0.9 to 0.2)	-0.9 (-1.3 to -0.5)	0.4 (0.3 to 0.75)
Thyroid hormone	-2.1(-2.8 to -1.5)	-	-	-0.4 (-0.8 to 3.0)	-	-
Anti-depressant medicines	-8.3(-8.7 to -7.9)	-	-	-0.8 (-1.1 to -0.5)	-	-
'Less-essential medicines'						
Proton pump inhibitors/H_2 antagonists	-9.5 (-9.8 to -9.1)	-	-	-0.5 (-0.9 to -0.3)	-	-
NSAIDs	-5.7 (-5.9 to - 5.5)	-	-	0.4 (0.1 to 0.7)	-	-
Anxiolytics/Hypnotics	-2.0 (-2.3 to -1.7)	-	-	-0.2 (-0.5 to 0.01)	-	-

Table 2 **Results: Impact of €1.50 copayment increase on adherence**

	Short term % change in adherence (95% CI)			**Long term % change in adherence (per month) (95% CI)**		
	GMS	LTI	DIFF	GMS	LTI	DIFF
Chronic Disease Medicines						
Blood pressure lowering medicines	-5.3 (-7.1 to -3.5)	-0.9 (-1.8 to 0.01)	-4.4 (-5.3 to -3.5)	-1.2 (-1.6 to -0.6)	-1.4 (-1.7 to -1.03)	0.2 (0.04 to 0.4)
Lipid lowering medicines	-4.7 (-6.8 to -2.6)	-3.5 (-4.5 to -2.5)	-1.2 (-2.3 to -0.1)	-1.6 (-2.1 to -1.03)	-1.7 (-2.0 to -1.3)	0.1 (-0.1 to 0.3)
Oral diabetes medicines	-4.9(-7.2 to -2.7)	-5.2 (-6.3 to -4.2)	0.3 (-0.9 to 1.5)	-1.8 (-2.3 to -1.6)	-1.9 (-2.1 to -1.7)	0.1 (-0.2 to 0.1)
Thyroid hormone	-0.7 (-1.4 to -0.1)	-	-	-1.0 (-1.3 to -0.5)	-	-
Anti-depressant medicines	-10.0 (-10.4 to -9.6)	-	-	-1.5 (-1.8 to -1.2)	-	-
'Less-essential medicines'						
Proton pump inhibitors/H_2 antagonists	-13.5 (-13.9 to -13.2)	-	-	-1.2 (-1.5 to -0.9)	-	-
NSAIDs	-8.9 (-9.2 to -8.7)	-	-	-1.4 (-1.6 to -1.1)	-	-
Anxiolytics/Hypnotics	-0.8 (-1.0 to -0.5)	-	-	-0.2 (-0.6 to 0.1)	-	-

	50c	€1.50
Income generated	€27,000,000 [a]	€81,000,000 [b]
Savings accumulated	€28,874,085*[+]	€39,720,663
Total Gains	€55,874,085	€120,720,663

*savings accumulated estimated using ingredient cost per year plus a dispensing fee of €3.50

[+] Savings accumulated – calculated only for 8 groups of medicines in this thesis

[a] Health Service Executive. Annual Report and Financial Statements 2011.

[b] Health Service Executive. National Service Plan 2014.