

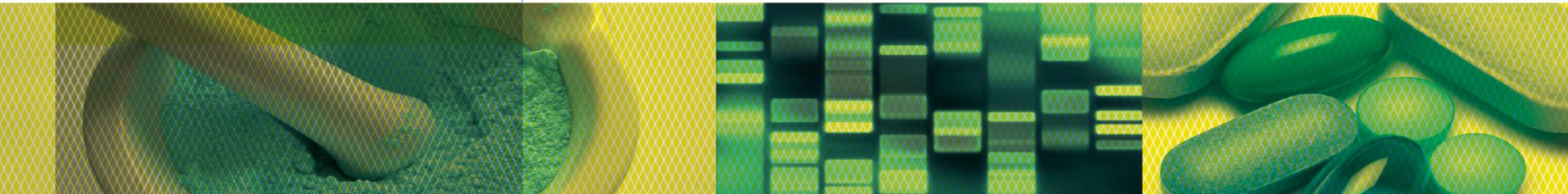


International
Pharmaceutical
Federation

Shaping the future of the pharmacy profession through pharmacy practice research

Organised by the Pharmacy Practice Research Special Interest Group (BPS)

12th October 2020



**ADVANCING
PHARMACY
WORLDWIDE**



Moderator

Dr. Fernanda Stumpf Tonin

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- Researcher, *Federal University of Paraná, Brazil*
- Vice-chair, *FIP Pharmacy Practice Research SIG*
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Announcements

Digital Events House Rules

1. Recording – this webinar is recorded and will be available at www.fip.org
2. Become a member of FIP at www.fip.org
3. Ask questions via Q&A box
4. Provide feedback – email to webinars@fip.org

Learning Objectives

After this webinar, participants should better understand:

- To discuss the essential processes involved in Pharmacy Practice Research
- To identify how Pharmacy Practice Research can contribute to the practice of pharmacy
- To discuss Pharmacy Practice Research priority areas

Speaker 1

Dr. Victoria Garcia-Cardenas

- Senior Lecturer, University of Technology Sydney
- *Chair, FIP Pharmacy Practice Research SIG*
- *Associate Editor, Research in Social and Administrative Pharmacy*

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RESEARCH IN SOCIAL &
ADMINISTRATIVE PHARMACY





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Pharmacy practice research – A call to action

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ARTICLE INFO

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Intervention development
Intervention evaluation
Intervention implementation
Intervention sustainability
Pharmacy education

ABSTRACT

Pharmacists have a societal duty of care. How to best provide that type of care requires scientific study. Pharmacy practice is a scientific discipline that studies the different aspects of the practice of pharmacy, and its impact on health care systems, medicine use, and patient care. Its scope has expanded globally to encompass clinical, behavioural, economic, and humanistic implications of the practice of pharmacy, as well as practice change and implementation in routine practice of innovations such as health interventions and patient-care services. The development, impact evaluation, implementation, and sustainability of health interventions and patient-care services represents a key research area for pharmacy practice. An approach for conducting these is provided. There is evidence that collaborative national and international research in this area is growing, showing an increased contribution to global health research. The role of universities and pharmacy professional associations in supporting the advancement of pharmacy through pharmacy practice research is also discussed. Finally, a call to action for pharmacy practice research, education, and practice is made.

Introduction to pharmacy practice research

Pharmacists have a societal duty of care. How to best provide that type of care requires a scientific approach. Pharmacy practice research is a type of health services research.¹ Although there is no universally accepted definition for Pharmacy practice research, the International Pharmaceutical Federation Pharmacy Practice Special Interest Group (FIP PPR SIG), has defined it as the scientific discipline that studies the different aspects of the practice of pharmacy and its impact on health care systems, medicine use, and patient care.² The scope of pharmacy practice research has expanded over the past 50 years to encompass clinical, behavioural, economic, and humanistic implications of the practice of pharmacy, as well as practice change and implementation of innovations such as health interventions and patient-care services in

routine practice. These are often provided in collaboration with other health care professionals, supporting an interdisciplinary care and integrated healthcare delivery.³ The drive for the expanded role of pharmacists in most settings has undoubtedly been stimulated by health challenges, patient demand, a natural professional evolution,⁴ but also facilitated by pharmacy practice research. As such, pharmacy practice research will continue to assist in shaping the future of the pharmacy profession.

It has been said that “professions exist to serve society”,⁵ otherwise, especially with the technological revolution, they will disappear. The mission of the pharmacy profession must address the medicines and health needs of individual patients and the society⁶ which have changed over the past decades. The traditional roles of pharmacists have been historically focused on drug compounding and later, drug supply. These

Garcia-Cardenas V, Rossing CV, Fernandez-Llimos F, Schulz M, Tsuyuki R, Bugnon O, Stumpf Tonin F, Benrimoj SI. Pharmacy Practice Research. A call to action. Res Social Adm Pharm. 2020 Aug 4:S1551-7411(20)30181-9. doi: 10.1016/j.sapharm.2020.07.031. Online ahead of print.

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Introduction to pharmacy practice research

An overview



What is it?

- The scientific discipline that studies the different aspects of the practice of pharmacy, and its impact on health care systems, medicine use, and patient care¹.



What is its scope?

- Clinical, behavioural, economic, and humanistic implications of the practice of pharmacy, as well as practice change and implementation of innovations in routine practice.



What is its role?

- The drive for the expanded role of pharmacists in most settings has been stimulated by health challenges, patient demand, a natural professional evolution, but also facilitated by pharmacy practice research.

Pharmacy practice research will continue to assist in shaping the future of the pharmacy profession

Pharmacy practice key strategic areas of research

- **Developing effective services and achieving their long-term implementation and sustainability in daily practice** is crucial to **explore innovative models of care** that address population needs → supporting the advancement and future existence of the pharmacy profession¹.
- The development, evaluation, implementation and sustainability of health interventions and patient-care services represents a challenging process. Previous failures in PPR:
 - **Sole emphasis on the intervention's evaluation phase**, to the detriment of the development and implementation phases → weaker interventions, decreasing the chances of its future implementation¹.
 - **Aggregation of all steps** involved in health services research, rather than using a multistage approach.
- The Medical Research Council Framework, provides a structured approach to develop, evaluate, and implement complex interventions (like professional pharmacy services) in health using a wide range of qualitative, quantitative, and mixed-method research approaches².

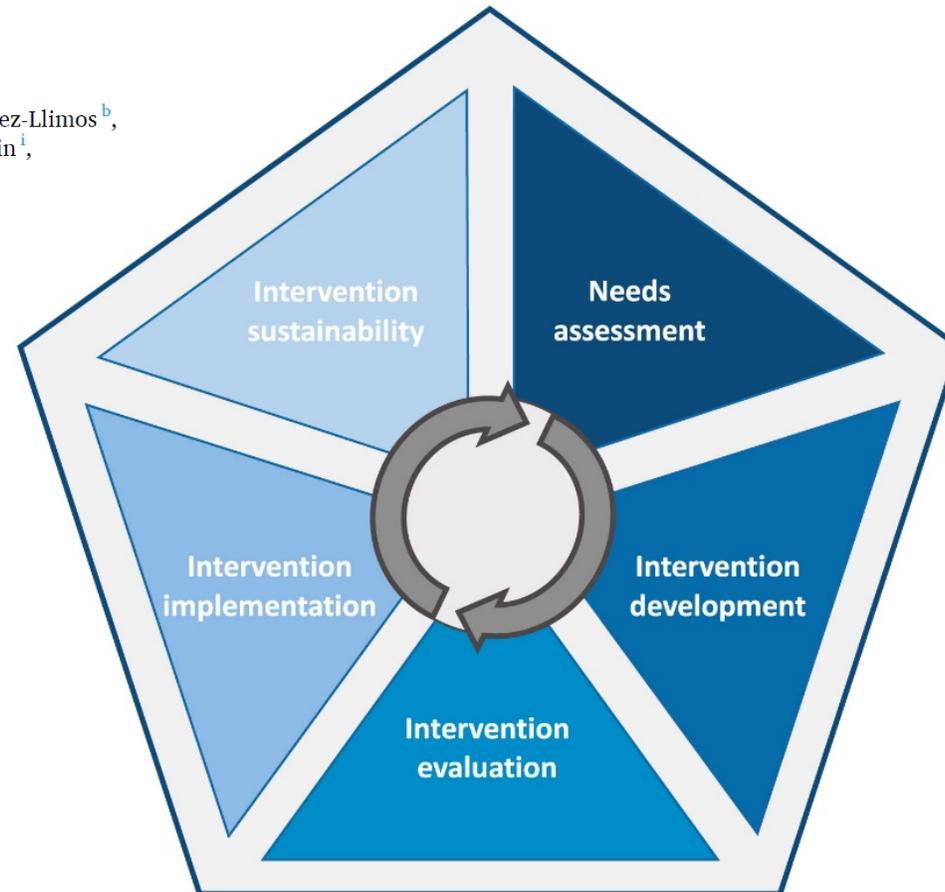
Pharmacy practice research – A call to action

Victoria Garcia-Cardenas^{a,*}, Charlotte Verner Rossing^c, Fernando Fernandez-Llimos^b, Martin Schulz^{d,e}, Ross Tsuyuki^f, Olivier Bugnon^{g,h}, Fernanda Stumpf Toninⁱ, Shalom I. Benrimoj^j

- Explore relevant conceptual approaches for the sustainability of the pharmacist intervention or service.
- Select mechanisms to monitor and facilitate routinization.
- Identify and address sustainability determinants.

Incorporating interventions into practice

- Identify an adequate implementation framework, theory or model which is relevant to pharmacy practice research.
- Select an appropriate study design.
- Define implementation outcomes.



Identifying unmet population needs

- Identify and quantify health needs that can benefit from pharmacists' care.
- Understand the nature of the problem and its determinants.
- Explore the context and the feasibility of a future pharmacist intervention or service that ensures a continuum of care.

Designing and modelling processes and outcomes

- Identify relevant evidence and other national and international pharmacist interventions and services.
- Explore theories, models, and frameworks applicable to the intervention or service model
- Identify process and outcome indicators.

Assessing the intervention's feasibility and impact

- Select study outcomes considering different stakeholders' perspectives (ECHO model).
- Select an appropriate study design.
- Consider undertaking a feasibility study before the main trial.

Adapted from the MRC framework²⁶

Needs assessment

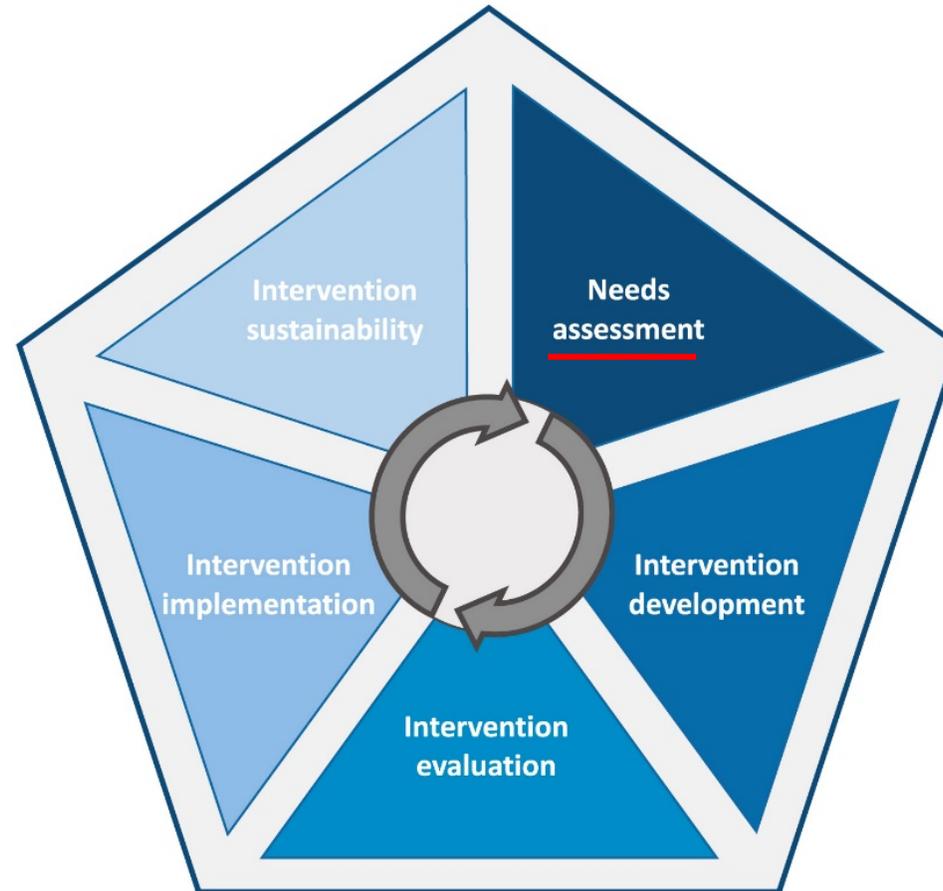
Identifying unmet population needs

Achieving the intervention's sustainment

- Explore relevant conceptual approaches for the sustainability of the pharmacist intervention or service.
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Needs assessment

Identifying unmet population needs.

- *“The systematic method of identifying unmet health and healthcare needs of a population and making changes to meet these unmet needs”*
- **Objective** → To identify and quantify unmet societal health needs that can benefit from pharmacists’ care or from wider healthcare system changes¹.
- **Unless a health intervention is able to respond to current or future societal needs, its future sustainability is likely to be compromised.**



Needs assessment

How can it be done?

- Collaborative process that is:
 - patient-focused
 - culturally sensitive
 - evidence-based
 - outcome-focused¹
- Paying specific attention to the local context

Examples

Qualitative research

- When an in-depth understanding of a particular phenomenon is needed, with a focus on perceptions and experiences from the perspective of the patient or other stakeholders²

Epidemiological approaches such as observational studies

- Used to describe the health status of populations and identify possible determinants of health outcomes

Systematic reviews and meta-analyses

- Used to synthesize the results of different studies when conflicting evidence exists in a given area.

Help to determine priorities for the most effective use of resources, balancing clinical, ethical, humanistic and economic factors³

Examples

Hedenrud et al. *BMC Pulmonary Medicine* (2019) 19:175
https://doi.org/10.1186/s12890-019-0934-3

BMC Pulmonary Medicine

RESEARCH ARTICLE

Open Access

"I did not know it was so important to take it the whole time" – self-reported barriers to medical treatment among individuals with asthma

Tove Hedenrud^{1*}, Annika Jakobsson¹, Hanan El Malla² and Helle Håkonsen¹

Abstract

Background: Asthma is an extensive public health problem and inadequate disease control is not uncommon. Individuals' self-perceived barriers to medical treatment for the entire treatment chain (from seeking care for symptoms to using a medicine) have seldom been studied for chronic diseases such as asthma. The aim of this study was to explore self-perceived barriers to medical treatment among individuals with asthma within the framework of AAAQ (availability, accessibility, acceptability and quality).

Methods: Individuals with asthma visiting the asthma nurse at a primary health care centre, and who currently had a prescription for anti-asthmatic medicines, were informed about the study. The nurse asked the persons for their consent to be contacted by an interviewer. The interview guide was constructed from the elements of AAAQ exploring self-perceived barriers to asthma treatment. Interviews were conducted in Swedish, English, Arabic and Persian. They were transcribed verbatim and a manifest content analysis was conducted.

Results: Fourteen interviews were conducted. There was a large variation in both age and reported number of years with asthma. Self-perceived barriers to asthma treatment were experienced throughout the whole treatment chain. Barriers that emerged were health care accessibility, perceived quality of care, beliefs about medicines, life circumstances, knowledge gap about asthma and medicines, practical obstacles to using medicines, and experiences with treatment. The self-perceived barriers cover all four elements of AAAQ, but there are also some barriers that go beyond those elements (life circumstances and practical obstacles to using medicines).

Conclusions: Self-perceived barriers among individuals with asthma cover the whole treatment chain. We want to highlight the inadequate information/education of patients leading to knowledge gaps about both disease and the effect of medicines, and also the perceived unsatisfactory treatment at the PHCC, which could partly be counteracted if patients know what to expect from health care visits.

Keywords: Barriers, Medical treatment, Asthma, Medicines, AAAQ, Qualitative

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ORIGINAL ARTICLE

Respiratory epidemiology

Prevalence of asthma-like symptoms with ageing

Debbie Jarvis,^{1,2} Roger Newson,⁴ Christer Janson,⁴ Angelo Corsico,⁵ Joachim Heinrich,⁶ Josep M Anto,^{7,8,9,10} Michael J Abramson,¹¹ Anne-Marie Kirsten,¹² Jan Paul Zock,^{7,8,9} Roberto Bono,¹³ Pascal Demoly,^{14,15} Bénédicte Leynaert,¹⁶ Chantal Raherison,¹⁷ Isabelle Pin,^{18,19} Thorarinn Gislason,^{20,21} Rain Jogi,²² Vivi Schluenzen,^{23,24} Cecilie Svanes,^{25,26} John Watkins,^{27,28} Joost Weyler,²⁹ Antonio Pereira-Vega,³⁰ Isabel Urrutia,³¹ Jose A Gullón,³² Bertil Forsberg,³³ Nicole Probst-Hensch,³⁴ H Marike Boezen,³⁵ Jesús Martínez-Moratalla Rovira,^{36,37} Simone Accordini,³⁸ Roberto de Marco,³⁸ Peter Burney^{1,2}

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1186/s12890-019-0934-3>).

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ABSTRACT

Background: Change in the prevalence of asthma-like symptoms in populations of ageing adults is likely to be influenced by smoking, asthma treatment and atopy. **Methods:** The European Community Respiratory Health Survey collected information on prevalent asthma-like symptoms from representative samples of adults aged 20–44 years (29 centres in 13 European countries and Australia) at baseline and 10 and 20 years later (N = 7844). Net changes in symptom prevalence were determined using generalised estimating equations (accounting for non-response through inverse probability weighting), followed by meta-analysis of centre level estimates.

Findings: Over 20 years the prevalence of 'wheeze' and 'wheeze in the absence of a cold' decreased (–2.4%, 95% CI –3.5 to –1.3%, –1.5%, 95% CI –2.4 to –0.6%, respectively) but the prevalence of asthma attacks, use of asthma medication and hay fever/allergic rhinitis increased (0.6%, 95% CI 0.1 to 1.1; 3.6%, 95% CI 3.0 to 4.2; 2.7%, 95% CI 1.7 to 3.7). Changes were similar in the first 10 years compared with the second 10 years, except for hay fever/allergic rhinitis (increase seen in the first 10 years only). Decreases in these wheeze-related symptoms were largely seen in the group who gave up smoking, and were seen in those who reported hay fever/allergic rhinitis at baseline.

Interpretation: European adults born between 1946 and 1970 have, over the last 20 years, experienced less wheeze, although they were more likely to report asthma attacks, use of asthma medication and hay fever. Decrease in wheeze is largely attributable to smoking cessation, rather than improved treatment of asthma. It may also be influenced by reductions in atopy with ageing.

BACKGROUND

There are few population-based longitudinal studies which have described the evolution of the burden of respiratory symptoms and disease in populations of adults as they age. The European Community Respiratory Health Survey II (ECRHS), a large multicentre, predominantly Western European, community-based study of younger adults reported that over a 10-year period (1992–2002)

Key messages

What is the key question?

► Has the prevalence of asthma-like symptoms changed in populations of young adults as they have aged?

What is the bottom line?

► In young adults followed for 20 years, the prevalence of asthma, use of asthma medication and self-reported hay fever/allergic rhinitis has increased, although, largely related to smoking cessation, the prevalence of wheeze has fallen.

Why read on?

► This prospective survey which includes follow-up data on adults collected over the last 20 years provides unique European-wide information on the evolution of asthma-like symptoms in adults as they have aged.

the prevalence of wheeze and wheeze-related symptoms fell among participants, while at the same time, the prevalence of asthma attacks and treatment for asthma increased.¹ This pattern of change, which was seen in all participating countries, was hypothesised as due to increased labelling (more 'asthma') and increased treatment (few wheeze) in those with relatively mild disease, possibly in response to the widespread adoption of guidelines for asthma treatment during the 1990s.

At the time it seemed unlikely that the overall decrease in wheeze symptoms would be related to decreased atopy within the ageing populations, as there was a contemporaneous increase in the prevalence of self-reported nasal allergies, and little evidence of change in measured serum specific IgE in a representative subsample of responders.² The observed changes in symptom burden may have occurred in response to cessation of smoking with ageing,³ driven by improved tobacco control during the 1990s, but at the time of publication information on smoking habits of the study group was still unavailable.



Debbie Jarvis, Roger Newson, Christer Janson, et al. *Thorax* 2018; **73**:37–48.

BMJ

J Jarvis, et al. *Thorax* 2018; **73**:37–48. doi:10.1136/thorax-2016-209596



Patient Preference and Adherence

Dovepress

Open Access RCT, Review Article

Open Access to scientific and medical research

REVIEW

Understanding Patient Perspectives on Medication Adherence in Asthma: A Targeted Review of Qualitative Studies

This article was published in the following Dove Press journal: *Patient Preference and Adherence*

Suvina Amin¹, Mena Soliman², Andrew McIvor³, Andrew Cave⁴, Claudia Cabrera⁵

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Abstract: Adherence to asthma medications is generally poor and undermines clinical outcomes. Poor adherence is characterized by underuse of inhaled corticosteroids (ICS), often accompanied by over-reliance on short-acting β_2 -agonists for symptom relief. To identify drivers of poor medication adherence, a targeted literature search was performed in MEDLINE and EMBASE for articles presenting qualitative data evaluating medication adherence in asthma patients (≥ 12 years old), published from January 1, 2012 to February 26, 2018. A thematic analysis of 21 relevant articles revealed several key themes driving poor medication adherence, including asthma-specific drivers and more general drivers common to chronic diseases. Due to the episodic nature of asthma, many patients felt that their daily life was not substantially impacted; consequently, many harbored doubts about the accuracy of their diagnosis or were in denial about the impact of the disease and, in turn, the need for long-term treatment. This was further compounded by poor patient-physician communication, which contributed to suboptimal knowledge about asthma medications, including lack of understanding of the distinction between maintenance and reliever inhalers, suboptimal inhaler technique, and concerns about ICS side effects. Other drivers of poor medication adherence included the high cost of asthma medication, general forgetfulness, and embarrassment over inhaler use in public. Overall, patients' perceived lack of need for asthma medications and medication concerns, in part due to suboptimal knowledge and poor patient-physician communication, emerged as key drivers of poor medication adherence. Optimal asthma care and management should therefore target these barriers through effective patient- and physician-centered strategies.

Keywords: Inhaled corticosteroids, over-reliance, patient-physician communication, respiratory tract disease, short-acting β_2 -agonist, underuse

Introduction

Asthma is a chronic inflammatory airway disease that affects approximately 339 million people worldwide.¹ The Global Initiative for Asthma (GINA) recommends the use of inhaled corticosteroids (ICS) as maintenance therapy for patients with asthma and, until an update in 2019,² short-acting β_2 -agonists (SABAs) for as-needed relief of asthma symptoms.³ However, despite the availability of effective treatment regimens, asthma remains uncontrolled in approximately 50% of patients who, therefore, remain at risk for potentially serious exacerbations.^{4,5}

Poor medication adherence, either intentionally or unintentionally,⁶ is recognized as one of the main reasons for suboptimal asthma management and poor clinical outcomes,⁷ with evidence of widespread ICS underuse across the spectrum of

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ADVANCING PHARMACY WORLDWIDE

Examples

- Self-reported barriers for medication adherence → What are they? Could they be targeted with a pharmacist intervention?
- Prevalence of asthma → Is it a prevalent problem? What are risk factors of poor asthma outcomes? Can pharmacists contribute to addressing these?



Intervention development and evaluation?

Speaker 2

Prof. Dr. Martin Schulz

- Director of the Department of Medicine at ABDA
- Adjunct Professor, Institute of Pharmacy, Freie Universität Berlin.
- His research interests are efficacy and effectiveness of pharmacist-led interventions.
- He is the André Bédard Awardee 2020.

Email: m.schulz@fu-berlin.de



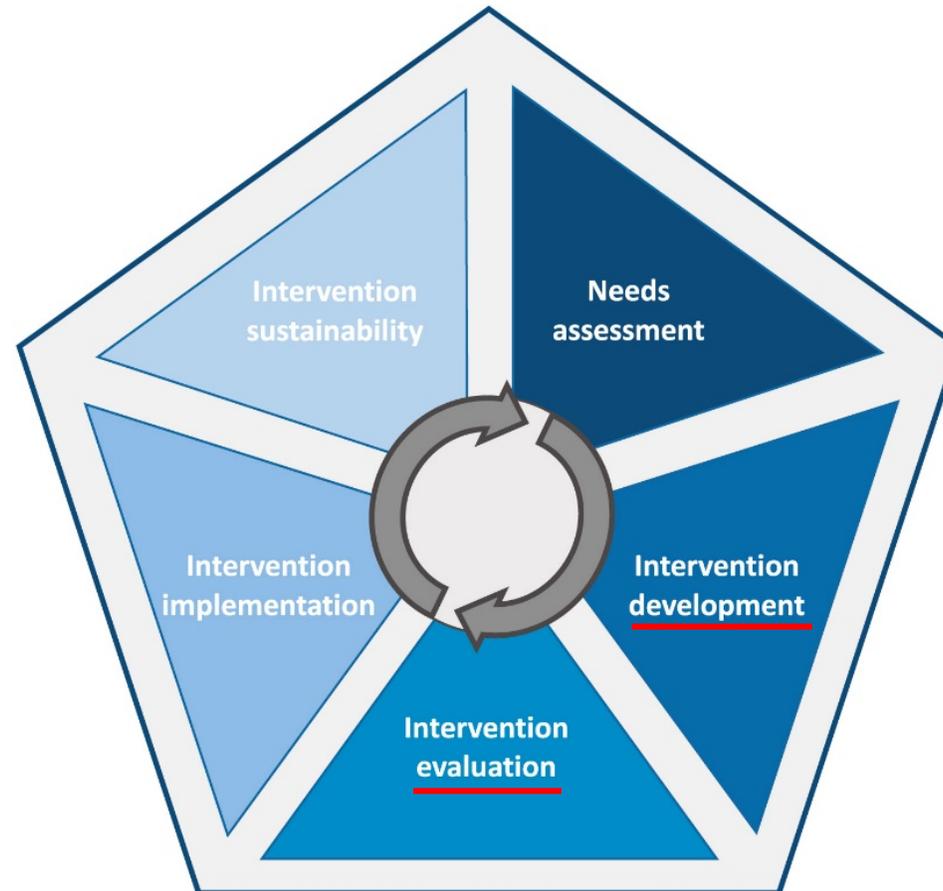
Intervention development and evaluation

Achieving the intervention's sustainment

- Explore relevant conceptual approaches for the sustainability of the pharmacist intervention or service.
- Select mechanisms to monitor and facilitate routinization.
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Incorporating interventions into practice

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Designing and modelling processes and outcomes

- Identify relevant evidence and other national and international pharmacist interventions and services.
- Explore theories, models, and frameworks applicable to the intervention or service model
- Identify process and outcome indicators.

Assessing the intervention's feasibility and impact

- Select study outcomes considering different stakeholders' perspectives (ECHO model).
- Select an appropriate study design.
- Consider undertaking a feasibility study before the main trial.

Needs Assessment: Cardiovascular Diseases (CVDs) ...

- ... are the number one cause of death globally.
- **World Health Organization: 17.9 million people die each year from CVDs – that is approximately 31% of all deaths worldwide.**
- **Hypertension and dyslipidemia are the most common risk factors.**
- **Coronary heart disease and heart failure are by far the most common CVDs, associated with compromised health-related quality of life, high morbidity (hospitalizations, i.e. costs) and mortality.**

Intervention Development

Designing and modelling processes and outcomes

- **Identify relevant evidence ...**
- **Explore theories, models, and frameworks ...**
- **Identify process and outcome indicators.**

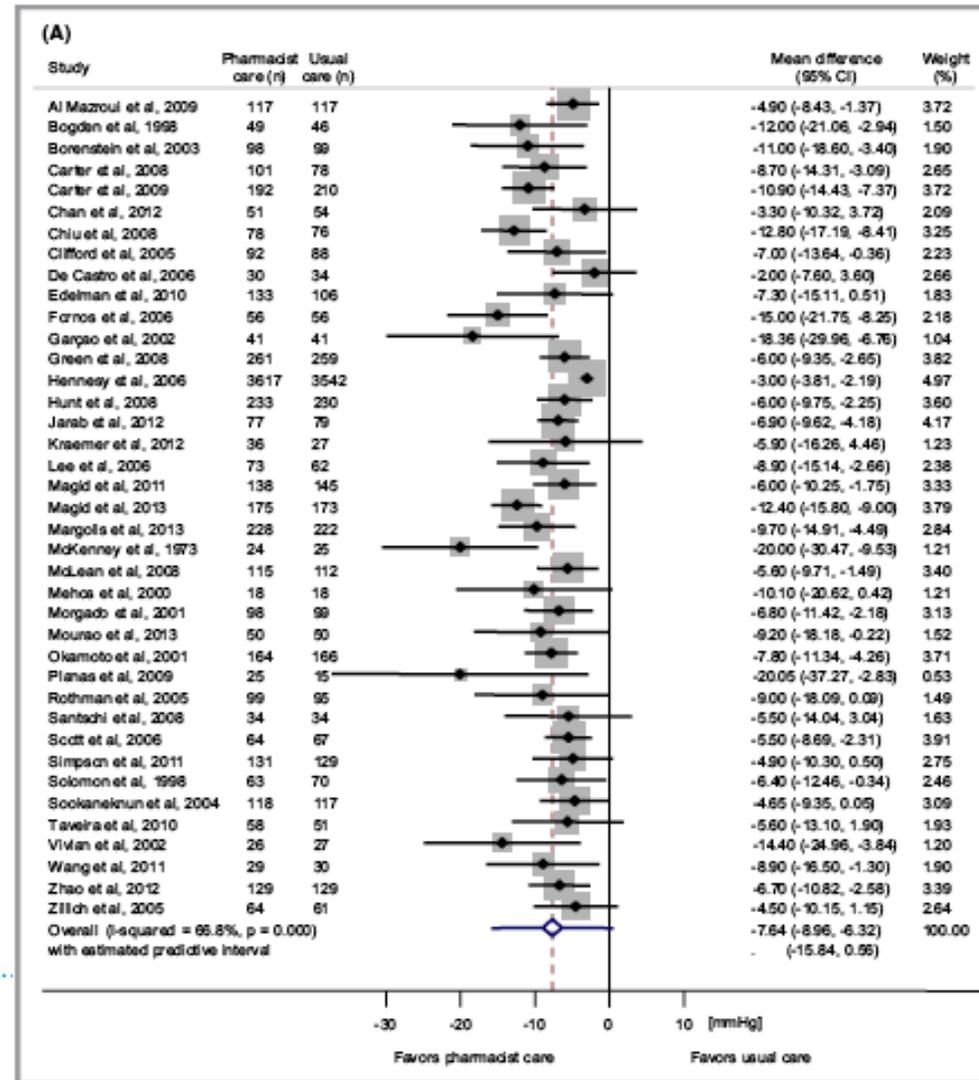
Intervention Development

Designing and modelling processes and outcomes

- **Identify relevant evidence ...**
- **Explore theories, models, and frameworks ...**
- **Identify process and outcome indicators.**

Identify Relevant Evidence – Pharmacist Care: Hypertension

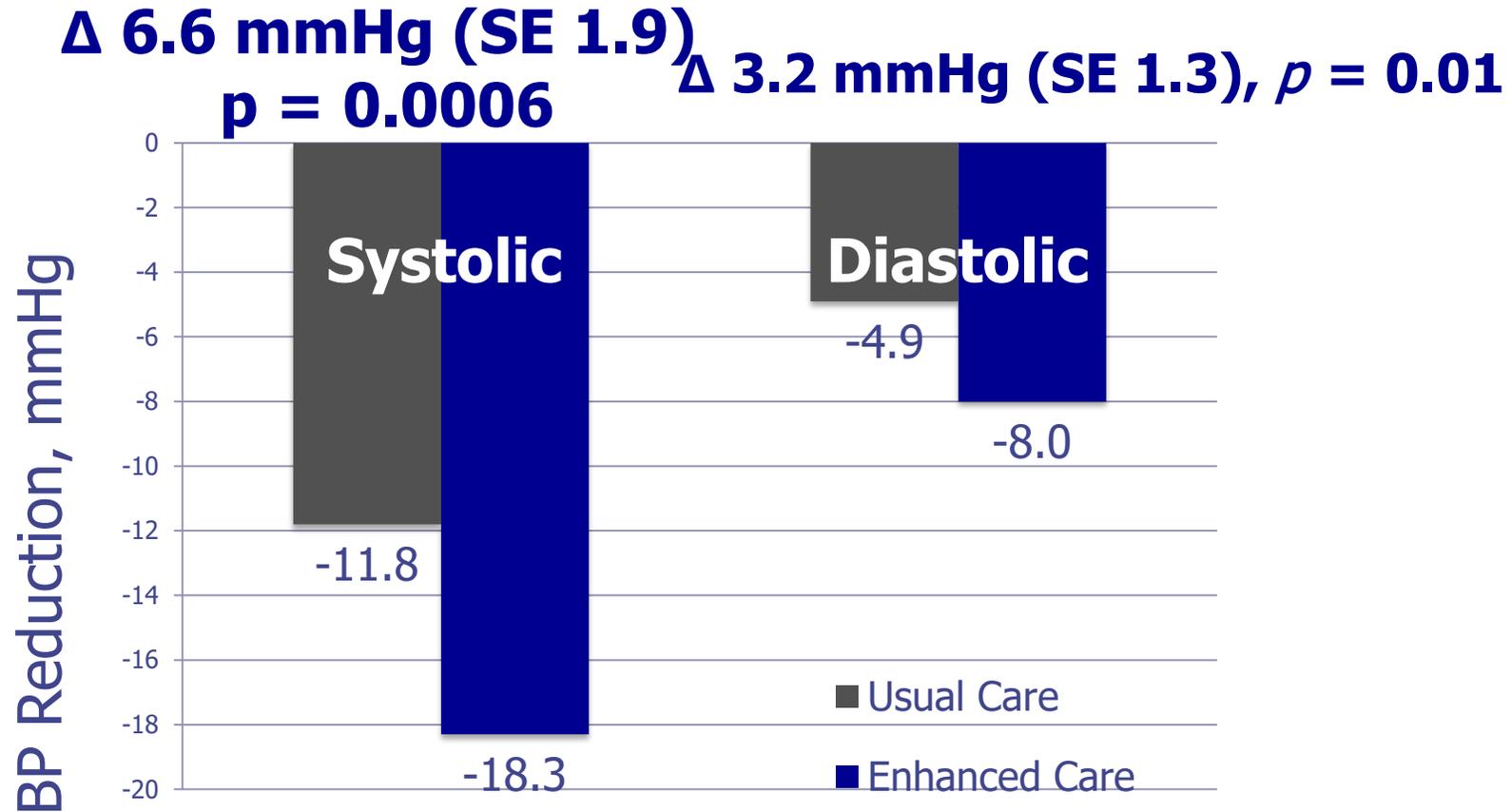
- Meta-analysis **39** RCTs
- **14,224** Patients
- Mean difference **SBD:**
-7.6 (-9.0 to -6.3) mmHg
- Mean difference **DBP:**
-3.9 (-5.0 to -2.8) mmHg
- Greater effects if pharmacist-led and monthly follow-up



Pharmacist **Prescribing** in Hypertension: RxACTION

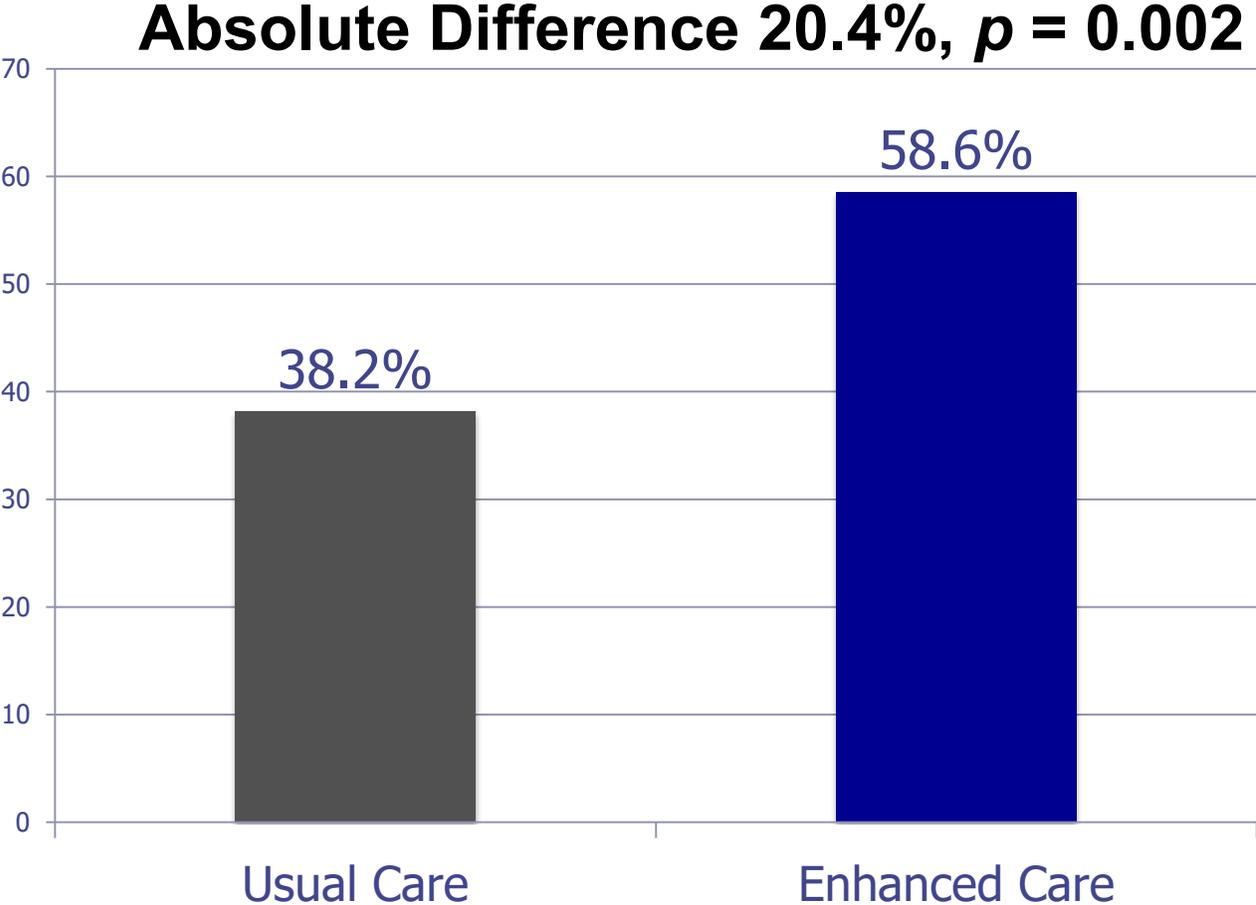
- Objective: To evaluate the effect of pharmacist **prescribing** on systolic blood pressure (SBP) reduction in patients with **poorly controlled hypertension**.
 - Methods:
 - **RCT** conducted in 23 pharmacies in Alberta.
 - 248 patients with BP **>140/90** or 130/80 mmHg recruited via pharmacist case-finding.
 - Intervention: pharmacist assessment of BP, CV risk, patient education, **prescribing**, lab monitoring, monthly follow-up **according to Canadian Hypertension Education Program**.
 - Control: usual pharmacist and physician care (written educational materials and BP wallet card, follow-up at 3 and 6 months).
-

RxACTION: Results – 1 (Primary Outcome)



aOR of achieving target BP 2.3 (95% CI, [1.2 to 4.2]) in favor of the intervention.

RxACTION – 2: Patients at Target Blood Pressure



Intervention Evaluation

Assessing the intervention's feasibility and impact

- Select study outcomes ... (ECHO model)
- Select appropriate study design
- Consider feasibility study including
 - *Fidelity to the intervention*
 - *Probability to achieve recruitment goals* (where PHARM-CHF failed
→ the planned phase 3 became a phase 2 trial eventually).

PHARMacy-based interdisciplinary program for patients with Chronic Heart Failure (PHARM-CHF): rationale and design of a randomized controlled trial, and results of the pilot study

Ulrich Laufs^{1*†}, Nina Griese-Mammen², Katrin Krueger², Angelika Wachter³, Stefan D. Anker^{4,5}, Friedrich Koehler⁶, Volker Rettig-Ewen⁷, Lea Botermann², Dorothea Strauch², Dietmar Trenk⁸, Michael Böhm³, and Martin Schulz^{2,9†}

Study Design PHARM-CHF

Prospective, multicenter, randomized controlled trial
with a median follow-up of 2.0 years

Screening &
Randomization by
Physician

Physician: all patients

Baseline visit, phone contacts at 6 and 18 months,
visits at 12 and 24 months, final visit.

Usual Care

Pharmacy Care

Initial medication review in the pharmacy, followed by
(bi-)weekly pharmacy visits including

- individual counselling
- measurement of blood pressure/pulse rate
- drug-related problems/change in vital signs? → physician
- medication dispensed in weekly dosing aids (pillboxes)



Endpoints

Main primary

- Medication adherence as mean **Proportion of Days Covered (PDC)** within **365 days** for three heart failure medication classes:
 - **beta-blockers**
 - **angiotensin-converting enzyme inhibitors** or **angiotensin receptor blockers**
 - **mineralocorticoid receptor antagonists**

Main secondary

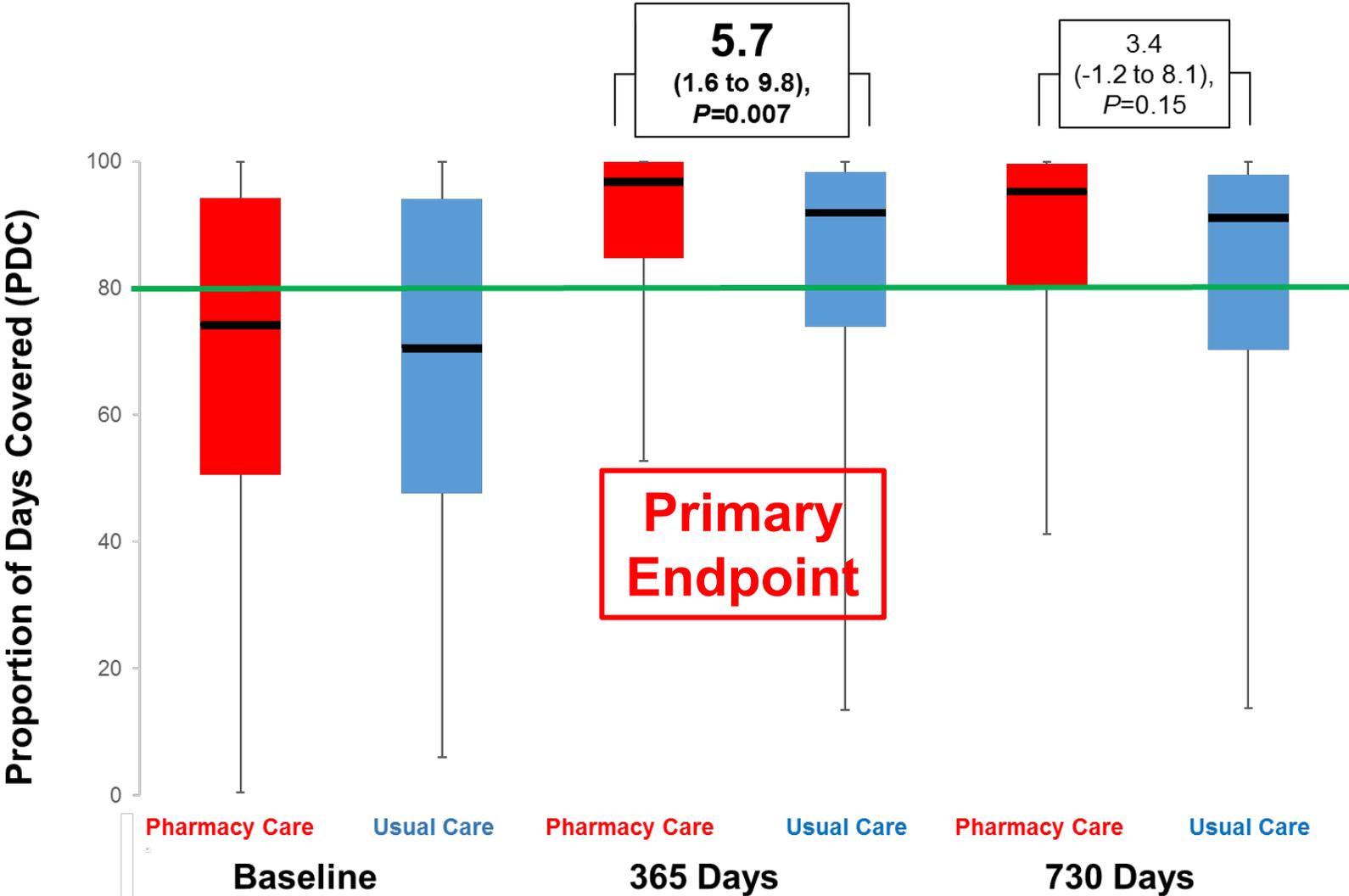
- **Percentage of patients with a mean PDC $\geq 80\%$, classified as *adherent***
- **Quality of Life (MLHFQ)**
- PDC for each heart failure medication class
- Percentage of patients with a PDC $\geq 80\%$ for each heart failure medication class

Pharmacy-based interdisciplinary intervention for patients with chronic heart failure: results of the PHARM-CHF randomized controlled trial

Martin Schulz^{1,2,3*} , **Nina Griese-Mammen¹**, **Stefan D. Anker⁴**, **Friedrich Koehler⁵**, **Peter Ihle⁶**, **Christian Ruckes⁷**, **Pia M. Schumacher¹**, **Dietmar Trenk⁸**, **Michael Böhm⁹**, and **Ulrich Laufs¹⁰**, for the **PHARM-CHF Investigators[†]**

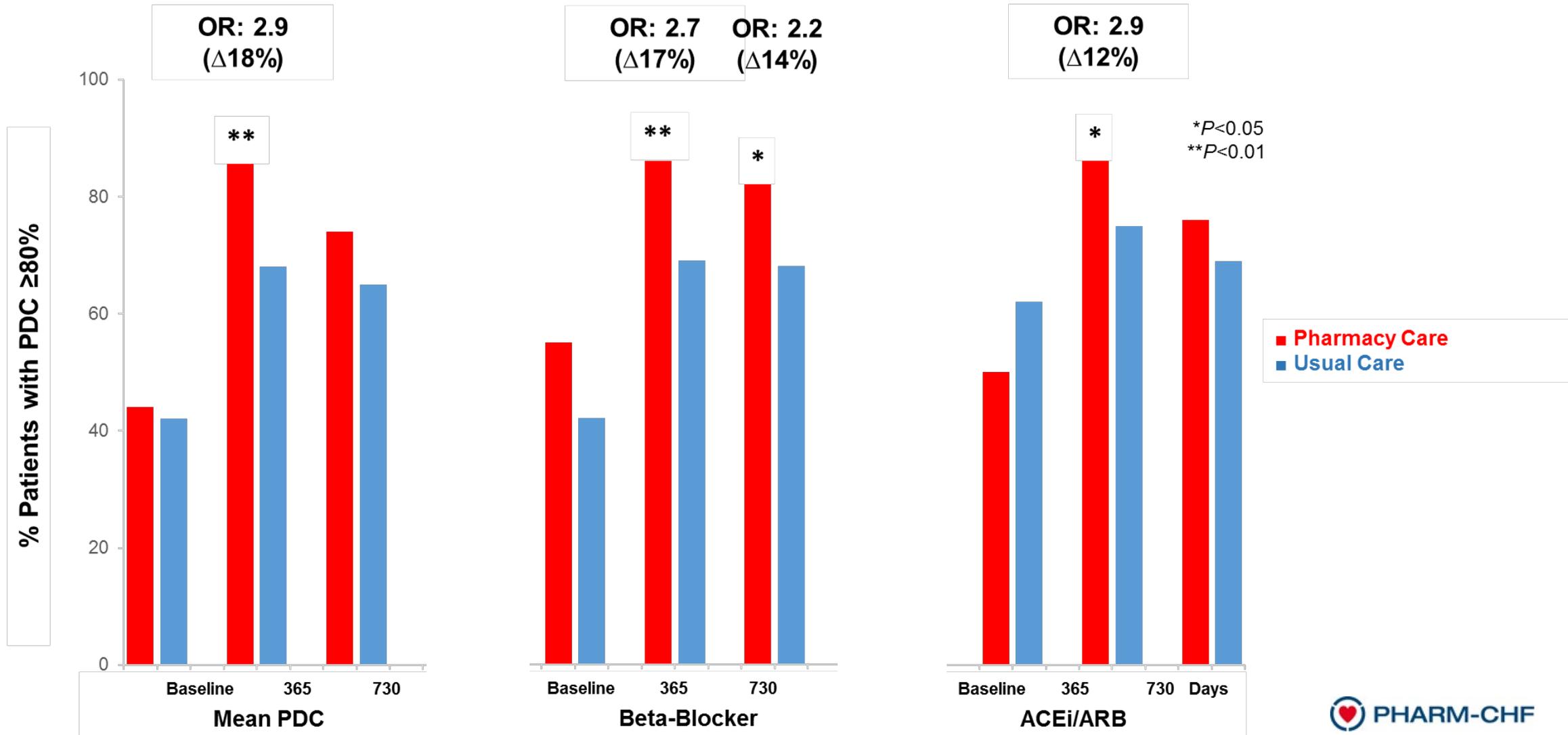
Adherence to 3 HF Medication Classes

Schulz M et al. Eur J Heart Fail. 2019; 21: 1012–1021.



Proportion of Adherent Patients

Schulz M et al. Eur J Heart Fail. 2019; 21: 1012–1021.

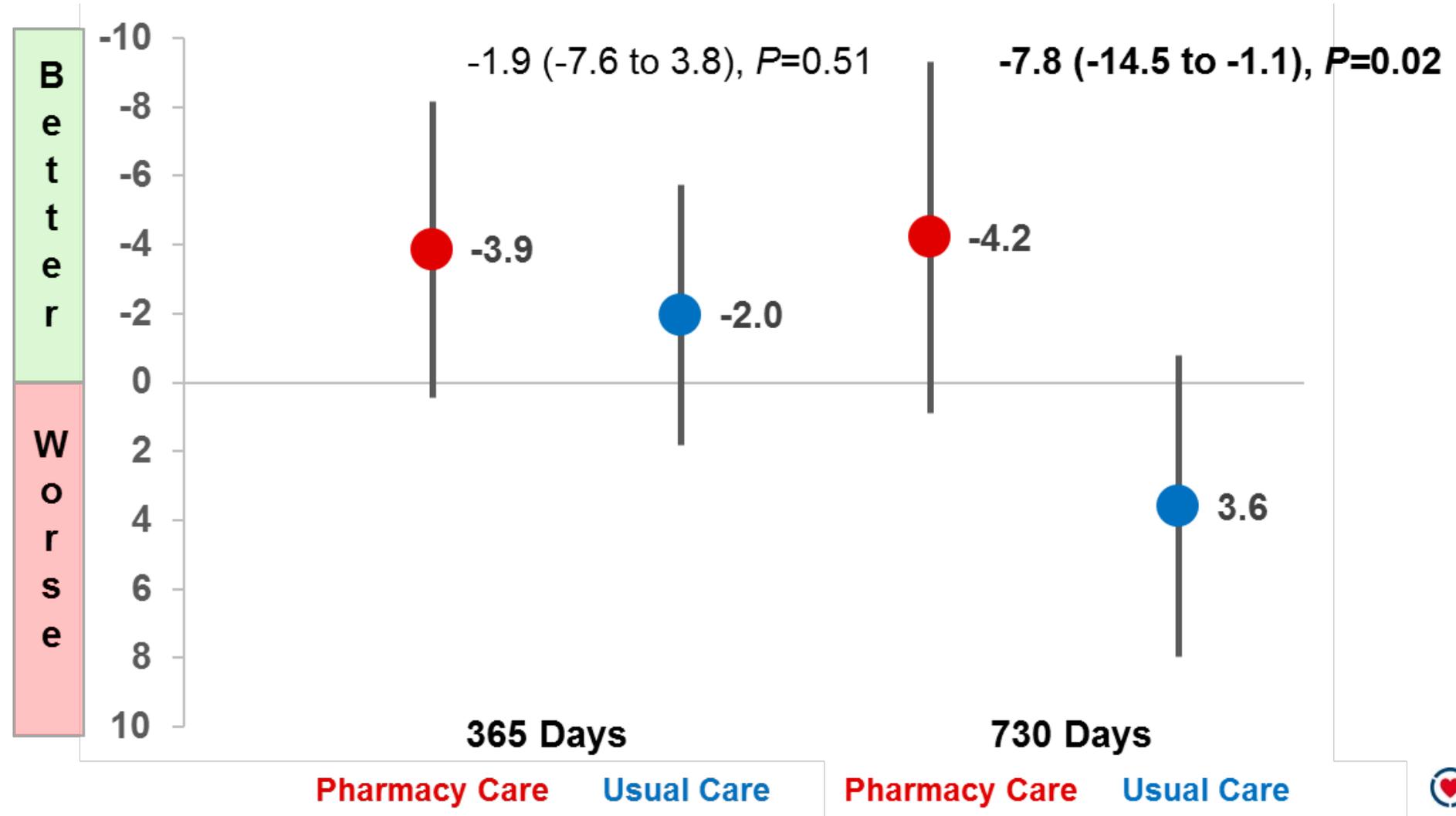


Quality of Life (MLHFQ Global Score)

The impact of pharmacist/physician care on quality of life in elderly heart failure patients: results of the PHARM-CHF randomized controlled trial

Martin Schulz^{1,2*}, Nina Griese-Mammen¹, Pia M. Schumacher¹, Stefan D. Anker³, Friedrich Koehler⁴, Christian Ruckes⁵, Volker Rettig-Ewen⁶, Rolf Wachter⁷, Dietmar Trenk⁸, Michael Böhm⁹ and Ulrich Laufs⁷

Schulz M et al. Eur J Heart Fail. 2019; 21: 1012–1021.
Schulz M. et al. ESC Heart Fail. 2020, July 23



Speaker 3

Prof. Shalom I (Charlie) Benrimoj

- Visiting scholar at the University of Granada.
- Research interests involve the clinical, economic and implementation aspects of cognitive pharmaceutical services from community pharmacy.
- He has published over 200 papers in refereed journals, 24 major research reports

Email: Shalom.Benrimoj@gmail.com



@cbenrimoj



Intervention implementation and sustainability

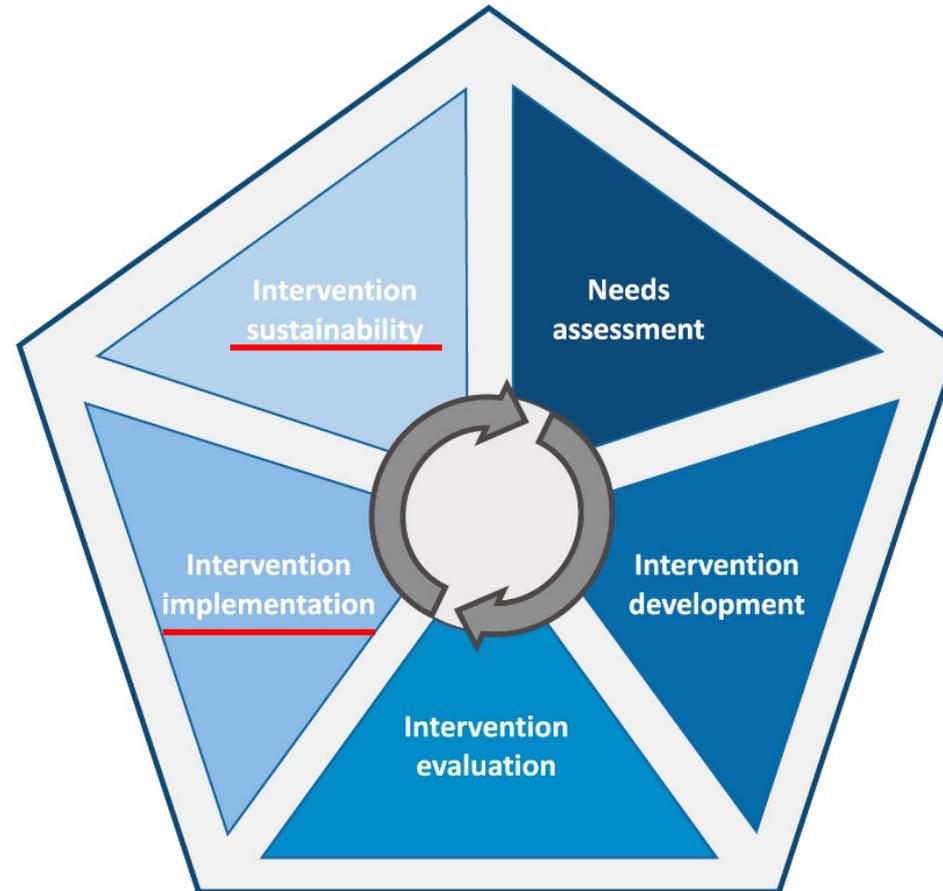
Incorporating interventions into practice and achieving their sustainment

Achieving the intervention's sustainment

- Explore relevant conceptual approaches for the sustainability of the pharmacist intervention or service.
- Select mechanisms to monitor and facilitate routinization.
- Identify and address sustainability determinants.

Incorporating interventions into practice

- Identify an adequate implementation framework, theory or model which is relevant to pharmacy practice research.
- Select an appropriate study design.
- Define implementation outcomes.



Identifying unmet population needs

- Identify and quantify health needs that can benefit from pharmacists' care.
- Understand the nature of the problem and its determinants.
- Explore the context and the feasibility of a future pharmacist intervention or service that ensures a continuum of care.

Designing and modelling processes and outcomes

- Identify relevant evidence and other national and international pharmacist interventions and services.
- Explore theories, models, and frameworks applicable to the intervention or service model
- Identify process and outcome indicators.

Assessing the intervention's feasibility and impact

- Select study outcomes considering different stakeholders' perspectives (ECHO model).
- Select an appropriate study design.
- Consider undertaking a feasibility study before the main trial.



Exploration

Installation

Initial
Implementation

Full
Implementation

2-4 Years

Source: Fixsen & Blase, 2008



Implementation and Sustainability

1. Implementation and Sustainability Studies:

- A. Need for different research designs and methodologies to impact studies
- B. Implementation Science provides theoretical frameworks' and models
- C. Objective is to take “Evidence to Practice”
- D. Evaluation is multifactorial and complex



Implementation research: what it is and how to do it

BMJ 2013; 347 doi: <https://doi.org/10.1136/bmj.f6753>

Published 20 November 2013) Cite this as: *BMJ* 2013;347:f6753



Psychiatry Research
Volume 280, October 2019, 112513

An introduction to effectiveness-implementation hybrid designs

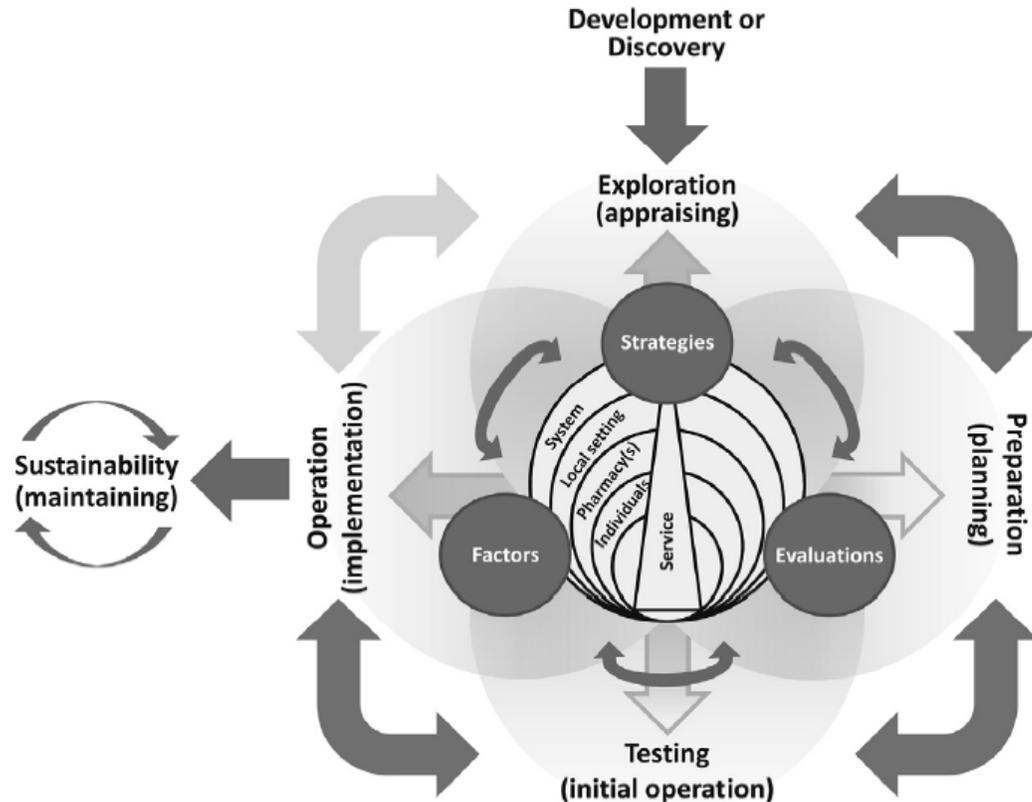
Sara J. Landes^{a, b, c, e}, Sacha A. McBain^{b, c}, Geoffrey M. Curran^{b, c, d}

[Show more](#) ▾

<https://doi.org/10.1016/j.psychres.2019.112513>

Referred to by Sara J. Landes, Sacha A. McBain, Geoffrey M. Curran

Implementation Theoretical Frameworks and Pharmacy specific Framework



Moullin et al. *Health Research Policy and Systems* (2015) 13:16
DOI 10.1186/s12961-015-0005-z



REVIEW

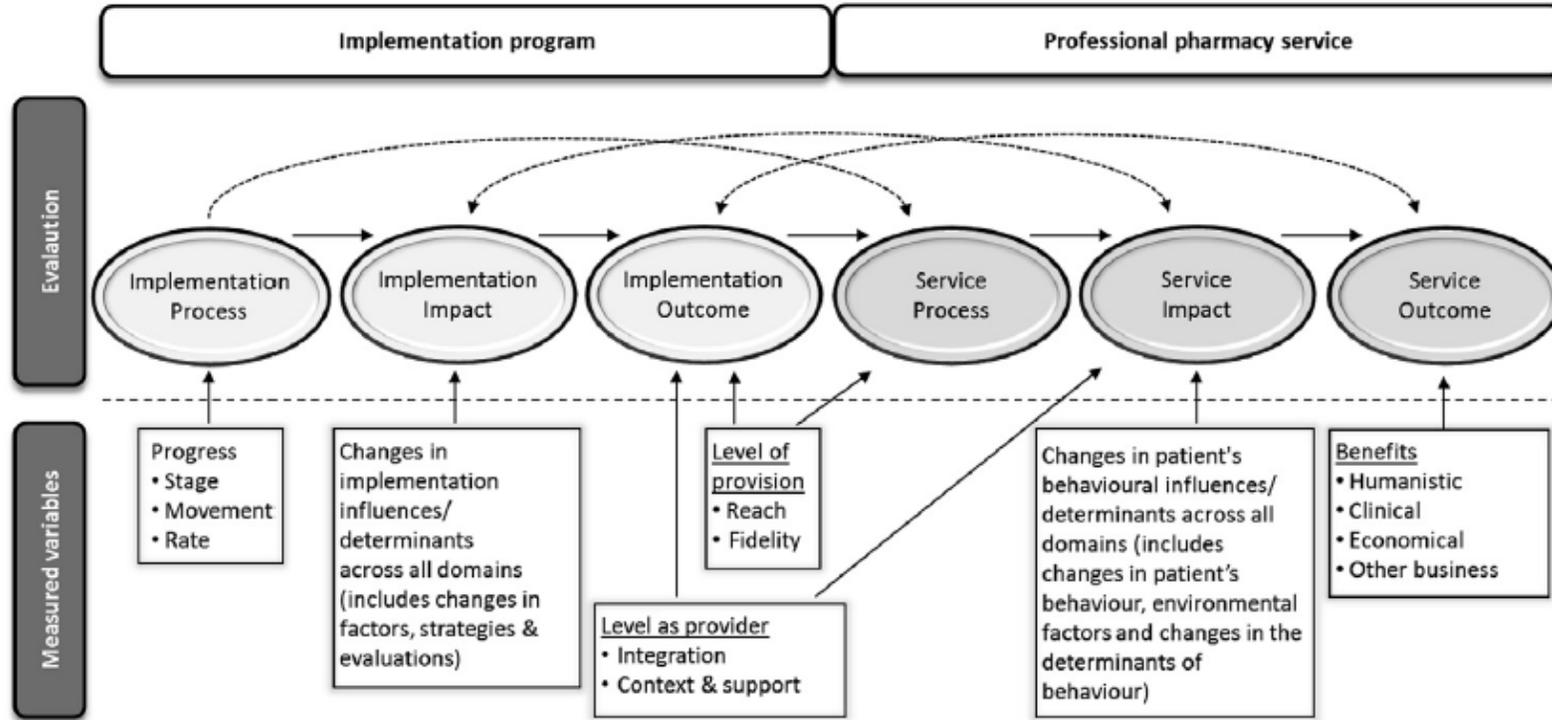
Open Access

A systematic review of implementation frameworks of innovations in healthcare and resulting generic implementation framework

Joanna C. Moullin^{1*}, Daniel Sabater-Hernández^{1,2}, Fernando Fernandez-Llimos³ and Shalom I. Benrimoj¹

Fig. 1. Framework for the Implementation of Services in Pharmacy (FISpH).¹⁴

Evaluation Implementation Program



Note: Domains are the divisions or categories of the implementation influences and determinants of patient behaviour. They include the characteristics of the service being implementation, and the context (individuals, organisation/pharmacy(s), local setting and system).

Fig. 2. Model for the evaluation of implementation programs and professional pharmacy services.



Available online at www.sciencedirect.com
ScienceDirect
 Research in Social and
 Administrative Pharmacy (2015)

RESEARCH IN SOCIAL &
 ADMINISTRATIVE PHARMACY

Commentary

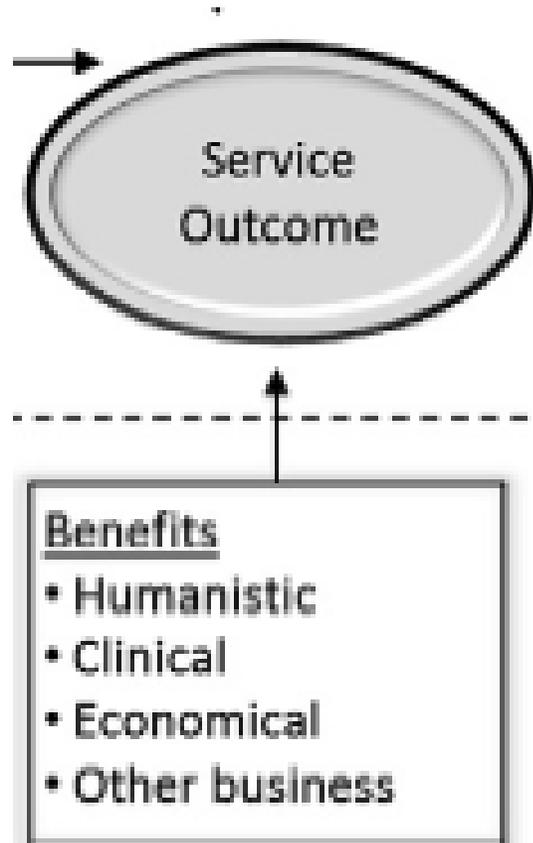
Model for the evaluation of implementation programs and professional pharmacy services

Joanna C. Moullin, B.Pharm.^{a,*}, Daniel Sabater-Hernández, Ph.D.^{a,b},
 Shalom I. Benrimoj, Ph.D.^a

^aGraduate School of Health, University of Technology Sydney, Level 4, Building 7, 67 Thomas St Ultimo, P.O. Box 123 Broadway, 2007 NSW, Australia

^bAcademic Centre in Pharmaceutical Care, Pharmaceutical Care Research Group, Faculty of Pharmacy, University of Granada, Campus Universitario de Cartuja s/n, C.P. 18071, Granada, Spain

Service Outcomes obtained in Impact study



Service outcome from RCT (e.g.)

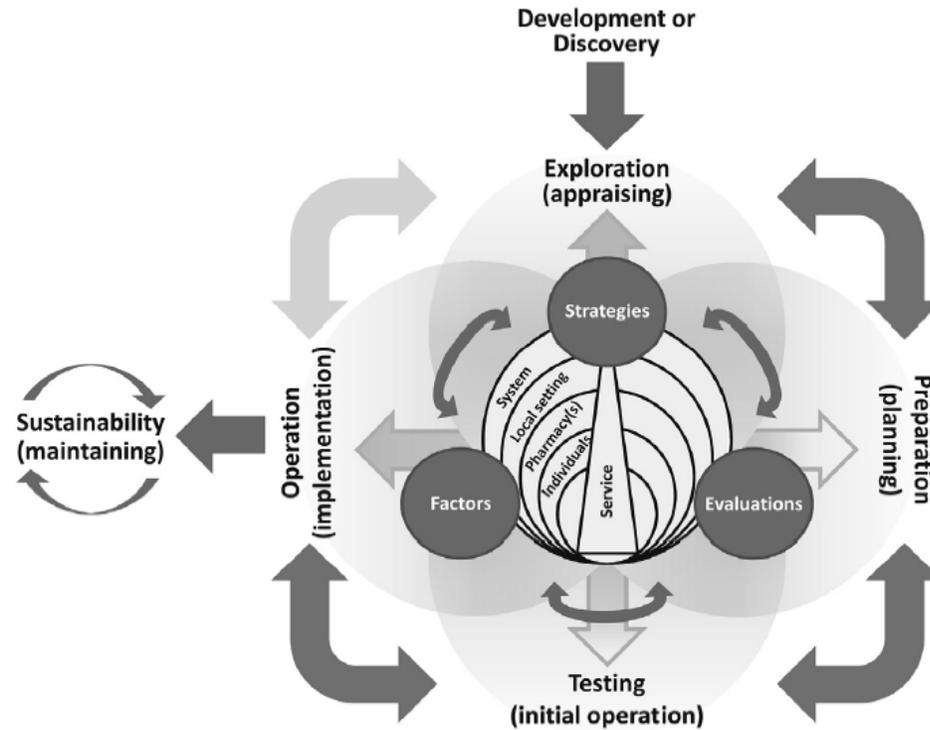
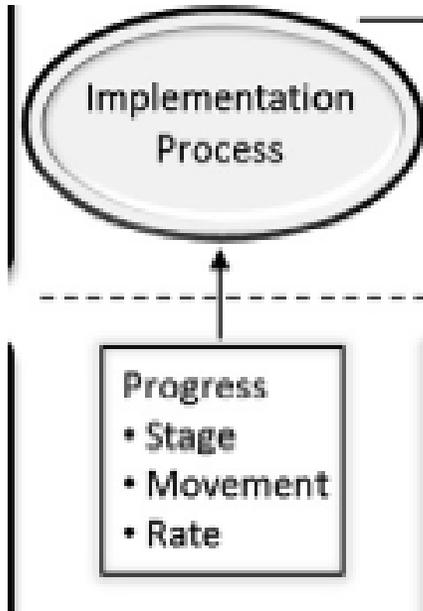
Primary Outcomes

- a. Humanistic = quality of life changes
- b. Clinical = improvements in control of disease, changes number of medication etc
- c. Economic = cost utility, cost effectiveness, cost benefit
- d. Other business = profitability

Secondary Outcomes

????

Implementation Process



Define quantitatively when a pharmacy or pharmacist reaches and maintains stage

Fig. 1. Framework for the Implementation of Services in Pharmacy (FISPH).¹⁴

Implementation Impact

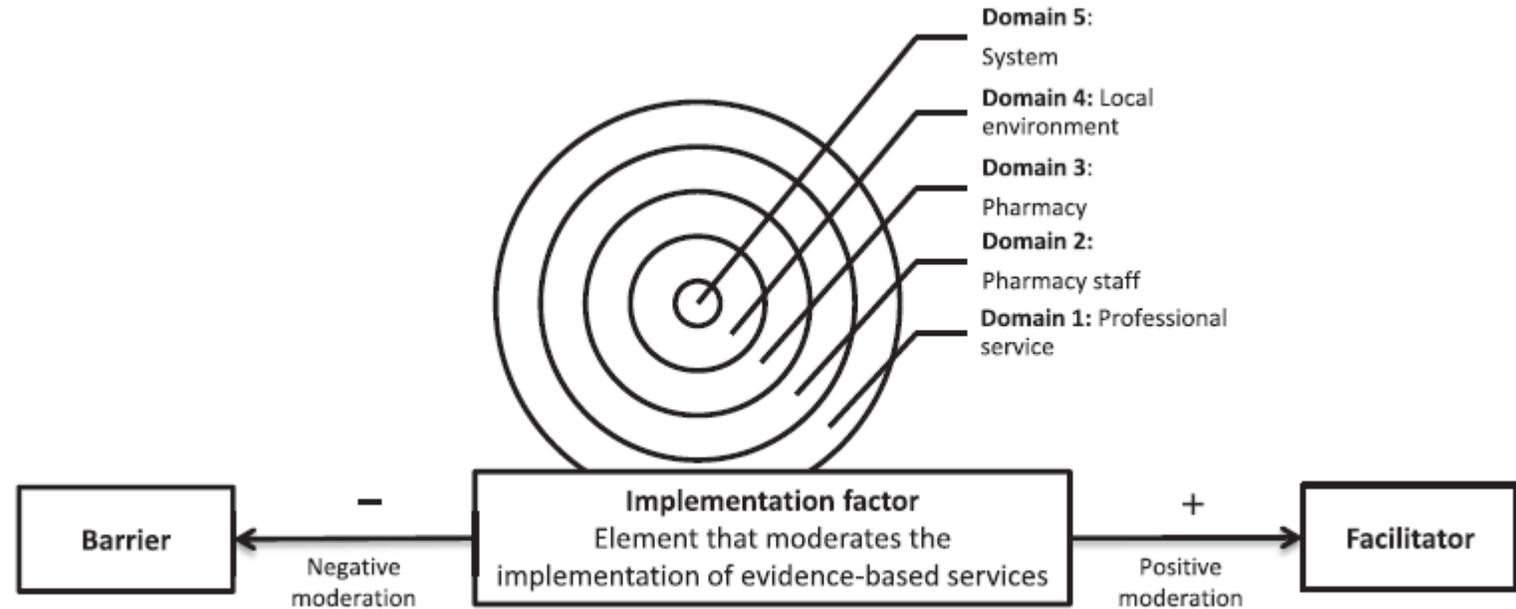
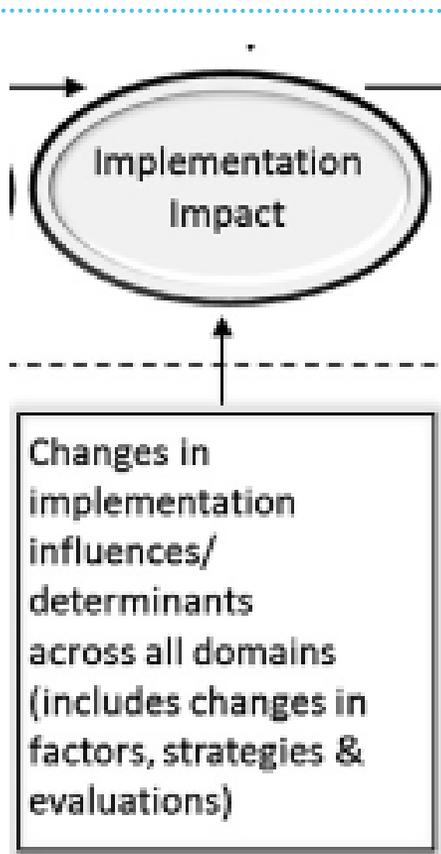


Fig. 1. Implementation factors, barriers and facilitators.

Research in Social and Administrative Pharmacy xxx (2017)

Contents lists available at ScienceDirect

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journal homepage: www.rsap.org




The complexity of implementation factors in professional pharmacy services

Victoria Garcia-Cardenas ^{a,*}, Beatriz Perez-Escamilla ^b, Fernando Fernandez-Llimos ^c, Shalom I. Benrimoj ^a

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^b University of Granada, Pharmaceutical Care Research Group, Faculty of Pharmacy, Campus de Cartuja s/n, 18071, Granada, Spain
^c Research Institute for Medicines (iMed.Ulisboa), Department of Social Pharmacy, Faculty of Pharmacy, University of Lisbon, Lisbon, Portugal

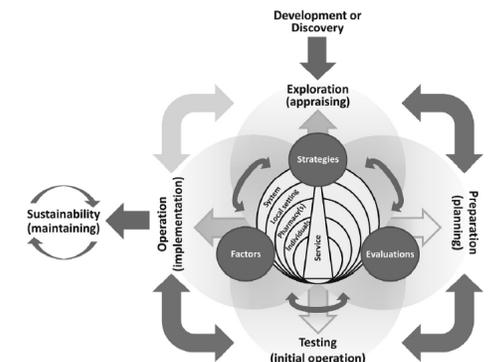
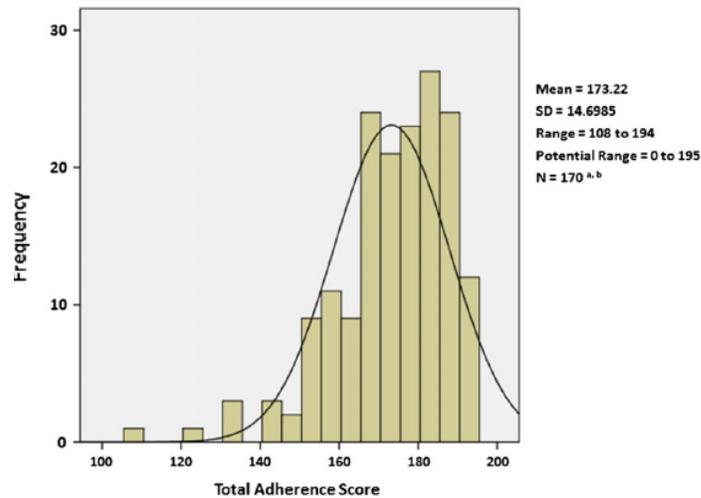
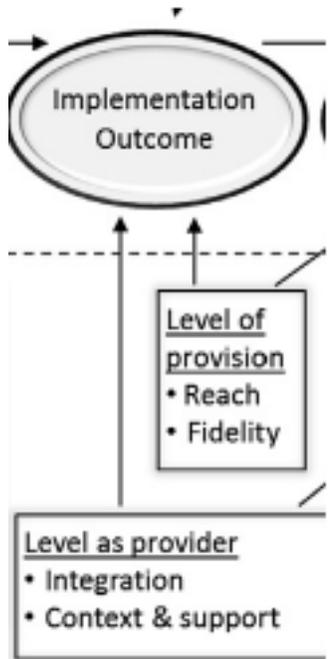


Fig. 1. Framework for the Implementation of Services in Pharmacy (FISpH).¹⁴

Implementation Outcome



Develop

1. Construct Fidelity measure and validate
2. Define Reach with target population and resources available
3. Develop Integration measures

Journal of **Evaluation in Clinical Practice**
International Journal of Public Health Policy and Health Services Research

Journal of Evaluation in Clinical Practice ISSN 1365-2753

Development and testing of two implementation tools to measure components of professional pharmacy service fidelity

Joanna C. Moullin BPharm,^{1,5} Daniel Sabater-Hernández PhD,² José P. García-Corpas PhD,⁶ Patricia Kenny MPH⁷ and Shalom I. Benrimoj PhD^{3,4}

¹Doctoral Candidate, ²Post-Doctorate Fellow, ³Head, ⁴Professor in Pharmacy Practice, Graduate School of Health, University of Technology Sydney, Sydney, NSW, Australia

⁵Doctoral Candidate, ⁶Research Coordinator, Doctoral Program in Clinical Medicine and Public Health, University of Granada, Granada, Spain

⁷Senior Research Fellow, Centre for Health Economics Research and Evaluation, University of Technology Sydney, Sydney, NSW, Australia

Implementation Programs: Practice Change Facilitators and IT Based Practice Program

Experience with implementation programs in practice;

1. Focus and Time of Pharmacists deliver the intervention/ service not data collectors therefore need to use **implementation program data as by product of service delivery.**
2. To **change practice requires external support** since behaviour change for community pharmacy and pharmacists and other team members complex therefore need PCFs
3. PCFs need training and experience **to identify and assist in resolving barriers, facilitators and strategies to facilitate change in practice**



Journal of Change Management

 Routledge
Taylor & Francis Group

ISSN: 1469-7017 (Print) 1479-1811 (Online) Journal homepage: <https://www.tandfonline.com/loi/rjcm20>

Change Facilitation Strategies Used in the Implementation of Innovations in Healthcare Practice: A Systematic Review

Lydia Moussa, Victoria Garcia-Cardenas & Shalom I. Benrimoj

To cite this article: Lydia Moussa, Victoria Garcia-Cardenas & Shalom I. Benrimoj (2019): Change Facilitation Strategies Used in the Implementation of Innovations in Healthcare Practice: A Systematic Review, Journal of Change Management, DOI: [10.1080/14697017.2019.1602552](https://doi.org/10.1080/14697017.2019.1602552)

To link to this article: <https://doi.org/10.1080/14697017.2019.1602552>

An example of Implementation programs

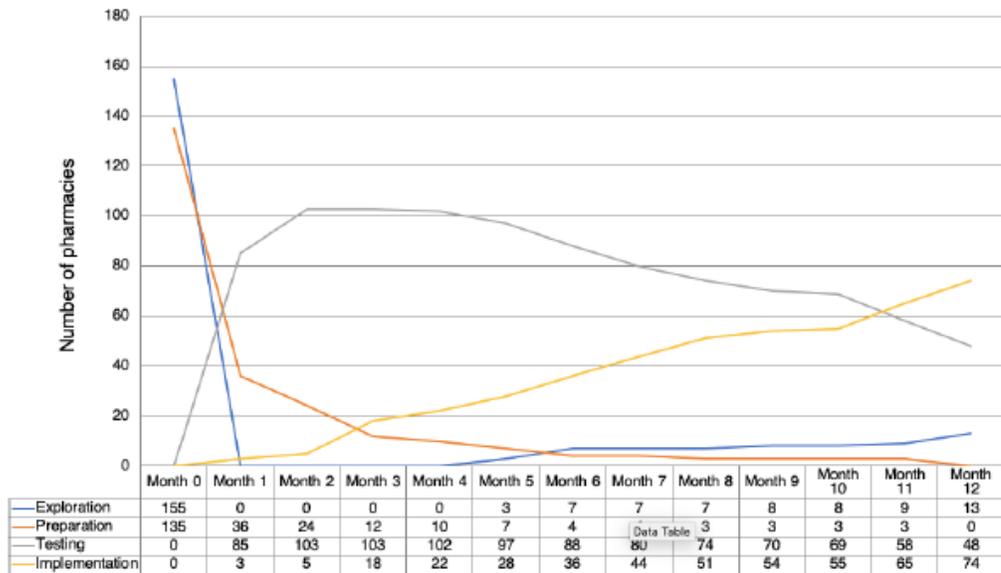


Figure 2 Progress of pharmacies through the different phases of the Framework for the Implementation of Services in Pharmacy model.

Table 2 Integration achieved at 12 months by the implementation programme

| Integration dimensions | Mean | SD |
|------------------------|------|------|
| Routinisation | 3.07 | 0.99 |
| Teamwork | 3.07 | 0.99 |
| Resources | 4.39 | 0.63 |
| Evaluation | 2.99 | 0.11 |

Table 1 Fidelity after 12 months of MRF service provision

| Fidelity at each stage of the MRF service | Mean | SD |
|--|------|------|
| Service offer | 7.95 | 1.13 |
| First patient interview | 8.62 | 0.42 |
| Determination of patient's current health status | 8.74 | 0.19 |
| Case study phase | 8.60 | 0.17 |
| Evaluation phase | 8.87 | 0.36 |
| Intervention phase | 8.37 | 0.42 |
| Successive interviews and evaluation of outcomes | 8.19 | 0.10 |
| General service aspects | 8.88 | 0.39 |

Open access

Original research

BMJ Open Evaluating an implementation programme for medication review with follow-up in community pharmacy using a hybrid effectiveness study design: translating evidence into practice

Raquel Varas-Doval ¹, Miguel A Gastelurrutia ², Shalom I Benrimoj ², Maria Jose Zarzuelo ², Victoria Garcia-Cardenas ³, Beatriz Perez-Escamilla ², Fernando Martinez-Martinez ⁴

BMJ Open: first published as 10.1136/bmjopen-2019-036669

Reach and Primary Outcomes

Table 6 Emergency visits: impact study (6 months) and implementation programme (6 and 12 months)

| | Baseline | | 6 months | | Percentage change | P value | Between 6 and 12 months | | Percentage change | P value |
|-----------------------------------|----------|------|----------|------|-------------------|---------|-------------------------|------|-------------------|---------|
| | n | % | n | % | | | n | % | | |
| Impact study* (n=667) | 193 | 28.9 | 90 | 14.7 | -53.40 | ≤0.05 | NA | NA | NA | NA |
| Implementation programme† (n=575) | 121 | 20.2 | 69 | 12 | -43.00 | ≤0.05 | NA | NA | NA | NA |
| Implementation programme‡ (n=160) | 44 | 25.4 | NA | NA | NA | NA | 19 | 11.9 | -56.80 | ≤0.05 |

*Impact study baseline is the number of emergency department visits in the 6-month period prior to the study, and from baseline to 6 months

Table 4 Number of medications: impact study (6 months) and implementation programme (6 and 12 months)

| | Baseline mean | | 6 months | | Mean change | | P value | 12 months | | Mean change | | P value |
|----------------------------------|---------------|-----|----------|-----|-------------|-----|---------|-----------|-----|-------------|-----|---------|
| | Mean | SD | Mean | SD | Mean | SD | | Mean | SD | Mean | SD | |
| Impact study (n=688) | 7.74 | 2.5 | 7.45 | 2.4 | -0.29 | 1.3 | ≤0.05 | NA | NA | NA | NA | NA |
| Implementation programme (n=608) | 9.05 | 3.0 | 8.99 | 3.1 | -0.06 | 1.6 | NS | NA | NA | NA | NA | NA |
| Implementation programme (n=176) | 9.38 | 3.1 | 9.23 | 3.2 | -0.15 | 1.2 | NS | 8.99 | 3.4 | 0.39 | 2.3 | ≤0.05 |

NA, not available; NS, not significant.

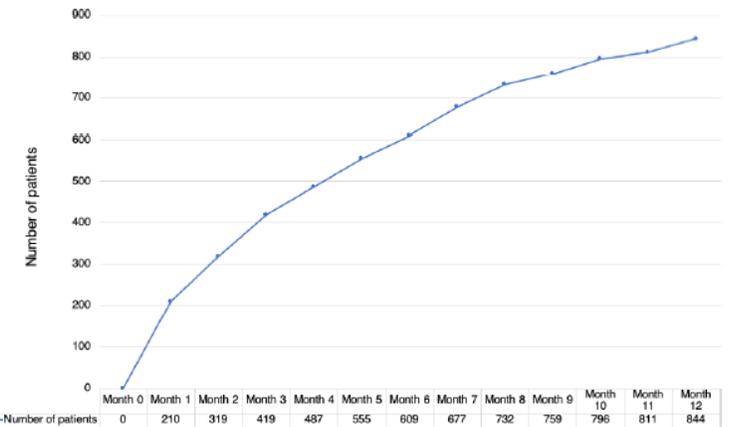


Figure 3 Reach achieved in the implementation programme.

Sustainability or Sustainment of Professional Pharmacy Services

- Limited Research in Implementation Science at and less in Pharmacy Practice
- Critical for Shaping our future since;
 - If future of profession dependant on services and product supply both product supply and services need to be professional and economically sustainable form the perspective of :
 - **Payers**
 - **Population**
 - **Service providers (pharmacists, pharmacy owners etc)**

Some evidence in countries that services where being remunerated, they are being ceased. Why ?

Sustainability or Sustainment

C. Crespo-Gonzalez, et al.

Research in Social and Administrative Pharmacy xxx (xxxx) xxx-xxx

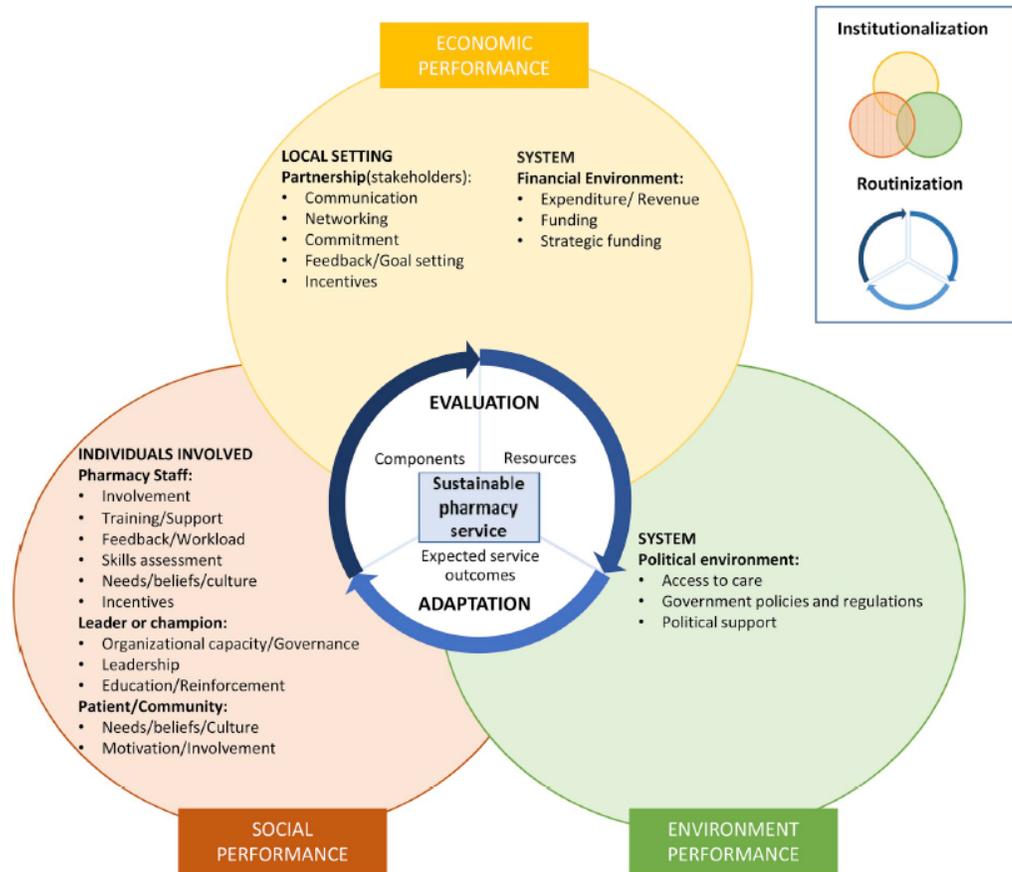


Fig. 2. Framework for the sustainability of professional services.

Birken et al. *Implementation Science* (2020) 15:88
<https://doi.org/10.1186/s13012-020-01040-9>

Implementation Science

SYSTEMATIC REVIEW

Open Access



Advancing understanding and identifying strategies for sustaining evidence-based practices: a review of reviews

Sarah A. Birken^{1*}, Emily R. Haines², Soohyun Hwang², David A. Chambers³, Alicia C. Bunker⁴ and Per Nilsen⁵

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journal homepage: www.elsevier.com/locate/rsap



Sustainability of innovations in healthcare: A systematic review and conceptual framework for professional pharmacy services

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Thank you for participating!

