Cost Analysis, Cost-Effectiveness and Cost-Utility of Hypertension and Hyperlipidemia Collaborative Management between Pharmacies and Primary Care in Portugal Alongside a Trial Compared with Usual Care (USFarmácia®)

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1. INTRODUCTION

There is little experience in the economic evaluation of pharmacy/ primary care collaborative health interventions using interprofessional technology-driven communication under real-world conditions.

2. AIMS

This study aimed to conduct cost-effectiveness and cost-utility analyses of a collaborative care intervention in hypertension and hyperlipidemia management between pharmacies and primary care versus usual (fragmented) care alongside a trial.

3. METHODS

An economic evaluation was conducted alongside a 6-month pragmatic quasi-experimental controlled trial.

Trial design, challenges, and effectiveness results are reported in Abstract 764 / Poster PPR-018.

Data sources included: primary care clinical software; pharmacy dispensing software; patient telephone surveys; and published literature.

The target population was adult patients on hypertension and/or lipid-lowering medication.

The perspective was societal. We collected patient-level data on resource use to estimate trial costs (**Box 1**).

Items	Time point recorded	Data source (quantities)
Pharmacy visits Pharmacy point-of-care measurements & tests	All available data points 6±2M after patient enrolment (No intervention prior to enrolment)	Pharmacy dispensing software
GP visits Nurse visits USF point-of-care measurements & tests	All available data points 6±2M prior to patient enrolment 6±2M after patient enrolment	Primary care prescribing and clinical software
Prescribed anti-hypertensive / lipid-lowering medication	All available data points 6±2M prior to patient enrolment 6±2M after patient enrolment	Primary care prescribing and clinical software
Quality of Life	0 and 6 months	Patient telephone survey using EuroQol-5 dimension-3 Level instrument (EQ-5D-3L) and Visual Analog Scale (EQ-VAS)
Primary care + hospital ER visits Hospital outpatient visits Days in hospital Working days lost Travel + waiting time to USF / Pharmacy Means of transport + km or cost	0 and 6 months (in previous 6 months)	Patient telephone survey

Box 1. Resource use data and sources for quantities

We used National Health Service (NHS) unit costs and micro-costing including Time-Driven Activity-Based Costing (TDABC) to estimate the cost of pharmacy and primary care interventions, and the human capital approach for paid and unpaid productivity loss costs. Unit costs from previous years were adjusted for 2018.

Effect outcomes included blood pressure (BP) and quality-adjusted life years (QALYs).

Bootstrapping with 10,000 iterations was used to estimate uncertainty around the incremental cost-effectiveness (ICER) and cost-utility ratios (ICUR). Cost-effectiveness planes and acceptability curves (CEAC) were estimated.

DISCLOSURE

This poster reports work that is part of the first author's Ph.D. in Public Health, specialization in Health Economics.
The trial was promoted by the NHS Group of Primary Care Units ACeS do Baixo Mondego and the National Association of Pharmacies (ANF), in collaboration with Glintt and SPMS, EPE, and was funded by ANF. The promoters and funder had no role in the: study design; project management; data collection; analysis and interpretation, writing, review; or approval of this abstract and poster.

ETHICS APPROVAL & DATA PROTECTION

The study was approved by the NHS Regional Health Administration "ARS Centro" on 09-02-2017 following the opinion of its Ethics Committee. The Ethics Committee Instituto de Bioética of Universidade Católica Portuguesa also approved the study on 20-03-2018. Patients provided written consent which included provisions for economic data.

4. RESULTS

A total of 203 (131 intervention, 72 control) patients entered the study and were included in the 6-month cost analysis; 181 (116 intervention, 65 control) were included in the 6-month quality-of-life analysis.

The intervention was not shown to have reasonable levels of cost-effectiveness or cost-utility when compared to usual care, as denoted by the levels of uncertainty expressed in cost-effectiveness planes (**Fig 1** and **Fig 3**). The probability for the intervention to be cost-effective is 28% at the threshold of €20,000 per QALY gained (**Fig 2**) and 57% at the threshold of €500 per mmHg systolic BP decrease (**Fig 4 left**).

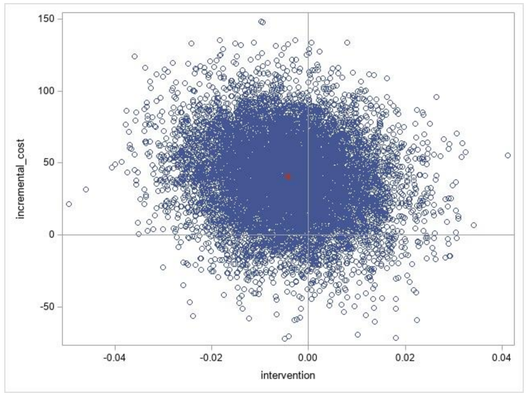

Fig 1. Cost-effectiveness plane (ICUR)

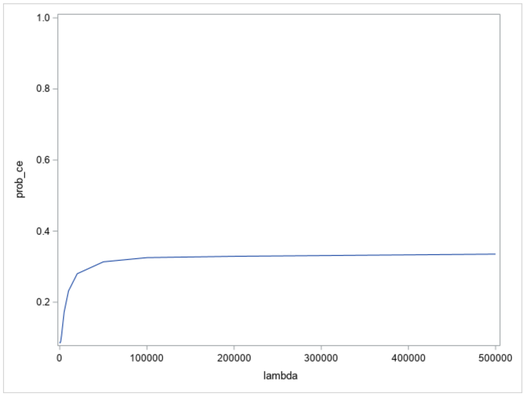

Fig 2. CEAC (QALY)

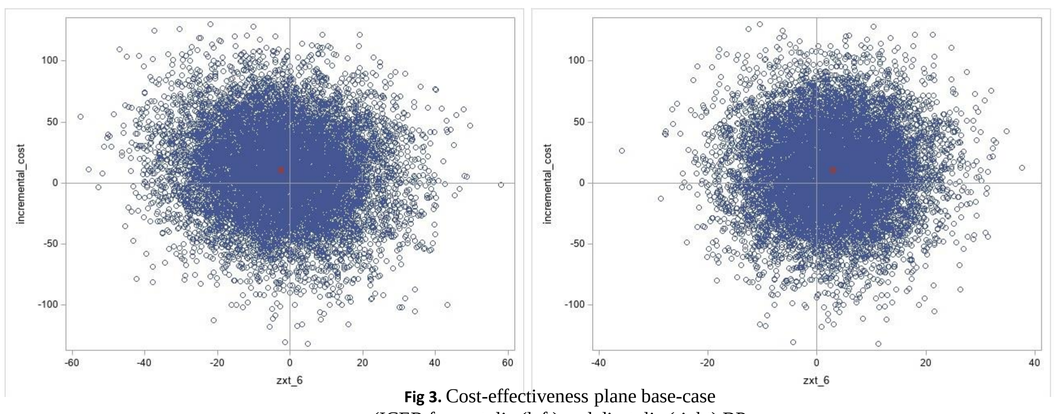

Fig 3. Cost-effectiveness plane base-case
(ICER for systolic (left) and diastolic (right) BP

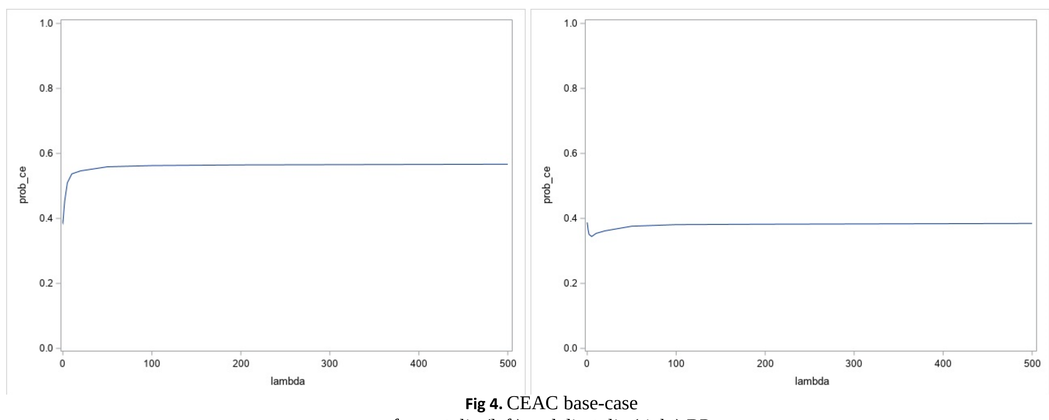

Fig 4. CEAC base-case
for systolic (left) and diastolic (right) BP

The revised ICER for systolic BP in the sensitivity analysis (using a case scenario from the average change in BP derived from a meta-analysis) is not that different from the base case either.

5. CONCLUSION

Considering the limitations of the trial which affected effectiveness and economic outcomes our results are not generalizable for community pharmacy and primary care in Portugal. This research offers, however, valuable lessons on methods and strategies that can be used in future economic evaluations of collaborative public health interventions with the potential for reimbursement.

ACKNOWLEDGEMENTS

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You are also welcome to check our POSTERS HSD67 (effectiveness trial) and PCR290 (preferences and cost-benefit analysis of this trial).

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