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ESPACOMP 2023

MEDICATION ADHERENCE FROM DRUG DEVELOPMENT TO PATIENT CARE

29 NOVEMBER – 2 DECEMBER 2023
BUDAPEST, HUNGARY

PROGRAMME & ABSTRACT BOOK

ESPACOMP
International Society for Medication Adherence

Content

About ESPACOMP

ESPACOMP, the International Society for Medication Adherence, is an international scientific association dedicated to promoting cutting-edge research in the field of medication adherence to increase the quality of research and support dissemination, implementation and uptake of knowledge in healthcare systems and policies.

Main programme topics

This year's ESPACOMP Conference has a special focus on Medication Adherence from Drug Development to Patient Care. Aligning research and practice of medication adherence, from the first phases of drug development to the realities of daily practice in clinical settings, is a necessity for effective and safe use of medications. This meeting will bring together different stakeholder perspectives to present state-of-the-art research and policy initiatives and discuss how we could better integrate medication adherence throughout this continuum of research and care.

Information / Registration at

www.espacomp.eu
info@espacomp.eu

Conference format

In person.

Venue

NOVOTEL Budapest Centrum
1088 Budapest
Rákóczi út 43-45.
Hungary

Conference Organisation & Scientific Committee

Alexandra Dima,
Liset van Dijk,
Przemyslaw Kardas,
Sara Mucherino,
Todd Ruppar,
Marie Paule Schneider,
Bernard Vrijens,
Tamas Agh,
Judit Simon.

The ESPACOMP President 2023

Alexandra L. Dima, PhD, HDR, AFBPsS
(Sant Joan de Deu Research Institute, Spain)

Alexandra Dima is Senior Researcher in the Health Technology Assessment in Primary Care and Mental Health (PRISMA) research group, at the Sant Joan de Déu Research Institute, Barcelona, Spain. Her primary expertise area is health psychology and her research focuses on improving management of chronic conditions via collaborative care and patient empowerment. Dr. Dima is an internationally recognized expert on medication adherence. She has contributed to the development and validation of several measurement instruments on adherence-related constructs, statistical algorithms for adherence calculation and visualization from electronic healthcare databases (www.adherer.eu), and interventions for adherence and self-management support in chronic conditions. She is Chair of the Working Group on Medication Adherence Technologies within the ENABLE COST Action (www.enableadherence.eu), where she leads the development of an interactive online repository aiming to facilitate best practice and use of technologies in medication adherence support.

The ESPACOMP Executive Committee 2023

Filipa Costa
Alexandra Dima
Liset van Dijk
Sabina de Geest
Rob Heerdink
Dyfrig Hughes
Przemyslaw Kardas
Alpana Mair
Enrica Menditto
Maria Rubio-Valera
Todd Ruppar
Marie-Paule Schneider
Bernard Vrijens
Leah Zullig

The meeting secretariat

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Project manager

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Local Organizers

Prof. Tamas Agh,
Syreon Research Institute, Budapest, Hungary; Center for Health Technology Assessment and Pharmacoeconomic Research, University of Pécs, Pécs, Hungary

Prof. Judit Simon
Institute of Marketing, Corvinus University of Budapest, Budapest, Hungary

Local support

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Corvinus University of Budapest, Institute of Marketing and Communication Sciences

Dalma Erdősi
Semmelweis University, Center for Health Technology Assessment, Budapest, Hungary; University of Pécs, Center for Health Technology Assessment and Pharmacoeconomic Research, Pécs, Hungary

Welcome Word

Dear ESPACOMP Community and Conference Participants,

With great pleasure we welcome you to the 27th ESPACOMP meeting in Budapest, Hungary. We are all very pleased that you joined us for this unique event focused on medication adherence from drug development to patient care.

ESPACOMP aims to facilitate the dissemination of knowledge and cutting-edge evidence in the field of patient medication adherence. Since 1996, the annual meeting of ESPACOMP has provided a networking opportunity for an increasing number of international adherence researchers, health care professionals, and pharmaceutical industry personnel as well as patients and other important stakeholders.

The ESPACOMP annual meeting has matured over the years, reflecting the increased interest in adherence-related issues across Europe and beyond. This year, more than 80 abstracts were submitted, of which 30 were selected for oral presentations and 53 were confirmed for poster presentation. This includes posters from our late-breaking abstracts, presenting research completed as recently as 3 months ago. The pre- and post-conference educational days have 3 workshops focused on Implementation Science, Describing medication adherence interventions, and Self-report Adherence Measures.

We are very delighted that world-renowned adherence experts have accepted our invitation to present at this conference. This year, the 8th John Urquhart Memorial lecture will honour the memory of John Urquhart, the outstanding adherence researcher, colleague, mentor and friend. We are thrilled that this year's lecture will be given by Prof. Dr. Monique Elseviers (University of Antwerp, Belgium). Keynote speakers at the conference will be Dr Eduardo J. Sabaté (US and Switzerland), speaking on the 20th anniversary of the seminal WHO report on adherence to long-term therapies he led the publication of in 2003, Prof. Tamas Agh (Syreon Research Institute; University of Pécs) and Prof. Judit Simon (Corvinus University of Budapest), who will give an overview on medication adherence research and practice in Hungary, and Prof. Ellie Murray (Boston University, US), who will present state-of-the-art methods of adherence-adjustment of randomized trial results.

The six paper sessions demonstrate the direction of medication adherence in Europe and around the globe. Poster presentations will be available for viewing and discussion for the duration of the conference. Awards will be presented on Friday evening, including the Jean-Michel Métry poster prize and the Early Career Abstract Prize. There will be time and opportunity to network, meet colleagues, and exchange ideas during the breaks and after the sessions and also during the social program, including the conference dinner at the venue restaurant.

On behalf of the scientific & organizing committees, we wish you a very inspiring conference and a wonderful stay in Budapest. We thank you for your active participation in the 2023 ESPACOMP meeting!

THE ESPACOMP EXECUTIVE COMMITTEE 2023

Alexandra Dima, Filipa Costa, Liset van Dijk, Sabina de Geest, Rob Heerdink, Dyfrig Hughes, Przemyslaw Kardas, Alpana Mair, Enrica Menditto, Maria Rubio-Valera, Todd Ruppar, Marie-Paule Schneider, Bernard Vrijens, Leah Zullig

Corporate Members

Venues

Conference location

Novotel Budapest Centrum
Address: Rakoczi ut 43-45, Budapest 1088, Hungary
GPS: 47.497418, 19.072095.
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Fax. +36 1 477 5353.
www.novotel.com
https://novotelbudapestcentrum.com/

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NOVOTEL
BUDAPEST CENTRUM

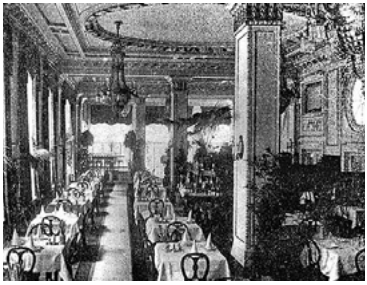
Designed by architects Marcell Komor and Dezső Jakab, originally known as the Palace Hotel, opened in 1911. Being the most fashionable hotel of that time, it dazzled the elegant public with its stuccoes and wrought iron decoration, colored glass windows, marble columns, the hall with a gallery and the gilt chandeliers. Beside the Secessionist / Art Nouveau motifs and style, the hotel supplied several modern services as hot and cold running water in every room, "telephone message sender system" and elevator. The Palace Hotel became popular with the wealthy bourgeoisie, aristocracy and merchants.

The press described the hotel as following: *"Opening from the English-looking lobby is a breakfast room in Adam style and then a period restaurant a la Louis XIV. The beer hall in the basement features Old German furniture and stained glass windows. On the first floor are a reading room, a lounge and a terraced garden. All 150 rooms on the six floors of the hotel overook the street, and most have a balcony and a bathroom. Room service can be summened via small electric lights, and a water-filled American fire extinguishing system is on standby in case of fire."*

During the Second World War, the hotel sustained no serious damage, while after the war, like many other palaces in Budapest, it became a political party headquarters and it was used by Social Democratic Party between 1946 and 1949. In 1951, it became a hotel again but it never recover its original splendour. In the lack of renovation and reconstruction the building turned out of condition and was finally closed in the 90's.

In 2002, after the renewal of its Secessionist decoration and being enlarged with two more side wings, this classical, grand hotel serves is original function with pomp once again. Renamed into Novotel Budapest Centrum, the hotel today, just like one hundred years ago, offers the beauty of elegance and the advantages of comfort to its guests.

Source: https://www.historichotelsthenandnow.com/palacebudapest.html



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Welcome Reception & Dinner

Palace Restaurant

Located on the ground floor
of Novotel Budapest Centrum.

Address: Rakoczi ut 43-45

Budapest 1088

Hungary

GPS: 47.497418, 19.072095.

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Workshop 1: Implementation Science

Wednesday, 29 November: 9:00 am to 5:00 pm

Developing Implementation Strategies: from theory to practice

Faculty (in alphabetical order)

Dr. Charlotte Bekker, PhD
Radboud university medical center, The Netherlands
Prof. Dr. Bart van den Bemt, PhD, PharmD
Radboud university medical center, The Netherlands
Prof. Dr. Sabina De Geest, PhD, RN
University of Basel, Switzerland & KU Leuven, Belgium
Dr. Janette Ribaut, PhD, RN
University of Basel, Switzerland
Dr. Sabine Valenta, PhD, RN
University of Basel & University Hospital of Basel, Switzerland

Introduction

Increasing high quality evidence on how to tackle medication non-adherence has been published, yet translation of that evidence into real-world clinical practice remains challenging.[1] Implementation science defined as *"the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care"* and has gained traction as a valuable methodology to support real-world translation of interventions".[2] In this year's Implementation Science Workshop we will focus on **developing and tailoring implementation strategies as a foundational key element for implementation science projects**.

We will position implementation science among other research methodologies first. We will then continue to present and discuss how to context-wise select and tailor implementation strategies within implementation science projects. Practical examples will be provided, which will be followed by group work exercises and plenary discussion round.

Specifically, we will provide detailed guidance how to select and tailor implementation strategies and will use two implementation science projects with a focus on medication adherence interventions to exemplify the development, application and evaluation of implementation

strategies. The session will be highly interactive and will allow ample opportunity for discussion and application in group exercises.

At the end of the workshop, we offer a personal consultation for interested participants who have specific questions for their projects/clinical practice/research related to Implementation Science or specifically on developing/tailoring implementation strategies.

Learning objectives

After the workshop, participants will be able to:

- Position implementation science and develop a basic understanding of its relevance and key concepts.
- Understand relevant steps and factors to consider the context-wise selection of implementation strategies.
- Develop familiarity with methods for selecting implementation strategies, and how to apply them in practice.

Learning methods

The workshop combines theoretical lectures with small group work and plenary discussions.

Target group

All researchers/clinicians/others interested in implementation science with or without previous experience/competence.

Maximum number of participants

30, in person.

Preparations for the workshop

Please read the following papers.

Recommended:

- Proctor, E.K., Powell, B.J. & McMillen, J.C. Implementation strategies: recommendations for specifying and reporting. *Implementation Sci 8*, 139 (2013). https://doi.org/10.1186/1748-5908-8-139.
- Powell, B. J., Beidas, R. S., Lewis, C. C., Aarons, G. A., McMillen, J. C., Proctor, E. K., & Mandell, D. S. (2017). Methods to improve the selection and tailoring of implementation strategies. *The journal of behavioral health services & research*, 44(2), 177-194. https://doi.org/doi:10.1007/s11414-015-9475-6.
- Powell, B. J., Waltz, T. J., Chinman, M. J., Damschroder, L. J., Smith, J. L., Matthieu, M. M., Proctor, E. K., & Kirchner, J. E. (2015, Feb 12). A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. *Implement Sci, 10*, 21. https://doi.org/10.1186/s13012-015-0209-1.
- Valenta, S., Ribaut, J., Leppla, L., Mielke, J., Teynor, A., Koehly, K., Grossmann, F., Gerull, S., Witzig-Brändli, V. & De Geest, S. for the SMILe study team (2023). Context-specific adaptation of an eHealth-facilitated, integrated care model and tailoring its implementation strategies-A mixed-methods study as a part of the SMILe implementation science project. *Front Health Serv, 2*, 977564. https://doi.org/https://doi.org/10.3389/frhs.2022.977564.

Optional readings:

- Mielke, J., Leppla, L., Valenta, S. et al. Unraveling implementation context: the Basel Approach for coNtextual ANAlysis (BANANA) in implementation science and its application in the SMILe project. Implement Sci Commun 3, 102 (2022). https://doi.org/10.1186/s43058-022-00354-7
- De Geest, S., Valenta, S., Ribaut, J., Gerull, S., Mielke, J., Simon, M., Bartakova, J., Kaier, K., Eckstein, J., Leppla, L., Teynor, A., & on behalf of the SMILe study team (2022). The SMILe integrated care model in allogeneic SteM cell TransplantatIon faciLitated by eHealth: a protocol for a hybrid effectiveness-implementation randomised controlled trial. *BMC Health Services Research, 22*(1), 1067. https://doi.org/10.1186/s12913-022-08293-8.

Workshop Agenda

Wednesday, 29 November

09:00–09:10	Welcome and opening
09:10–09:30	**Lecture:** Introduction to implementation science
09:30–09:50	**Lecture:** Introduction to implementation strategies
09:50–10:00	Break
10:00–10:20	**Lecture:** Introduction to develop and select context-specific implementation strategies
10:20–10:40	**Introduction to 1st practical example and 1st group exercise:** "Tailoring implementation strategies to implement and evaluate an eHealth-facilitated, integrated care model for stem cell transplantated patients (SMILe)"
10:40–10:50	Break
10:50–11:30	**Group work exercise 1** – selecting and applying relevant implementation strategies
11:30–12:15	**Wrap up results** from Group exercise 1 and morning session in plenary
12:15–13:30	Lunch
13:30–13:50	**Lecture:** How to apply your implementation strategy in practice
13:50–14:10	**Introduction to 2nd practical example and 2nd group exercise:** "Medication Adherence Knowledge, Expertise and Implementation Taskforce: living labs implementing evidence-based adherence interventions"
14:10–14:50	**Group work exercise 2** – follow-up and evaluate your selected implementation strategies
14:50–15:05	Break
15:05–15:45	**Wrap up results** from Group exercise 2 and afternoon session in plenary
15:45–16:00	Wrap up and closing
16:00–17:00	Personal consultation for interested participants (optional – please see description above)

Dr. Charlotte Bekker

Charlotte is a biomedical scientist and works as assistant professor at the department of pharmacy, Radboudumc, Netherlands. She is passionate to combat societal challenges and her research interest revolves around establishing sustainable medication use. For example, Charlotte investigates novel strategies aiming to reduce medication waste, to tailor drug dosages to individual patients through shared decision making, and to implement medication adherence interventions. In her work, Charlotte incorporates implementation science elements to enhance uptake of results in clinical practice.

Prof. Dr. Bart van den Bemt

Bart is a pharmacist/clinical pharmacologist and Professor in Personalized Pharmaceutical Care at Radboudumc and head of the pharmacy and research and innovation department and Sint Maartenskliniek, the Netherlands. His research focuses on the adequate use of drug therapy with special emphasis to medication safety and adherence. He is founder of the special interest group medication adherence of the European Society of Clinical Pharmacy and member of ESPACOMP. He was president of the European Society of Clinical Pharmacy (ESCP) and member of several pharmaceutical care/education committees.

Prof. Dr. Sabina De Geest

Sabina De Geest is a Professor of Nursing at the Faculty of Medicine of the University of Basel (Switzerland), and part-time Professor of Nursing at the KU Leuven in Belgium. She leads the PIONEER international group, an iinterdisciplinary research group focusing on behavioural (e.g. medication adherence) and psychosocial issues in chronically ill (e.g. transplantation, rheumatology, older persons). Driven by implementation science methodology, her research portfolio focuses on the development of innovative care models partially powered by eHealth. In addition, her research addresses psychosocial and behavioural pathways and their relation to outcomes in chronic illness as well as the development and testing of instruments to assess patient reported outcomes. She is a co-founder of the Swiss Implementation science Network (https://impact-dph.unibas.ch/).

Dr. Janette Ribaut

Janette Ribaut is a PostDoctoral researcher and study coordinator at the Institute of Nursing Science at the University of Basel. She is a nurse by training and focuses on the development, implementation and evaluation of eHealthsupported medication adherence interventions in her research. For example, she is part of the bi-national SMILe project (development/adaptation, implementation and evaluation of an integrated care model in allogeneic SteM cell transplantatIon faciLitated by eHealth).

Dr. Sabine Valenta

Sabine Valenta is a Postdoctoral research fellow at the Institute of Nursing Science, University of Basel, and also works as a nursing scientist & advanced practice nurse (APN) at the University Hospital Basel in Switzerland. In addition, Sabine Valenta actively participates in scientific societies, including the EBMT Nurses Group Research Committee and the Swiss Association for Nursing Science, Academy Society Oncology Nursing.

Her research interests span a broad spectrum of areas in healthcare, encompassing implementation science, mixed-methods research, adaptation of complex interventions, APN role development, and integration of eHealth technology in the healthcare sector. As a Co-Principal Investigator in the ongoing implementation science project SMILe (https://smile.nursing.unibas.ch/), her primary focus revolves around the tasks of adapting, implementing, and evaluating an integrated, eHealth-facilitated care model.

Workshop 2:
Describing Medication Adherence Interventions

Saturday, 2 December: 9:00 am to 12:30 pm

Bridging the gap between intervention development and reporting guidelines and behaviour change in real life:

Faculty (in alphabetical order)

Prof. Vera Araújo-Soares PhD,
Professor of Prevention at the Faculty of Medical Sciences Mannheim, Heidelberg University, Germany
MSc. Carmen Corral-Partearroyo,
PhD student in Public Health at Sant Joan de Déu Research Institute and Autònoma University of Barcelona, Spain
Dr. Sarah Serhal PhD,
Postdoctoral Research Fellow in Pharmaceutical Sciences, University of Geneva, Switzerland
Raya Vinogradov,
PhD student at the Population Health Sciences Institute, Newcastle University, UK

Purpose:

This workshop will introduce participants to medication adherence intervention development, provide an overview of the state-of-the-art on intervention reporting recommendations, and illustrate their application with ongoing project examples.

Description:

The workshop will start with an overview of intervention development and reporting guidelines and recommendations to delineate the context of intervention development and description standards. It will then focus on three practical examples of ongoing intervention development and evaluation projects to illustrate the challenges of applying these standards to diverse real-life conditions.

By the end, participants will be able to:

- Describe the main intervention reporting guidelines and frameworks available for medication adherence interventions (development and evaluation).
- Apply these recommendations to reporting example interventions.
- Describe and critically assess the practical challenges of applying these recommendations to medication adherence real-life intervention studies at different stages in the development process.
- Propose and justify solutions for applying reporting recommendations to real-life interventions.

This workshop aims to create a space to discuss practical challenges for reporting medication adherence interventions, and form a task force with those willing to continue towards a consensus on intervention description specific to medication adherence and consistent with available guidelines (EMERGE, ABC).

This workshop is relevant to adherence researchers and healthcare professionals planning and/or conducting medication adherence intervention studies.

- Requires **no** prior knowledge or experience, but experience with developing interventions is advantageous.
- It will have a mixed theory-practical format. Participants will be asked to work interactively to formulate solutions to reporting intervention challenges and discuss the implications.
- Includes a mix of short presentations, lectures, group discussions, and practical exercises.

Leaders:

Professor Vera Araújo-Soares will provide an overview of medication adherence interventions and reporting guidelines and recommendations for intervention development and description. Vera has extensive experience in the development and evaluation of evidence-based health promotion interventions. Carmen Corral-Partearroyo, Raya Vinogradov and Dr. Sarah Serhal will illustrate their application with examples from ongoing projects as well as the challenges of applying these standards to diverse real-life situations. All leaders will synthesise the challenges of reporting interventions, potential solutions, and future steps toward a consensus.

Vera Araújo-Soares

Vera is a Professor of Prevention at the Faculty of Medical Sciences Mannheim, Heidelberg University. She completed her PhD in 2006 in Portugal where she worked as an academic and a clinician. After her PhD she moved to the UK where she worked in Scotland and England. In England she was Professor of Health Psychology and Public Health at the Medical Faculty of Newcastle University. Her research targets the development and assessment of evidence-based interventions for the promotion of health behaviours and the prevention and self-management of chronic conditions. She is passionate about translating theory and empirical evidence into practice and by doing so, contributing to refining theory.

Carmen Corral-Partearroyo

Carmen is a nursing and public health professional. She graduated in Nursing in 2015 from the Complutense University of Madrid and developed her professional career in London (UK). In 2020, she completed an MSc in Public Health at LSHTM. Since 2020, she is part of the PRISMA research group at Sant Joan de Déu Research Institute and a PhD student in the field of Design, Evaluation and Implementation of Complex Interventions at the University Autònoma of Barcelona with a particular interest in supporting medication adherence in a range of chronic conditions.

Sarah Serhal

Sarah is a postdoctoral researcher within the School of Pharmaceutical Sciences, University of Geneva, Switzerland. She is a pharmacist with a Master's in International Public Health and completed her PhD at the Woolcock Institute of Medical Research/University of Sydney, Australia. Her research explores ways we can address patient, medication, and healthcare related barriers to achieve optimal illness control and how these actions can be transformed into real-world impact using principles of implementation science.

Raya Vinogradov

Raya (BA Social and Life Sciences, MClinRes) is a research radiographer working in the North East of England (Newcastle upon Tyne NHS Hospitals Foundation Trust) and a PhD student in the Population Health Sciences Institute, Newcastle University, UK. Her research interests are focused on improving adherence to prophylactic aspirin amongst pregnant people.

Workshop 3:
Self-reported Adherence Measures

Saturday, 2 December: 2:00 to 5:30 pm

What are we looking for?

Faculty (in alphabetical order)

PD Dr. Isabelle Arnet,
University of Basel, Basel, Switzerland
Dr. Christiane Eickhoff,
ABDA – Federal Union of German Pharmacists Association, Berlin, Germany
Dr. Alexandra Dima,
Senior Investigator, Sant Joan de Déu Research Institute, Barcelona, Spain

Purpose:

This workshop aims to:

- Share experiences of different research teams on selecting and using self-report (SR) medication adherence measures;
- Compile the pros and cons of several SR medication adherence measures and their potential uses in research and clinical practice;
- Work together with participants towards a consensus on the quality criteria needed for SR medication adherence measures for different types of studies (research or clinical practice context);
- Initiate the writing of a position statement on the state-of-the-art on SR medication adherence and need for coordinated work on SR medication adherence measure development and adoption in research and clinical practice.

This workshop is directed to researchers; clinicians; students; and policy makers interested in medication adherence measures in research and/or clinical practice. At least experience in running or participating to one research study on medication adherence is required, but early career researchers might benefit most when they are in the planning phase of a research study on SR medication adherence.

Description:

Self-report (SR) continues to be the most used method of collecting information on medication adherence behaviours and determinants. Numerous questionnaires have been developed, and validation work has been performed and reported following various methodologies. Recent systematic reviews (*Kwan et al., 2020*) highlight the heterogeneity of questionnaires and validation studies, as well as the lack of evidence on the full range of measurement properties recommended by the psychometric literature on patient-reported outcome measures (*Gagnier et al., 2021*). After decades of measure development, researchers initiating new studies on medication adherence are confronted with limited options applicable to their context, after considering a diversity of measures with various degrees of development and validation. Moreover, many measures available are not consistent with current consensus definitions of medication adherence (ABC) and reporting guidelines (EMERGE). In this context, there is a need to exchange experiences of different research groups on the selection and use of adherence measures for different types of studies, and work towards consensus recommendations on what quality criteria are necessary for SR medication adherence measures depending on the purposes for their use in research or clinical practice contexts. This consensus would build on prior ESPACOMP initiatives and contribute to the ESPACOMP mission of promoting the science of medication taking.

The format of the workshop will be predominantly interactive between speakers and audience mostly as roundtable or group discussion. One exercise in small groups is planned. Consensus will be obtained by voting. Participants will be invited to prepare in advance short presentations on their experiences on selecting and using a SR medication adherence measure, if applicable to their research. They will obtain a template PowerPoint with 10 slides to structure their presentation. The slides will cover 1. Title of the study, name of researchers involved, institution where the study was performed; 2. Rationale for performing the study and study aim; 3. Study setting; 4. Adherence measure; 5. Short results of the study; 6. What worked well; 7. What worked less well; 8. Pros; 9. Cons; 10. Summary.

After a 30-minute open discussion, the pros and cons of several SR medication adherence measures will be compiled. This will serve as basis for developing a consensus on quality criteria. Participants will delineate the quality criteria in small groups. Each group will work on one specific topic (eg, research or clinical practice context; targeted population and inclusion criteria). Back to the plenary, the groups will present their results. A consensus will be obtained by voting. Participants will be invited to join the moderators to write a position statement on the state-of-the-art on SR medication adherence.

Workshop Agenda

Saturday, 2 December

14:00–14:30	Overview of the COSMIN guidelines as applied to MA measures (moderators)
14:30–15:30	Examples of participant's experiences with SR MA measures
15:30–16:00	Interactive compiling of pros and cons of SR MA measures
16:00–16:30	Interactive delineation of quality criteria in small groups
16:30–17:00	Interactive voting towards consensus
17:00–17:30	Synthesis of exchanges and structuring of position statement

References:

Kwan YH, et al. Measurement properties of existing patient-reported outcome measures on medication adherence: systematic review. J Med Internet Res. 2020;22(10):e19179.
Gagnier JJ et al. COSMIN reporting guideline for studies on measurement properties of patient-reported outcome measures. Qual Life Res. 2021;30(8):2197-2218.

Leaders:

Isabelle Arnet

(University of Basel, Basel, Switzerland)

Isabelle studied pharmacy at the Swiss Federal Institute of Technology Zurich, Switzerland, and graduated in 1991 with a federal diploma. After 2 years as a freelancer for the Johns Hopkins Hospital in Baltimore, Maryland, USA, she joined 1997 the staff of Prof. Dr. WE. Haefeli at the Department of Clinical Pharmacology & Toxicology of the University Hospital Basel, Switzerland. She acquired 1999 her PhD from the University of Basel, with a thesis on "Compliance/Non-compliance and psychological attributes". She entered 2000 the editorial department of Documed, Basel, and assumed the translation services, along with the development of tools for hospital pharmacies. In parallel, she kept teaching activities in pharmacy at the University of Basel. In 2008, she joined the Pharmaceutical Care Research Group at the Department of Pharmaceutical Sciences,

University of Basel, as a senior scientist with research and teachings assignment. She is an international recognized expert in medication adherence and developed among others electronic devices for the monitoring of polypharmacy, together with standards for calculation. As bilingual French and German, she worked on the translation of the adherence taxonomy. She is currently developing tools including questionnaires for pharmacists to ameliorate adherence in ambulatory patients. Her personal driver is to find practical solutions to practical problems in medication adherence, and the implementation of research results into practice. Isabelle Arnet is member of several national and international associations and societies, and joined in 2017 the board of PCNE (Pharmaceutical Care Research Network). She aims at stimulating young researchers, and at introducing new views and activities across borders.

Christiane Eickhoff

(ABDA – Federal Union of German Pharmacists Association, Berlin, Germany)

Christiane graduated as a pharmacist from the Freie Universtität Berlin, Germany. Christiane is now working as a research associate at the ABDA. Her work centres on pharmacy practice research with a focus on medication adherence, outcome measurement and the development, implementation and evaluation of pharmaceutical services. Together with Isabelle Arnet, she has developed a tool enabling pharmacists to screen for non-adherence in medication. Both have established the working group "medication adherence" within the Pharmaceutical Care Research Group. Christiane runs the professional secretariat of the Initiative for Pharmaceutical Care, an organisation aiming to establish pharmaceutical care in Germany, especially by consulting and funding research projects. Christiane is a lecturer at the Freie Universität, Berlin, and regularly presents at conferences both in Germany and internationally. She is voluntarily engaged in the development cooperation with Bangladesh with a focus on health, education and women, again chairing the NGO Shanti since 2016.

Alexandra Dima

(Senior Investigator, Sant Joan de Déu Research Institute, Barcelona, Spain)

Alexandra's research on medication adherence adopts diverse quantitative and qualitative methodologies and mixed-methods approaches. Her methodological expertise includes psychometrics and measurement. She has led the development of the TEOS framework for medication adherence measurement, is one of the developers of the R package AdhereR for estimating medication adherence from electronic healthcare data and has developed and/or validated several self-report questionnaires related to medication adherence and more broadly self-management of chronic conditions. She is Chair of the ENABLE COST Action WP2 on Medication Adherence Technologies.

ESPACOMP Scientific Meeting Program

Wednesday, 29 November

9:00–17:00	**Pre-Conference Workshop** **Developing Implementation Strategies: from theory to practice** *Charlotte Bekker, Bart van den Bemt, Sabina De Geest, Janette Ribaut, Sabine Valenta*
17:00–19:00	**Registration**

Thursday, 30 November

8:00–9:00	**Registration**
9:00–9:15	**Welcome Word** *ESPACOMP President Alexandra Dima* *Local Hosts: Judit Simon, Tamas Agh*
9:15–10:30	**Paper Session 1:** **Different stakeholder perspectives on medication adherence** *Session Chair: Tamas Agh* • *Sabina de Geest.* Swiss Policy Brief on Implementing Medication Adherence Interventions • *Laura Mortelmans.* The development of recommendations for healthcare providers to support patients experiencing medication self-management problems • *Fatima Rezae.* Healthcare professionals' perspectives and experiences of osteoporosis medication treatment: A qualitative systematic review • *John Weinman.* Effectiveness of a series of courses for Latin American healthcare professionals to raise awareness on non-adherence and identify non-adherent patients with the help of behavioral science. • *Rebecca Bartlett Ellis.* Medication Adherence and Patient Activation in Chronic Kidney Disease (CKD)
10:30–11:00	Coffee break & poster viewing
11:00–11:45	**Plenary lecture:** **Eduardo Sabaté. Evidence-Based Policy Action:** **20 years since the WHO Report on Adherence to Long-Term Therapies** *Session Chair: Marie Schneider*

11:45–13:00 **Paper Session 2:**
Patient and caregiver perspectives

Session Chair: Rob Heerdink

- *Marcia Vervloet.* A contextual analysis of four living labs implementing medication adherence interventions
- *Jacqueline Hugtenburg.* Perceptions, needs and wishes of type 2 diabetes mellitus patients in the Dutch Caribbean regarding medication information and guidance: an interview study
- *Léa Solh Dost.* Medication management, understanding and adherence from hospital to ambulatory settings in type 2 diabetic polymorbid patients: a qualitative longitudinal study
- *Raya Vinogradov.* A co-produced systematic review and meta-ethnography of barriers and facilitators of adherence to aspirin prophylaxis in pregnancy.
- *Ana Tomas.* Adherence to antibiotic treatment in outpatients in Serbia

13:00–14:30 Lunch & poster viewing; Poster walks: sessions 1–4

14:30–15:45 **Paper Session 3:**
Medication adherence interventions

Session Chair: Maria Rubio Valera

- *Marie Schneider.* The differential impact of a 6- versus 12-month pharmacist-led interprofessional medication adherence program on medication adherence in patients with diabetic kidney disease
- *Carmen Corral-Partearroyo.* The Initial Medication Adherence intervention to improve adherence to cardiovascular disease and diabetes treatments: mixed-methods process evaluation (the IMA-cRCT study)
- *Laura E.J. Peeters*. Antihypertensive drug concentration measurement combined with personalized feedback in resistant hypertension: a randomized controlled trial
- *Jasmine Hine.* Financial INcentives to improve Asthma (FINA): findings from a pilot RCT to improve medication adherence for children with asthma
- *Zoe Moon.* Interventions to increase adherence to antiretroviral therapy in people living with HIV: A systematic review and meta-analysis

15:45–16:30 **Roundtable 1:**
Patient engagement in medication adherence research: ESPACOMP-ENABLE joint roundtable

Cristian Andriciuc, Wendy Davis, Mark Duman, Krisztina Tóth, Tamas Agh, Liset van Dijk, Francisca Leiva Fernandez, Marie Schneider

16:30–17:00 Coffee break & poster viewing

17:00–17:45	**John Urquhart Memorial Lecture** **Adherence to medicines: the power of drug utilization data** *Monique Elseviers* *Session Chair: Alexandra Dima*
17:45–18:45	**ESPACOMP General Assembly**
19:00–	**Conference reception & dinner**

Friday, 1 December

08:15–9:15	**Early Career Group Networking Session**
09:15–10:30	**Paper Session 4:** **Determinants of medication adherence** *Session Chair: Marie Schneider* • *Laura E.J. Peeters*. Monitoring antihypertensive drug concentrations to determine non-adherence in hypertensive patients with or without a kidney transplant • *Cristina Ghiciuc.* Medication non-adherence as precipitant factor in acute heart failure: a systematic review • *Cécile Payet.* Adherence patterns and their predictors among oral isotretinoin initiators between 2014 and 2018 in France • *Sarah Serhal.* Clinical estimations of patient adherence – opportunities for future clinical care • *Frauke Van Vaerenbergh.* The reporting of variables with impact on adherence assessment in COPD: a systematic review
10:30–11:00	Coffee break & poster viewing
11:00–11:45	**Plenary lecture** **State of the art in medication adherence research and practice in Hungary** *Judit Simon & Tamas Agh* *Session Chair: Przemyslaw Kardas*

11:45–13:00

Paper Session 5:
Digital medication adherence interventions and measurement

Session Chair: Marcia Vervloet

- *Antoine Pironet.* The SystemCHANGE intervention improves medication-taking habit
- *Rebecca Bartlett Ellis.* Feasibility of Implementing SystemCHANGE™ for Medication Adherence in Chronic Kidney Disease (CKD) Using Digital Health
- *Non Davies.* Mobile health interventions to improve adherence to oral anticoagulant treatment: A systematic review
- *Kirstin Messner.* Outputs of freely available medication adherence applications – appearance and reality
- *Selina Barbati.* Dispensing Patterns vs. Electronic Monitoring: Assessing Non-Adherence to Direct Oral Anticoagulants

13:00–14:30 Lunch & poster viewing; Poster walks: sessions 5-8

14:30–15:45

Paper Session 6:
Methodology

Session Chair: Dyfrig Hughes

- *Kris Denhaerynck.* Psychometric properties of the BAASIS©: a meta-analysis of individual participant data
- *Frederik Haupenthal.* Predictive Validity of the Basel Assessment of Adherence to Immunosuppressive Medication Scale (BAASIS©) After Renal Transplantation
- *Sarah Belcher.* Psychometric Evaluation of the PROMIS® Medication Adherence Scale (PMAS) among patients on oral anticancer medication (OAM) for multiple myeloma
- *Sarah Belcher.* Concordance between PROMIS® Medication Adherence Scale (PMAS) and electronic event monitoring (EEM) among patients on oral anticancer medication (OAM) for multiple myeloma
- *Jeffrey Rohay.* Variation in Adherence Measures as a Function of Calculation Methods

15:45–16:30

Roundtable 2:
Assessing medication adherence in clinical trials: challenges and solutions

Lina Eliasson, Vanessa Cooper, Bernard Vrijens, Amy Mulick

16:30–17:00 Coffee break & poster viewing

17:00–17:45

Plenary lecture:
Eleanor Murray. Adherence-adjustment of randomized trial results is a knowledge problem, not a methods problem

Session Chair: Bernard Vrijens

17:45–18:00	**Presentation of Jean-Michel Metry Poster Prize and Early Career Abstract Prize**
18:00–18:15	**Closure of the meeting**
18:30–	**Social programme – City walk (information at the venue)**

Saturday, 2 December

9:00–17:30	**Conference Workshops**
9:00–12.30	**Workshop How to describe medication adherence interventions? Bridging the gap between intervention development and reporting guidelines and behaviour change in real life** *Carmen Corral-Partearroyo, Sarah Serhal, Raya Vinogradov, Vera Araújo-Soares*
12:30–14:00	Lunch break
14:00–17:30	**Workshop Self-reported adherence in research and clinical practice: what are we looking for?** *Isabelle Arnet, Christiane Eickhoff, Alexandra Dima*

Plenary Invited Speakers

Dr Eduardo J. Sabaté

Evidence-Based Policy Action: 20 years since the WHO Report on Adherence to Long-Term Therapies

Bio

Dr. Eduardo J. Sabaté is a physician and Public Health professional with 25+ years research experience in Epidemiology, Health Systems, Real World Evidence, Clinical development and Health Economics and Outcomes Research. He is currently a Senior Director Medical Affairs at GILEAD SCIENCES Inc (acting in this activity on a personal basis). When the "Adherence to Long-term Therapies: Evidence for Action" report was written in 2003, he was a Medical Officer at the World Health Organization and played a pivotal role for the inclusion of adherence to therapies in the global public health agenda. For the past 20 years since the WHO report, he has continued to be a passionate researcher and advocate for patient access and drug innovation, patient-centered care and efficient health care systems worldwide. He is currently Board member in the Publication Committee of the American Association of Public Health.

Summary

This talk will give an overview of the past, present and future of medication adherence from the perspective of the "Adherence to Long-term Therapies: Evidence for Action" report and its impact on policy making. First, a journey back in history will give an account of how the WHO report initiated, developed and communicated at the time and the innovation it represented at the time. Second, it will describe the results it has had in the twenty years following its release, in terms of the impact on research and the provision of services and products by different health care stakeholders, with a particular focus on whether patients themselves have benefited from the changes initiated. Third, it will look towards the next steps in adherence research and practice. In particular, the future that is already here: Integrated health care platforms and new information technologies.

Prof. Monique Elseviers PhD MS

Adherence to medicines: the power of drug utilization data

Bio

Monique Elseviers is professor emeritus of the University of Antwerp, Belgium, where she worked as an epidemiological researcher and statistician in the fields of nephrology, non-adherence and drug utilization research. She was responsible for the courses of *Research methodology and statistics* in the department of Nursing and Midwifery. At the University of Ghent, she contributed to the research activities in pharmaco-epidemiology focusing on the quality use of medicines in old age and in de-prescribing. Currently, she coordinates a double-blind clinical trial on the reno-protective role of metformin in patient with renal failure using DATs for adherence assessment. She is past-chair and member of the board of EuroDURG (European Drug Utilization Research Group) for more than 20 years. She is chief editor and section leader of the Adherence chapters of the book *Drug Utilization Research: Methods and Applications* (with release of the second edition expected for December 2023).

Summary

Data on adherence to medicines forms a key issue to evaluate the effectiveness of drug treatment. Decades ago, it was John Urquhart in his comments to published effectiveness of medicines who reacted already with a pleading to document the medication taking behavior before making any conclusion.

Until recently, adherence research focused on the specific drug utilization patterns of dosing history using primary data collection, neglecting the separate problems of initiation and discontinuation of medicine use. After the publication of the ABC taxonomy, the use of secondary drug utilization data sources became more appreciated in adherence research, particularly for the assessment of initiation and discontinuation of prescribed drug therapy. Additionally, in recent years, secondary drug utilization data forms a key source of information identifying drug classes with poor adherence in general practice and highlighting the possible problem of non-adherence in drug classes with a high resistance to treatment. For the evaluation of adherence interventions however, the collection of primary data remains essential for assessing their effectiveness.

Nowadays, Digital Adherence Technologies (DAT), like smart medication packages, combined with medicine taking data analytics offers the most powerful information of medication taking behavior in clinical practice. Although there is growing attention for the problem of non-adherence to prescribed therapy, support from the health care system for improving adherence, however, remains limited in most countries. In the future, the further development of DATs as well as the generalized availability of big data will enhance adherence research and the development of interventions. Despite the expected expansion of available data however, problems such as the increasing awareness of privacy protection will form an important challenge to overcome in future attempts to improve adherence to medicines.

Tamás Ágh MD PhD DrHabil

Judit Simon, Professor

State of the Art in Medication Adherence Research and Practice in Hungary

Tamás Ágh MD PhD DrHabil

Bio

Tamás Ágh graduated from the Semmelweis Medical University (MD, 2006), the Corvinus University of Budapest (Physician-Economist, 2010), the Semmelweis University School of PhD Studies (PhD in Pharmacoeconomics, 2013) and the University of Pecs Doctoral School of Health Sciences (DrHabil in Health Sciences, 2020). He specialized in family medicine in 2010. Dr. Ágh is a research associate professor at the Center for Health Technology Assessment and Pharmacoeconomic Research, University of Pécs, a principal researcher of Syreon Research Institute and has been practicing as a medical doctor since 2006. With 15 years of experience in health economics and outcome research, he developed expertise in the fields of medication adherence, patient reported outcomes, health technology assessment, and evidence synthesis. Dr. Ágh is chair of the ISPOR Medication Adherence and Persistence Special Interest Group and a member of the leadership group of the European Network to Advance Best practices & technoLogy on medication adherencE (ENABLE) Cost Action.

Judit Simon, Professor

Bio

Judit Simon graduated in the Master in Economics Program of the Corvinus University of Budapest in 1974 (at the predessors in name). She got the PhD from the Hungarian Academy of Sciences (1994) and the habilitation from the Corvinus University of Budapest (2007). She worked for governmental and business institutions and joined the Corvinus Univcersity of Budapest in 1990. She served as the head of the Institute of Marketing (2008–2016) and as the founding director of the German Teaching Program in Business Administration (1993–2016). Her main research and teaching areas are the marketing research, health care marketing and customer behaviour. Her research focus in health care marketing is the research and measurement of patient adherence. She joined the ESPACOMP community in 2010. She has more than 240 academic publications, she published papers in Industrial Marketing Management, Journal of Business and Industrial Marketing, Frontiers in Pharmacology and in other international and Hungarian journals. She published the Hungarian book on "Marketing in Health Care" and the "Marketing research" book with Naresh K. Malhotra in Hungarian language. She is the honorary doctor and honorary citizen of the University of Passau (Germany) and she was awarded as Professor Emerita at the Corvinus University.

Summary

Medication non-adherence in Hungary has emerged as a pressing public health concern. Despite the presence of numerous effective treatments, the alarming Eurostat statistics from 2019 show that only 50.8% of Hungarians adhered to their prescribed medication regimens. This low adherence to medication not only places a significant financial strain on Hungary's healthcare system but also detrimentally impacts patient health outcomes. A study under the framework of the ABC Project highlighted Hungary as one of the lowest-ranking EU countries in terms of medication adherence. Furthermore, in line with other European nations, Hungary faces the challenges brought about by an aging demographic. With the continuous growth of the elderly population, there's a subsequent increase in the incidence of multimorbidity and polypharmacy. This escalation amplifies the risk of medication non-adherence.

This presentation seeks to offer a thorough overview of medication adherence research and practice in Hungary. We will present the evaluation of the medication adherence landscape from its historical roots to the contemporary challenges it faces. Hungary's dedication to enhancing medication adherence can be showcased by various initiatives, including primary care interventions, pharmacist-led programs, academic research, and scientific publications. Attendees will be provided with a concise summary of these pivotal initiatives.

Understanding both the historical and current perspectives on medication adherence in Hungary is invaluable, not only for local stakeholders but also for international observers aiming to draw insights from Hungary's experience. In this presentation, we will shed light on the nation's specific challenges and explore potential lessons that might resonate beyond Hungary's borders.

Eleanor Murray, Department of Epidemiology, Boston University School of Public Health

Adherence-adjustment of randomized trial results is a knowledge problem, not a methods problem

Bio

Eleanor J Murray, ScD, is an Assistant Professor of Epidemiology at the Boston University School of Public Health. Dr Murray's research is on translational methodology for improving medical and public health decision-making. This new and growing area of research focuses on communicating new methodological developments to researchers and decision makers, and on identifying and solving practical challenges in applying these methodological developments to answer scientific questions. She has published extensively on the use of causal inference methods to adjust for non-adherence in clinical trials, and has written guidelines for designing and conducting pragmatic randomized trials. Dr Murray obtained her ScD in Epidemiology from the Harvard TH Chan School of Public Health. She is an Associate Editor for Social Media at the American Journal of Epidemiology and co-host of the methods podcast Casual Inference.

Summary

Randomized clinical trials (RCTs) can provide important insights into causal effects of medical treatments. But RCTs can also be susceptible to biases which change the meaning, or alter the validity, of the answers they provide. Important questions of interest for patients and providers

include ‘will this medication work for people like me / my patient?”, “will this medication work well if taken perfectly?”, and “will this medication work if taken imperfectly?”. Answering these questions requires that we go beyond the basics of RCT design and incorporate techniques more commonly employed in observational studies. Despite skepticism, estimating patient-centered causal effects such as those adjusted for adherence levels can be done. In this presentation, Dr Murray will provide an overview of patient-centered causal effects and methods for adherence adjustment, including discussion of the types of adherence data needed and statistical tools for obtaining valid estimates of these effects. The presentation will conclude with some remarks on the challenges in communicating adherence-adjusted causal effect information to research and clinical audiences.

Roundtables

Roundtable 1:

Patient engagement in medication adherence research: ESPACOMP-ENABLE joint roundtable

Cristian Andriciuc[1], Wendy Davis[2], Mark Duman[3], Krisztina Tóth[4,5], Tamás Ágh[6,7], Liset van Dijk[8], Francisca Leiva Fernandez[9], Marie Paule Schneider[10]

[1]Romanian Federation of Diabetes Associations, Cluj Napoca, Romania. [2]British Heart Foundation, London, UK, [3]MD healthcare, Manchester. UK, [4]Bridge of Health Alliance against Breast Cancer Association, Budapest, Hungary. [5]Syreon Research Institute, Budapest, Hungary. [6]Syreon Research Institute, Budapest, Hungary. [7]Center for Health Technology Assessment and Pharmacoeconomic Research, University of Pécs, Pécs, Hungary. [8]Nivel, Netherlands institution for health services research, Utrecht, the Netherlands. [9]Multiprofesional Teaching Unit of Community and Family Care; Andalusian Health Service; Health District Malaga-Guadalhorce; IBIMA-Platform Bionand; University of Málaga, Málaga, Spain. [10]Medication adherence and interprrofesionality research and teaching group, Institute of Pharmaceutical Sciences of Western Switzerland, University of Geneva

Aim: There is broad consensus internationally that engaging patients in medication adherence research from drug development to clinical practice is essential to generate high-level evidence for supporting patients in their treatment and life goals. Still, there are many challenges to engage patients in research projects across countries, research areas, and clinical settings. This roundtable aims to highlight experiences of patient engagement in different countries with a focus on digital solutions, discuss several challenges specific to medication adherence, and explore potential solutions with the audience.

Rationale: Internationally, a variety of patient engagement strategies has been developed and used in adherence research. In a dedicated ENABLE/ESPACOMP workshop on November 29th, 2023 patient representatives, developers of digital solutions and researchers from different academic settings discussed steps and tasks where patient engagement can enhance the development and implementation of medication adherence digital technology. Thus, within the ESPACOMP society and the ENABLE COST Action, we can take advantage of the networking opportunities to promote and align best practices in this regard.

Summary: The roundtable will start with a summary of the results of the workshop of November 29th. Next, four patient representatives will share their experiences with patient engagement in an interview setting. Finally, the panel will discuss with the audience about the key adherence-specific challenges highlighted and potential solutions.

Timetable:

- 00:00–00:05 Overview of patient engagement approach and introduction of speakers
- 00:05–00:35 Interview with patient representatives: results of November 29th and experiences with patient engagement
- 00:35–00:45 Discussion with the audience on ESPACOMP-ENABLE patient engagement initiative

Roundtable 2:

Assessing medication adherence in clinical trials: challenges and solutions

Lina Eliasson[1], Vanessa Cooper[1], Bernard Vrijens[2,3], Amy Mulick[4,5]

[1]Sprout Health Solutions Ltd, London, United Kingdom. [2]AARDEX Group, Seraing, Belgium. [3]University of Liège, Liège, Belgium. [4]Veramed GmbH, Frankfurt, Germany. [5]London School of Hygiene and Tropical Medicine, London, United Kingdom

Abstract

Aim:

In the context of clinical trials to:

1) Understand the risks of medication nonadherence;
2) Evaluate strategies to collect, analyse and report medication adherence;
3) Discuss the implementation of adherence measurement.

Rationale:

Suboptimal medication adherence in drug trials can lead to null findings, unduly large sample sizes and the need for dose modification after regulatory approval. Nonetheless, adherence is not consistently defined, measured, analysed or reported in clinical trials. To date, neither regulators nor the pharmaceutical industry have endorsed ESPACOMP's EMERGE guideline.

Summary:

The convenor will introduce contributors, the roundtable's objectives and EMERGE in the context of clinical trials. Contributor 1 will outline the risks of unrecognised nonadherence in clinical trials. Contributor 2 will explore the pros and cons of different methods for collecting adherence data in clinical trials. Contributor 3 will discuss how to better estimate efficacy and other treatment metrics in the presence of nonadherence. The audience will then be invited to share their experiences and opinions relating to the definitions, measurement, analysis and reporting of medication adherence in clinical trials. The roundtable will close with a discussion of the steps required to enable better implementation of adherence measurement in clinical trials.

Timetable:

- Introduction: LE (5 minutes)
- Risks of unrecognised nonadherence: VC (5 minutes)
- Collecting adherence data in clinical trials: BV (5 minutes)
- Analysing and reporting medication adherence in clinical trials: AM (5 minutes)
- Audience experiences: All (15 minutes)
- Steps to enable implementation: All (10 minutes)

Oral Presentations

Paper session 1: Different stakeholder perspectives on medication adherence

14 Healthcare system perspectives

Swiss Policy Brief on Implementing Medication Adherence Interventions

Janette Ribaut (shared first authorship)[1,2], Carole Bandiera (shared first authorship)[3,4], Kate Molesworth[1], Alexandra L. Dima[5], Samuel Allemann[1], Kabeza Kalumiya[6], Fabian Käser[7], Melvin Skip Olson[8], Michel Burnier[9], Job F. M. van Boven[10,11], Thomas Szucs[1], Ira Wilson[12], Marie Paule Schneider (shared last authorship)[3,4], Sabina De Geest (shared last authorship)[1,13]

[1]University of Basel, Basel, Switzerland. [2]University Hospital Basel, Basel, Switzerland. [3]University of Geneva, Geneva, Switzerland. [4]University of Lausanne, Geneva, Switzerland. [5]Institut de Recerca Sant Joan de Déu, Sant Boi de Llobregat, Barcelona,, Spain. [6]Geneva University Hospitals, Geneva, Switzerland. [7]Innosuisse, Bern, Switzerland. [8]Novartis Pharma AG, Basel, Switzerland. [9]University of Lausanne, Lausanne, Switzerland. [10]University of Groningen, Groningen, Netherlands. [11]Medication Adherence Expertise Center of the northern Netherlands (MAECON), Groningen, Netherlands. [12]Brown University School of Public Health, Providence, USA. [13]KU Leuven, Leuven, Belgium

Abstract

Aims: Medication non-adherence, i.e., patients not taking medications as prescribed, is a major public health concern that lacks priority on Swiss policymakers' agendas. Previous policy papers lacked a multilevel perspective and guidance for implementing necessary changes. We developed a policy brief to provide recommendations to strengthen medication adherence interventions in Switzerland.

Methods: In March 2022, the Swiss division of the European Network to Advance Best practices and technoLogy on medication adherencE (ENABLE), a Cooperation in Science and Technology (COST) Action, brought together 75 participants (researchers, clinicians, healthcare industry delegates, one policy maker) from 34 countries. Based on a survey launched during the conference, iterative discussions, and reviews of experts, a policy brief was drafted and further fine-tuned to reach consensus.

Results: Across four domains (research and development, education, policy, practice), the policy brief presents an innovative multilevel ecosystem within the following priorities: raising awareness of medication non-adherence, promoting private-public collaboration and interprofessional practice, fostering research and funding, translating research into real-world settings, strengthening the patient-as-partner paradigm, education of healthcare professionals, and monitoring medication adherence and its determinants. The brief is available online on the ESPACOMP website and is being disseminated via diverse channels (e.g., newsletters, social media, interviews).

Discussion and Conclusion: Our future-oriented policy brief highlights a multilevel perspective for implementing adherence-strengthening interventions. While developed for Switzerland, it has the potential to influence research, practice and policy across Europe as it offers valuable insights for addressing medication non-adherence and improving health outcomes.

18 Medication adherence education and training

The development of recommendations for healthcare providers to support patients experiencing medication self-management problems

Laura Mortelmans[1,2], Eva Goossens[1,3,4], Anne-Marie De Cock[5,6], Mirko Petrovic[7,8], Patricia van den Bemt[9], Tinne Dilles[1]

[1]Centre for Research and Innovation in Care (CRIC), Nurse and Pharmaceutical Care (NuPhaC), Department of Nursing Science and Midwifery, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium. [2]Research Foundation Flanders (FWO), Brussels, Belgium. [3]Department of Public Health and Primary Care, KU Leuven, Leuven, Belgium. [4]Department of Patient Care, Antwerp University Hospital (UZA), Antwerp, Belgium. [5]Department of Geriatrics, ZNA, Antwerp, Belgium. [6]Department of Family Medicine and Population Health, University of Antwerp, Antwerp, Belgium. [7]Department of Geriatrics, Ghent University Hospital, Ghent, Belgium. [8]Section of Geriatrics, Department of Internal Medicine and Paediatrics, Ghent University, Ghent, Belgium. [9]Department of Clinical Pharmacy and Pharmacology, University Medical Center Groningen, Groningen, Netherlands

Abstract

Background/Aim: Patients often experience problems regarding medication self-management, which affects medication adherence and safe medication use. This study aimed to develop recommendations for healthcare providers to support patients with polypharmacy who experience problems with medication self-management.

Methods: We conducted a three-phase study starting with (1) a mapping of medication self-management problems, followed by (2) a scoping review to gather relevant interventions/actions for each respective problem and (3) a three-round Delphi study with experts to reach consensus on the relevance and clarity of the recommendations. The cut-off for consensus was set at 80% expert agreement. The expert panel consisted of 23 healthcare professionals with specific expertise in medication management of patients with polypharmacy. Simultaneously with the second Delphi round, a panel of eight patients evaluated the usefulness of the recommendations. Results obtained from the patient panel were shared with the healthcare provider panel in the third Delphi round. Descriptive statistics were used for data analysis.

Results: We identified 20 medication self-management problems. Based on the scoping review, we composed a list of 66 recommendations for healthcare providers supporting patients with identified medication self-management problems. Through the Delphi study, consensus was reached on the relevance and clarity of these recommendations, clustered into the six phases of Bailey's medication self-management model.

Conclusion: These recommendations can be used in an interdisciplinary context as a resource for healthcare providers to enhance patients' competences in medication self-management.

25 Healthcare professional perspectives

Healthcare professionals' perspectives and experiences of osteoporosis medication treatment: A qualitative systematic review

Fatima Rezae[1], Ayano Kelly[2,3,4], Sagarika Dey[5], Rebekah Moles[1], Stephen Carter[1]

[1]School of Pharmacy, University of Sydney, Sydney, Australia. [2]Rheumatology Department, Liverpool Hospital, Sydney, Australia. [3]Ingham Institute of Applied Medical Research, Sydney, Australia. [4]School of Health and Medicine, South Western Sydney Campus, University of New South Wales, Sydney, Australia. [5]School of Clinical Medicine, South Western Sydney Campus, University of New South, Sydney, Australia

Abstract

Aim: Adherence to anti-osteoporosis medication remains suboptimal. Healthcare-related factors, including patient-healthcare professional (HCP) interactions contribute to non-adherence. We aimed to synthesise the perspectives and experiences of HCPs regarding osteoporosis medications.

Methods: Databases (Medline, Embase, PsycINFO, CINAHL) were searched until May 2023. Data were analysed through inductive thematic synthesis.

Results: We included 25 studies with 456 HCPs from various backgrounds. Six themes were identified:

- Low-priority disease (insidious and benign, underestimating fracture risk, too late to treat)
- Challenges in treatment decision-making (not sufficiently informed, lacking compelling evidence for treatment, pressured with time, someone else's responsibility)
- Minimising drug burden (advocating for safety/comfort, avoiding additional polypharmacy, constrained by financial barriers)
- Conscious of communication barriers (aware of transferring personal doubt, unable to convince the asymptomatic, fear of causing information overload)
- Fragmented care and advice (frustrated by poor interprofessional communication, lack of continuity in transitions of care, disappointed by being undermined)
- Confidence through experience and collaboration (aware and interested in osteoporosis, comfortable prescribing the familiar, strengthened by interdisciplinary collaboration and expertise, willing to provide optimal care)

Discussion/Conclusion: HCPs expressed willingness to optimise care through interdisciplinary collaboration and building expertise in osteoporosis. They advocated for safety/comfort and reducing overall drug burden but opinions differed regarding care responsibility and osteoporosis prioritisation. Optimal care was compromised due to limited-time, inadequate knowledge/evidence, and communication barriers. Clarifying HCPs' roles and strengthening interdisciplinary collaboration through multidisciplinary models of care could improve osteoporosis outcomes.

82 Medication adherence education and training

Effectiveness of a series of courses for Latin American healthcare professionals to raise awareness on non-adherence and identify non-adherent patients with the help of behavioral science

John Weinman

King's College London - School of Cancer & Pharmaceutical Sciences, London, United Kingdom

Abstract

Study Objectives and Methodology: A series of 4 online classes has been developed and provided by behavioral science experts to healthcare professionals from multiple therapeutic specialties. The aim of these courses was fourfold: 1 – raise awareness on non-adherence, 2 – explain the role of behavioral science in improving adherence, 3 – train the attendees to motivational interviewing in their daily practice, 4 – inform about digital solutions to improve adherence.

One year after the course, a self –administrated questionnaire was sent to all attendees.

Results: A total of 130 Latin American healthcare professional attendees provided their feedback.

The almost totality of respondents (98%) declared being able to identify non-adherent patients more effectively than before the course, mainly by direct approach (69%). The HCPs who declared using techniques learned in the educational program with their patients were asked to note from 1 to 10 the level of change noticed in their patients' response: a median of 8 was obtained.

Other measurements included the adoption of different behavioral approaches with their patients (empathy, collaboration, motivational interviewing…) since attending the program, and the effects of these approaches on their perceived patients' behavior.

Conclusion: This comprehensive educational program for HCPs was able to improve attendants' behavior with their patients towards better adherence to treatment and enhanced the self-declared perceived improvement in their patient's behavior.

62 Determinants of medication adherence

Medication Adherence and Patient Activation in Chronic Kidney Disease (CKD)

Rebecca Bartlett Ellis[1], Cynthia Russell[2], Sarah Zvonar[1], Shannon Elliott[3], Rebecca Bustin[1], Andrei Kapunan[1], K. Denise Kerley[1], Arjun Sinha[3,4], Susan Perkins[3]

[1]Indiana University School of Nursing, Indianapolis, USA. [2]University of Missouri-Kansas City, Kansas City, USA. [3]Indiana University School of Medicine, Indianapolis, USA. [4]Richard L. Roudebush VA Medical Center, Indianapolis, USA

Abstract

Aim: To evaluate the associations between medication adherence (implementation phase) and patient activation among individuals with chronic kidney disease (CKD) stages 1–4 taking once-daily antihypertensive medications.

Methods: In a descriptive cross-sectional design, we analyzed data (n = 64) from a clinical trial's screening phase. The study explored the association between medication adherence scores (measured through electronic monitoring) during the implementation phase of adherence and patient activation levels assessed using the PAM-13. Adherence was categorized as low (≤0.70), moderate (0.71–0.84), and high (≥ 0.85). Scatterplots with Spearman's correlations (rs) were used to examine associations among all cases and those stratified by adherence category.

Results: No overall association was found between activation level and implementation medication adherence (rs = 0.03). Among low adherence cases (n = 9), a trend suggested that higher PAM was associated with lower adherence (rs = -0.37). Moderate adherence (n = 12) also had a negative correlation (rs = -0.31), but the relationship was relatively flat. For high adherence cases (n = 43), there was no association observed in the scatterplot or correlation coefficient (rs = -0.06). Restricted range may affect results.

Discussion: Associations between patient activation and adherence are more likely in cases with lower adherence, possibly due to increased awareness and motivation for change.

Conclusion: Descriptive data from this small sample of individuals with CKD reflects limited associations between activation level and medication adherence. Lower levels of adherence may correlate with higher activation.

Paper Session 2: Patient and caregiver perspectives

72 Determinants of medication adherence

A contextual analysis of four living labs implementing medication adherence interventions

Stijn Hogervorst[1,2], Marcia Vervloet[3], Ruby Janssen[4], Ellen Koster[5], Marcel Adriaanse[1], Charlotte Bekker[6], Bart van den Bemt[7,6], Marcel Bouvy[5], Rob Heerdink[5,4], Jacqueline Hugtenburg[8], Menno van Woerkom[9], Hanneke Zwikker[9], Caroline van de Steeg-van Gompel[10], Liset van Dijk[3]

[1]VU Amsterdam, Amsterdam, Netherlands. [2]Amsterdam Public Health Research Institute, Amsterdam, Netherlands. [3]Nivel, Utrecht, Netherlands. [4]University of Applied Sciences, Utrecht, Netherlands. [5]Utrecht University, Utrecht, Netherlands. [6]Radboud University Medical Centre, Nijmegen, Netherlands. [7]Maartenskliniek, Nijmegen, Netherlands. [8]AmsterdamUMC, location VUMC, Amsterdam, Netherlands. [9]Dutch Institute for Rational Use of Medicine, Utrecht, Netherlands. [10]SIR Institute for Pharmacy Practice and Policy, Leiden, Netherlands

Abstract

Aim: An important step in understanding implementation success of interventions is assessing the context in which they are implemented. Our study aimed to describe context-specific characteristics of four Dutch living labs who were aiming to implement effective medication adherence interventions.

Methods: In this qualitative study, the project leaders of each living lab were interviewed and an additional twelve individual interviews and four focus groups with involved healthcare providers were held. Interview topics were derived from two domains of the Consolidated Framework for Implementation Research (CFIR): the 'inner setting' and 'outer setting'. Transcripts were analyzed with deductive thematic analysis according these two domains.

Results: Six project leaders (for two labs a duo), 12 community pharmacists, 12 pharmacy technicians, four general physicians, and five (practice) nurses participated. All living labs were pharmacy-driven and perceived medication non-adherence to be a problem among their patients. They shared the contextual characteristics: staff members being open minded to innovation, a positive implementation and learning climate, high levels of leadership engagement, high compatibility between the living labs and the chosen interventions. All shared concerns about external policies, especially lack of reimbursement for sustainability and scalability of interventions.

Discussion: The four living labs were considered early adopters, having positive implementation climates. Our next study investigates the implementation of these adherence interventions in less-experienced settings, while being informed by the results of this study.

Conclusion: Our study provides detailed examples of positive contexts to implement medication adherence interventions.

79 Patient and caregiver perspectives

Perceptions, needs and wishes of type 2 diabetes mellitus patients in the Dutch Caribbean regarding medication information and guidance: an interview study

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Abstract

Objective: The prevalence of type 2 diabetes mellitus (T2DM) in Aruba and Curaçao is high, with many patients suffering from poor disease control and severe disease-related complications. Medication non-adherence is a leading cause. To develop a support program for T2DM patients in primary care in Aruba and Curaçao we assessed T2DM patients' perceptions, needs, and wishes regarding T2DM information and guidance.

Method: This study used a thematic qualitative analysis approach to analyze semi-structured interviews (n = 15) among T2DM patients. The themes explored were patients' experiences and perceptions regarding 1.) T2DM, 2.) prescribed drug treatment, 3.) use of anti-diabetic drugs, and 4.) education and support received to use drugs correctly.

Results: Most patients had limited knowledge of T2DM and antidiabetic drugs. Many acknowledged the need for lifestyle changes besides drug therapies. Barriers to medication adherence included a non-accepting attitude towards T2DM, forgetfulness, and absence of a structured daily routine. Several patients reported insufficient information and guidance received concerning drug use. Even though patients were satisfied with the medication overviews provided by pharmacists, they reported limited relationships with pharmacists.

Conclusion: T2DM patients in Curaçao and Aruba are poorly informed about T2DM and their antidiabetic drug therapies. A support program providing clear and concise information on the disease and its treatment

and active support for medication adherence is needed. Community pharmacists should play an essential role in implementing such programs.

43 Patient and caregiver perspectives

Medication management, understanding and adherence from hospital to ambulatory settings in type 2 diabetic polymorbid patients: a qualitative longitudinal study

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Abstract

Aim: The aim of the study is to investigate patients' perspectives regarding their medication management, knowledge and adherence from hospitalization to 2-month post-discharge.

Methods: Type 2 diabetic patients with at least two comorbidities, returning home after discharge, were recruited during their hospitalization. This qualitative longitudinal study consisted of four interviews over a period of two months after discharge. Interviews were based on a guide and self-reported adherence questionnaires were completed. Interview transcripts were analyzed by themes.

Results: Twenty-one participants were included from October 2020 to July 2021 resulting in 75 interviews. The transition from hospital to autonomous medication management was complex for most patients. Patients had different and evolving needs regarding their medication management, understanding and adherence. Patients self-reported adherence rates were 93.4%, 87.2%, 94.1% (mean) at 10-, 30- and 60-days post-discharge with more difficulties with newly prescribed medications. There were a few non-initiations at first interview and increasing implementation difficulties and non-persistence in the following interviews.

Discussion/conclusion: The transition from hospital to ambulatory care is a challenging process during which discharged patients have different needs and difficulties in managing, understanding and adhering to their medication, but are also willing to take steps to better manage their medication and health. The resulting tension between patient's difficulties and lack of healthcare support calls for interprofessional guidelines to better address patients' needs and standardize physicians', pharmacists' and nurses' roles and responsibilities.

63 Patient and caregiver perspectives

A co-produced systematic review and meta-ethnography of barriers and facilitators of adherence to aspirin prophylaxis in pregnancy

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Abstract

Aim: Adherence to prophylactic low-does-aspirin (LDA) among pregnant women is low. This systematic review aimed to synthesise qualitative evidence related to barriers and facilitators of adherence to LDA in pregnancy.

Methods: A systematic review and meta-ethnography of qualitative research was co-produced by a group of stakeholders. Electronic databases, archives of charities and professional organisations were searched using

predefined terms. The meta-ethnography approach was utilised using reciprocal translation and line-of-argument synthesis. Co-production activities were facilitated by the nominal group technique followed by structured group discussions.

Results: Out of 3094 items identified, six studies were included in the review. Four themes were identified: informational gap, verbal and non-verbal signals from the health care system, personal assets, and control. In an explanatory model we demonstrate that women are advised to take prophylactic LDA in a context of lack of information and misconceptions with patchy and inconsistent messages from the health care system. Women ultimately control their decision about use of LDA, however arrival to a decision depends on utilisation of personal resources.

Discussion and Conclusion: Context deficiencies in terms of information provision and inconsistent messages is not unique to aspirin and extends to use of other medicines in pregnancy. There is an opportunity to support women through changing the context and improving quality of information and its provision. This has the potential for reducing an intense need in utilisation of personal resources/assets and reducing inequalities.

84 Patient and caregiver perspectives

Adherence to antibiotic treatment in outpatients in Serbia

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Abstract

Introduction: Health professionals and patients both have a role in quality use of antibiotics. Adherence to prescribed antibiotic regimens in Serbia is poorly described in literature.

Aim: Determine the adherence to prescribed antibiotic dosing regimens in outpatients.

Methods: A field study where a full in home-drug inventory was taken in 182 accommodations in Novi Sad, Serbia, followed by a structured interview.

Results: Antibiotics were found in 34.1% of households, and accounted for 9,1% of all drugs encountered (101/1105 packages). About a half (54.5%) of antibiotics were being used in the previous 10 days, with majority of patients reporting fully adhering to the instructions for use , but 16.67% stated not completing the full course, and 7.4% have missed a dose due to forgetfulness. In all respondents, stopped due to symptoms resolving, none were switched or stopped due to side-effects. Out of 46.5% of antibiotics not currently being used, majority (36.6%) contained a third or half a package of doses.

Discussion: Considering high use of antibiotics and antimicrobial resistance in our setting, findings of more than 20% of respondents identified as non-adherent, with 15% being intentionally non-adherent to antibiotics, are worrisome. Furthermore, large number of doses in the left-over packages implies that this percentage might actually be higher.

Conclusion: Non-adherence to prescribed antibiotics should be considered when developing antimicrobial stewardship strategies in our setting.

Paper Session 3: Medication adherence interventions

6 Medication adherence interventions

The differential impact of a 6- versus 12-month pharmacist-led interprofessional medication adherence program on medication adherence in patients with diabetic kidney disease

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Abstract

Aim: We evaluated the differential impact of a 6- versus 12-month pharmacist-led interprofessional medication adherence program (IMAP) on medication implementation and discontinuation in patients with diabetic kidney disease (DKD), during and post-intervention.

Methods: Patients were randomized 1:1 and used electronic monitors for 24 months during intervention and follow-up. In group A, the intervention lasted for 12 months, versus 6 months in group B. The IMAP consisted in regular face-to-face motivational interviews with a pharmacist. Implementation was compared between groups and in both the intervention and the follow-up using generalized estimating equation models.

Results: Patient implementation (n = 34 in group A, n = 38 in group B) increased during the intervention and decreased gradually during the follow-up. At 12 months, implementation to antihypertensive drugs in group A versus B was respectively of 97.9% and 92.1%, Δ5.8% (95%CI 4.8%; 6.7%); at 24 months, implementation was respectively of 94.4% and 85.9%, Δ8.5% (95%CI 6.6%; 10.7%). All patients (n = 3) who discontinued medication were in group B.

Discussion: The longer the patients benefit from the intervention, the more the implementation increases over time, and the more the effect lasts after the end of the intervention. The impact on clinical outcomes is currently being investigated.

Conclusion: The IMAP supports adherence to chronic medications in patients with DKD. A 12-month rather than a 6-month program should be implemented in care to support medication adherence in this population.

8 Medication adherence interventions

The Initial Medication Adherence intervention to improve adherence to cardiovascular disease and diabetes treatments: mixed-methods process evaluation (the IMA-cRCT study)

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Abstract

Aim: This process evaluation aims to understand the IMA-cRCT outcomes and facilitate scalability and transferability of a multidisciplinary and shared decision-making intervention to improve adherence and clinical outcomes in primary care.

Methods: The IMA-cRCT is an effectiveness-implementation cluster-RCT involving 24 Spanish primary care centres (>300 professionals;>4,000 patients) (March/22-September/23). The process evaluation integrated includes quantitative methods, operative and clinical records, and professional questionnaires (65% response rate) descriptively analysed to assess implementation and its costs. While qualitative methods involved framework analysis of field diaries, 36 semi-structured interviews, and 2 focus groups to assess patients' and professionals' experiences and perspectives.

Results: Interventions' integration into clinical practice (7.6/10) and fidelity (6.5/10) were adequate, especially for shared decision-making and decision aids (leaflets). Costs of (pre-)implementation for 12 intervention centres were: 920 hours of human and €10,235.74 of material resources. Professionals recognise the intervention's relevance and applicability to everyday practice. Patients find leaflets useful to understand the information and some participated in the decision; those that did not participate preferred the physician to make the decision.

Discussion and Conclusion: The intervention is relevant for professionals and fidelity was high overall. Patients accept the intervention; however, some would rather the physician make the final decision. Costs of implementation are low. These results contribute to understand how well and why not all the intervention components were routinely implemented and to determine necessary resources to promote its implementation.

36 Medication adherence interventions

Antihypertensive drug concentration measurement combined with personalized feedback in resistant hypertension: a randomized controlled trial

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Abstract

Background: Adherence to antihypertensive drugs (AHDs) is crucial for controlling blood pressure (BP). We aimed to determine the effectiveness of measuring AHD concentrations using a dried blood spot (DBS) sampling method to identify non-adherence, combined with personalized feedback, in reducing resistant hypertension (RH).

Methods: We conducted a multicenter, randomized, controlled trial (RHYME-RCT, ICTRP NTR6914) in patients with established RH. Reporting was based on the ESPACOMP Medication Adherence Reporting Guidelines (EMERGE) and CONSORT reporting guidelines. Patients were randomized to receive either an intervention with standard of care (SoC) or SoC alone. SoC consisted of BP measurement and DBS sampling at baseline, 3, 6 and 12 months (t12). In the intervention arm, results on AHD concentrations were discussed during a personalized feedback conversation at baseline and 3 months.

Results: 49 patients were randomized to receive the intervention+SoC, and 51 were randomized to receive SoC alone. The proportion of adherent patients improved from 70.0% to 92.5% in the intervention+SoC arm ($p = 0.008$, $n = 40$) and remained the same in the SoC arm (71.4%, $n = 42$). The difference in adherence between the arms was statistically significant ($p = 0.014$). The prevalence of RH decreased to 75.0%

in the intervention+SoC arm ($p < 0.001$, n = 40) and 59.5% in the SoC arm ($p < 0.001$, n = 42) at t12; the difference between the arms was statistically non-significant ($p = 0.14$).

Conclusion: Personalized feedback conversations based on DBS-derived AHD concentrations improved AHD adherence but did not reduce the prevalence of RH.

15 Medication adherence interventions

Financial INcentives to improve Asthma (FINA): findings from a pilot RCT to improve medication adherence for children with asthma

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Abstract

Aim: Adherence to inhaled corticosteroids (ICS) at the implementation phase for children and young people (CYP) with asthma is poor. Financial incentives are an increasingly used behaviour change technique. The aim of this study is to assess the effectiveness of financial incentives to improve ICS adherence for CYP with asthma.

Methods: CYP aged 11-17 years old, prescribed with regular ICS for at least 6-months, who presented to hospital with an asthma attack, were enrolled. Participants monitor their adherence for 24-weeks using an electronic monitoring device (EMD). Participants randomised to the intervention receive £1 per AM/£1 per PM dose (if prescribed 2 puffs, reward contingent on taking both) for 12-weeks; control participants receive usual care. Data collection includes adherence, asthma control, medicine beliefs, illness perceptions, motivation, and habit. CYP focus groups and parent interviews will be conducted post-study.

Results: 32 participants have been enrolled (male, n = 20; age 13.4 (±1.64) years; intervention, n = 16); follow-up will finish September 2023. 23/32 (intervention, n = 12/16) have completed first 12-weeks; amongst these, there is a significant difference ($p = .009$) in % adherence between intervention (75%) and control (45%). Average reward is £132 (£79.50-£155). However, 21/32 have experienced technical difficulties. Analysis with all participants will be conducted July 2023.

Discussion and conclusion: Technological problems made the implementation of this pilot challenging. However, focus groups/interviews will enable exploration of challenges and to obtain feedback on the financial incentives intervention design.

32 Medication adherence interventions

Interventions to increase adherence to antiretroviral therapy in people living with HIV: A systematic review and meta-analysis

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Abstract

Aim: The Perceptions and Practicalities Approach (PaPA) is a pragmatic framework for medication adherence interventions, which specifies essential components of adherence support. In this study we examined whether interventions that included key attributes of PaPA were more effective at improving antiretroviral therapy (ART) adherence (implementation) than those that did not.

Methods: Electronic databases were searched in September 2022. Intervention content was classified using the Perceptions and Practicalities Approach (PaPA) and whether they were delivered in a low-middle-income (LMIC) or high-income country (HIC).

Results: 94 trials were included (N = 20,449). Overall, interventions (k = 87; N = 18,299) produced a significant positive effect on adherence (implementation) (SMD = 0.32, 95%CI:0.23-0.40, p < 0.001). Interventions that incorporated key attributes of the PaPA framework (PaPA-HIGH) significantly improved adherence in both LMICs (k = 9, SMD = 0.55, 95%CI:0.26-0.83) and HICs (k = 22, SMD = 0.40, 95%CI:0.19-0.62). Interventions that only partially utilised the PaPA framework (PaPA-PARTIAL/PaPA-LOW) (k = 47) did not demonstrate an improvement in adherence in HICs but did in LMICs. Overall interventions (k = 52; N = 10,168) were associated with virological suppression (log OR = 0.17, 95%CI:0.04-0.31, p = 0.002). Interventions that incorporated full features of PaPA (PaPA-HIGH) were associated with suppressed viral load, whereas those which only partially utilised the PaPA framework (PaPA-PARTIAL/PaPA-LOW) were not.

Discussion and Conclusion: These results confirm that PaPA-based approaches are more likely to be effective at supporting adherence and virological outcomes in HICs. More studies evaluating the efficacy and acceptability of PaPA-based approaches interventions in the LMIC context are needed.

Paper Session 4: Determinants of medication adherence

37 Determinants of medication adherence

Monitoring antihypertensive drug concentrations to determine non-adherence in hypertensive patients with or without a kidney transplant

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Abstract

Background: Non-adherence to antihypertensive drugs (AHDs) contributes to pseudo-resistant hypertension (RH). This study aimed to determine the prevalence of non-adherence to AHDs among patients visiting nephrology and vascular outpatient clinics.

Methods: The study followed the ESPACOMP Medication Adherence Reporting Guidelines (EMERGE) and CONSORT reporting guidelines. Eligible patients used at least 2 AHDs that could be measured using a validated UHPLC-MS/MS method and had office blood pressure ≥140/90 mmHg. RH patients used at least 3 AHDs, including a diuretic, or 4 AHDs. Adherence was assessed by measuring drug concentrations in blood, with complete absence of drug indicating non-adherence. A post-hoc analysis examined the influence of kidney transplantation (KT) on adherence rates.

Results: The study included 142 patients, with 66 meeting the criteria for RH. The overall adherence rate to AHDs was 78.2% (n = 111), with irbesartan having the highest adherence rate (100%, n = 9) and bumetanide the lowest (69%, n = 13). Kidney transplantation was identified as a significant factor for adherence (adjusted OR = 3.35; 95%-CI [1.23-9.09]). The post-hoc analysis revealed that KT patients were more likely to be adherent to AHDs (non-KT cohort: 64.0% vs KT cohort: 85.7%, $\chi 2(2) = 10.34$, p = 0.006).

Conclusions: The adherence rate to AHDs in hypertensive patients was high (78.2%), with even higher adherence observed after KT (85.7%). Additionally, patients with a KT had a lower risk of non-adherence to AHDs.

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Medication non-adherence as precipitant factor in acute heart failure: a systematic review

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Abstract

Heart failure (HF) is a leading cause of morbidity and mortality worldwide. Medication non-adherence can be a significant problem in patients with HF, as medications are essential for managing the condition and preventing complications. This study aimed to review clinical studies on medication non-adherence in HF and precipitant factors for decompensation.

Methods: The systematic review, performed according to PRISMA, included PubMed, Scopus, ScienceDirect and Embase, to identify eligible studies published in English, from January 2000 to September 2022. Key terms: non-adherence/non-compliance; precipitating factor/precipitant factor, HF. Inclusion criteria: HF adult patients, studies reporting precipitant factors for HF decompensation. Exclusion criteria: studies with no information about HF precipitant factors, no information about adherence/non-adherence; medication, reports, conference abstracts, letters to editors, studies with no. Variables: study type, authors, origin country, publication year, participants characteristics, sample size, study settings, method to evaluate non-adherence and the percentages of non-adherence.

Results: There were included 21 studies with 248912 patients. Medication non-adherence is a major contributor to HF decompensation. There was a high heterogeneity between the included studies because of differences in methods to assess non-adherence. There are a number of reasons why medication non-adherence in HF may be increasing: including costs of medication, treatment complexity, side effects, difficulty with self-management, lack of understanding.

Conclusion: Future research should focus on identifying and addressing the factors that contribute to non-adherence and developing and evaluating effective interventions to improve medication adherence in HF patients.

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Adherence patterns and their predictors among oral isotretinoin initiators between 2014 and 2018 in France

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Abstract

Introduction: Due to adverse effects, prescribing and dispensing guidelines recommend using isotretinoin as a second line, renewing the prescription at each dispensation and performing laboratory monitoring, which may lead to a risk of non-adherence that may reduce treatment effectiveness.

To examine adherence patterns and their predictors within 12-months after initiation of isotretinoin.

Methods: A population-based retrospective cohort study was conducted using data from the French Health Data System and included all initiators between 2014 and 2018. Adherence was measured as persistence (time to discontinuation) and implementation (continuous multiple-interval measure of medication availability version 7; CMA-7). Group-based trajectory models were used to identify adherence patterns based on monthly CMA-7 across 6 and 12-months after initiation. Multinomial logistic regression was performed to examine the association between adherence patterns and socio-demographic factors, care access indicators (general

practitioner, dermatologist, pharmacy, and laboratory), prescriber type, acne treatment history, continuity index (physician, pharmacy), prescription renewal, year and season.

Results: We included 347,488 patients, 49.7% were male. The mean age was 24.6 ± 11.2 years. Mean time to discontinuation was 190.4 ± 109.6 days and 6 and 12-months persistence were 73.5% and 6.6% respectively. Among 274,000 patients under isotretinoin for at least 90 days, mean adherence was 0.8 ± 0.4. Analysis of adherence trajectories and their predictors is in progress.

Conclusion: This study will provide a dynamic picture of adherence behaviors and may target patient groups for further recommendations.

50 Medication adherence interventions

Clinical estimations of patient adherence – opportunities for future clinical care

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Abstract

Aim: Accurate clinical assessment of patient persistence adherence is essential for community pharmacists to identify and address patient adherence issues. How estimates change based on available data sources and which sources offer the best support in yet to be explored. This investigation aimed to determine patient persistence adherence to their asthma controller medication using a combination of (1) patient-specific dosage data from pharmacy dispensing records with (2) centrally collected patient claims records available via government databases and comparing this to pharmacy dispensing records and patient claims records alone to discuss the utility of each method.

Method: Patients (n = 381) with clinically uncontrolled asthma were recruited from 95 community pharmacies in Australia. Persistence adherence scores were calculated via the proportion of days covered (PDC) method using (1) patient claims records, (2) patient pharmacy dispensing data, and (3) combined claims records and pharmacy dispensing data.

Results: Low levels of persistence were evident amongst the cohort irrespective of the data source used. PDC estimates based on claims records alone (56%) or combined claims records and pharmacy dispensing data (52%) were significantly higher than estimates based on pharmacy dispensing data (42%) for the total cohort ($p < 0.001$), and this difference was greater for multiple pharmacy users (67%, 64%, 35% respectively, $p < 0.001$).

Conclusion: Access to centrally collected patient claims records increases clinical acuity over patient persistence adherence to asthma controller medications. Findings promotes the utility of 'big data' beyond pharmacoepidemiologic investigations into clinical practice.

64 Methodology

The reporting of variables with impact on adherence assessment in COPD: a systematic review

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Abstract

Aim: Adherence evaluations can be impacted by influencing factors, such as inpatient stays and treatment adjustments. ISPOR and ESPACOMP recommend attention to these factors in adherence research reporting. We aimed to systematically review literature to evaluate the reporting of influencing variables on adherence assessment in chronic obstructive pulmonary disease (COPD). This is part of a broader systematic review on COPD medication adherence.

Methods: We searched MEDLINE, Web of Science and Embase for articles appraising COPD medication adherence in electronic databases, published up to October 11th, 2022 (PROSPERO: CRD42022363449). Two reviewers conducted independently screening for inclusion and data extraction. Included studies were evaluated on reporting of variables with impact on adherence assessment: inpatient stays, drug substitution, dose switching and early refills. Furthermore, the reporting of a rationale for the used adherence threshold and/or treatment gap was evaluated.

Results: A total of 160 studies were included in the systematic review. Only 11% of included studies mentioned the possible impact of the four evaluated variables. Inpatient stays and early refills were the least reported variables (34.4% and 39.7% respectively). Less than half of the studies offered a rationale for the adherence threshold used, whereas around 25% of the initiation or persistence studies for the chosen treatment gap.

Conclusion: The reporting of influencing variables is low. More attention for reporting of variables with impact on adherence assessment and rationales in choosing an adherence cut-off or treatment gap is recommended.

Paper Session 5: Digital medication adherence interventions and measurement

12 Medication adherence interventions

The SystemCHANGE intervention improves medication-taking habit

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Abstract

Introduction: The SystemCHANGE intervention harnesses patients' established, recurring, reliable personal systems to make medication-taking a dependable routine. SystemCHANGE has previously been shown to improve medication adherence in adult kidney transplant recipients.

Aim: The goal was to perform a secondary data analysis from the previous trial, the MAGIC study, investigating the effect of SystemCHANGE versus educational attention control on medication-taking habit.

Methods: Electronic medication adherence data from the 84 participants in the trial was retrieved. A recently developed habit index, quantifying week-by-week consistency in the pattern of medication intakes, was computed for each participant at the end of screening (at t = 3 months), intervention (at t = 9 months) and maintenance (at t = 15 months). The habit index ranges between 0 and 1.

Results: After removing missing data, 72 participants were analyzed. Mean habit strength was not different between the two groups at end of screening (0.34 versus 0.30, $p = 0.4$). After 6 months of intervention, mean habit strength was higher among subjects randomized to the SystemCHANGE arm (0.61 versus 0.36, $p < 0.001$).

At the end of the 6-month maintenance period, mean habit strength remained higher among SystemCHANGE subjects (0.49 versus 0.35, p = 0.003). As reported in the original study, medication adherence followed the same trend.

Discussion: The SystemCHANGE intervention focuses on linking medication-taking to habits. The results reflect numerically in the habit index.

Conclusion: The SystemCHANGE intervention aimed at linking medication-taking to existing habits. It has a positive effect on the habit index and, consequently, on medication adherence.

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Feasibility of Implementing SystemCHANGE™ for Medication Adherence in Chronic Kidney Disease (CKD) Using Digital Health

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Abstract

Aims: To evaluate the feasibility of delivering a digital health-supported SystemCHANGE™ intervention (telehealth, smartphone adherence reviews) compared to an attention control education intervention to improve medication adherence (implementation phase) among CKD patients taking once-daily renin-angiotensin-aldosterone system (RAAS) inhibitors. Additionally, the study aims to compare the two interventions' acceptability, outcome expectancy, and credibility.

Method: A two-group, randomized, controlled trial is being conducted with CKD patients recruited from two healthcare systems. After eligibility screening and an 8-week adherence screening phase using continuous electronic monitoring, participants with adherence <.85% are randomized, and data is collected at baseline, post-intervention (8 weeks after baseline), and 12 weeks after baseline. Qualitative and quantitative data will be used to compare the interventions' acceptability, outcome expectancy, and credibility. Medication adherence and personal systems behavior will be measured at 8 and 12 weeks to estimate the preliminary efficacy of the digital health SystemCHANGE™ intervention.

Results: The SystemCHANGE™-Intervention showed promising results in a previous study among kidney transplant recipients, improving medication adherence at 6 and 12 months. This trial evaluates the intervention in a digital health format, with a different population and once-daily medication regimens.

Discussion: The study will provide data to inform the design of a future, fully powered, efficacy trial.

Conclusion: The results will inform medication adherence research, benefiting CKD and other patients, improving outcomes, and reducing disease progression.

Mobile health interventions to improve adherence to oral anticoagulant treatment: A systematic review

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Abstract

Aim: Non-adherence to oral anticoagulants (OACs) is associated with significant morbidity and mortality, with non-adherence to direct OACs (DOACs) of particular concern due to their shorter half-lives and reduced forgiveness to dose omissions, compared to warfarin. Mobile health (mHealth) interventions have been used

as a potential method for improving medication adherence. This review aims to investigate the effectiveness of mHealth interventions in improving OAC adherence.

Methods: PubMed, Embase, Cochrane Central Register of Controlled Trials (CENTRAL) and Web of Science were searched from 1/1/2000 to 11/11/2022 using terms identifying mHealth, OACs, medication adherence and randomised controlled trials. The RoBIAS tool was used to assess the risk of bias. A meta-analysis was not performed due to the heterogeneity of the studies.

Results: 2,319 studies were screened from which 16 trials met the criteria for inclusion. Four of the 7 studies reporting significant improvements in adherence tested telephone calls or text messages for participant follow-up support or as medication intake reminders. However, study quality was generally poor, with many not reporting critical information, or deemed to have a high risk of bias.

Discussion and conclusion: Our review suggests that mHealth interventions involving telephone and text messages may be effective in improving OAC adherence in adults. Future research should focus on optimising the frequency of delivery, content of calls and messages and potential for automation. Research should focus on larger, longer-term trials with emphasis placed on trial design, conduct and reporting.

29 Medication adherence interventions

Outputs of freely available medication adherence applications – appearance and reality

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Abstract

Introduction: m-Health applications might represent a simple solution to overcome medication non-adherence. Many so-called adherence apps are freely available in app stores. It is unclear how their output can contribute to the purpose of adherence optimizing.

Aim: to evaluate the output of adherence apps.

Methods: Free versions of apps searched by the terms "medication adherence" or "medication reminder" with a minimum of four stars in Apple App Store and Google Play Store were tested. Outputs were analyzed according to five desirable features of adherence apps' outputs mentioned by Santo K, et al. 2016.

Results: Nine high-rated apps were selected. All desirable features were observed, the most frequent being the tracking history of intakes (in calendar format and time stamps; 89% each). Three apps (33%) delivered statistics (% dosing adherence: 3, timing adherence: 2). Two apps (22%) permitted data exporting. Two apps (22%) rewarded the user when medication was taken on schedule. One app (11%) delivered a curve chart.

Discussion: High-rated medication adherence apps provide only rudimentary output, most often as tracking history. No interpretation regarding the meaning of the displayed adherence data was generated. Detailed reports or interpretations of adherence data are needed to improve medication adherence sustainably.

Conclusion: Medication adherence apps do not fully exploit the potential of outputs to optimize adherence.

Ref: Santo K, et al. Mobile Phone Apps to Improve Medication Adherence: A Systematic Stepwise Process to Identify High-Quality Apps. JMIR Mhealth Uhealth. Dec 2 2016;4(4):e132.

26 Methodology

Dispensing Patterns vs. Electronic Monitoring: Assessing Non-Adherence to Direct Oral Anticoagulants

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Abstract

Introduction: Direct oral anticoagulants (DOACs) are essential for preventing recurrent strokes and are prescribed for lifelong use. Several methods exist to identify non-adherence in ambulatory settings.

Aim: To compare adherence calculated from dispensing data of DOAC to adherence measured by electronic monitoring (EM).

Methods: Secondary data analysis of the MAAESTRO study (Polymeris, 2018). Patients with EM-data over 12 months were selected. Pharmacies and self-dispensing physicians provided dispensing data. EM-adherence was assessed through "taking adherence", "timing adherence", and "drug holidays" (≥72h without intake). Patients were categorized into refill patterns (on time, erratic, end-of-period gaps) using refills. Refill-adherence calculation utilized the Delta T method (Baumgartner, 2022).

Results: Refill-data were obtained for 29 of 84 MAAESTRO patients (35%), with an average age of 75.9 ± 8.4 years and 69% being male. The median taking adherence was 90.5% (IQR: 81.3 - 95.9). EM-data revealed drug holidays in 61.1% of 18 patients with poor dispensing patterns (9 erratic, 9 end-of-period gaps). From 11 patients with "refills on time", electronic data revealed drug holidays in four cases (36.4%). The Delta T method showed a specificity of 63.6% and sensitivity of 60%.

Discussion: Dispensing patterns show promise in identifying inadequate DOAC implementation, however a substantial proportion (40%) of patients with drug holidays remained undetected, posing potential risks.

Conclusion: Dispensing patterns have limitations in uncovering variations of non-adherence compared to EM. There is a need to develop accurate and reliable measures for identifying non-adherent individuals in real-world settings.

Paper Session 6: Methodology

30 Methodology

Psychometric properties of the BAASIS©: a meta-analysis of individual participant data

Kris Denhaerynck[1], Fabienne Dobbels[2], Barbora Košťálová[3], Sabina De Geest[1,2]

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Abstract

Non-adherence to immunosuppressives, a risk factor for poor post-transplant outcomes, can be assessed by self-report using the "Basel Assessment of Adherence to Immunosuppressive Medications Scale" (BAASIS©). Available in written and interview versions, and previously validated on its ABC Taxonomy-conform content, the BAASIS is widely used clinically and in research.

Aim: To investigate the BAASIS' psychometric properties.

Methods: Using literature search and our BAASIS database, this meta-analysis identified completed studies in adult transplant recipients, that allowed examination of its reliability and of three validity aspects: 1) relationships with other variables (electronic monitoring, other self-report scales, tacrolimus blood level variability,

collateral report, psycho-behavioral constructs, interventions); 2) response processes; and 3) internal structure. Testing occurred by random-intercepts logistic regression analysis.

Results: Our sample included 12109 graft recipients from 26 studies, 20 of which provided individual participant data. Evidence of stability over time supports the BAASIS' reliability. Validity testing of relationships with other variables showed that BAASIS-assessed non-adherence was significantly associated with the selected variables: electronically monitored non-adherence ($p < .03$); other self- and collaterally-reported non-adherence ($p < .0001$); higher variability in tacrolimus concentrations ($p = .02$); higher barriers ($p < .0001$); lower self-efficacy ($p < .0001$); lower intention ($p < .0001$); and higher worries ($p = .02$). Non-adherence also decreased after regimen change interventions ($p = .03$). Response process evaluation indicated good readability and slightly higher non-adherence with the written version. Structurally, items on taking and timing shared variability.

Conclusion: The BAASIS shows good validity and reliability as a self-report instrument to assess medication non-adherence in transplant populations.

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Predictive Validity of the Basel Assessment of Adherence to Immunosuppressive Medication Scale (BAASIS©) After Renal Transplantation

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Abstract

Aim: While medication adherence is crucial for allograft survival after renal transplantation, its assessment in transplant practice remains challenging. The BAASIS© is a promising, partially validated self-report instrument yet its predictive validity still needs to be established.

Methods: We used data of the prospective AdTorque-trial (DRKS00026674) including a consecutive sample of 226 adult kidney transplant recipients transplanted at the Medical University of Vienna between 01/2018 and 12/2019 and clinically followed up to four years post-transplant. *Implementation-* and *persistence-adherence* were assessed by three items (dose-taking, -timing and -reduction) and one item of the BAASIS©, respectively, at three-month intervals during the first year and at 24 months during follow-up visits. Non-adherence was defined by YES on at least one item.

Results: Non-adherence was reported at least once by 124 recipients (55%) and 67 (30%) revealed non-adherence multiple times. Overall non-adherence increased over time: within the first three months from 11% to 31% and was between 27% to 32% from month 6 to 24 post-transplant. During the clinical follow-up of 34 months (median, IQR 6-44) non-adherent recipients had a higher rate of biopsy-proven rejection (25% vs. 7%, $p < 0.001$). A time-dependent model showed that self-reported non-adherence predicted an increased risk for rejection (HR 2.43, 95%CI 1.22-4.82, $p = 0.012$).

Conclusion: Our analysis demonstrated predictive validity of the BAASIS©, an instrument which can easily be integrated in daily practice. Frequent adherence-assessments might provide a basis to identify patients at risk for poor clinical outcomes.

38 Methodology

Psychometric Evaluation of the PROMIS® Medication Adherence Scale (PMAS) among patients on oral anticancer medication (OAM) for multiple myeloma

Sarah Belcher[1,2], Paul Scott[1], Jacqueline Dunbar-Jacob[1], Katherine Yeager[3], Margaret Rosenzweig[1,2], Susan Sereika[1,2], Mounzer Agha[2], Benyam Muluneh[4], Lindsay Sabik[1], Valire Copeland[1], J. Devin Peipert[5], Sarah McGregor[2], Catherine Bender[1,2]

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Abstract

Aim: To evaluate psychometric properties (reliability, dimensionality, construct validity) of the PMAS, with medication beliefs and knowledge (MBK) and medication taking behaviors (MTB) subscales.

Methods: Participants (n = 72) prescribed OAM were on average 63.9 y/o (SD = 10.3), predominantly male (68.3%), and non-Hispanic white (83.3%) or Black (13.9%). PMAS was assessed at 3- and 6-months after enrollment. Internal consistency (Cronbach's α compared to McDonald's ω) and dimensionality (model comparisons via Confirmatory Factor Analysis [CFA]) were determined. Directions of associations were evaluated between PMAS scores and known adherence factors.

Results: Most participants' (75%) PMAS total scores indicated high adherence (43–45) at both time points. Reliability of both the total score and MBK subscale was adequate, with 95% confidence intervals (CI) containing $\alpha > 0.8$ at both time points; for MTB subscale, ω falls above 95% CI, suggesting weighted sum scores may be preferable to unweighted sum scores, as assumed under Cronbach α. Bayes Factor (BF < 1/3) indicated that a two-factor CFA model, with MBK and MTB subscales, was preferred over a unidimensional model at both time points. Significant associations ($p < 0.05$) were observed in expected directions between PMAS scores and adherence factors (age, cognitive functioning, symptom severity, and depression).

Discussion and Conclusion: For this sample reporting high OAM adherence, we found evidence supporting reliability, 2-factor dimensionality, and construct validity for PMAS at two time points. Additional validation testing is needed to support these findings.

73 Methodology

Concordance between PROMIS® Medication Adherence Scale (PMAS) and electronic event monitoring (EEM) among patients on oral anticancer medication (OAM) for multiple myeloma

Sarah Belcher[1,2], Susan Sereika[1,2], Jacqueline Dunbar-Jacob[1], Katherine Yeager[3], Margaret Rosenzweig[1,2], Paul Scott[1], Benyam Muluneh[4], Valire Copeland[1], J. Devin Peipert[5], Catherine Bender[1,2]

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Abstract

Aim/Hypothesis: Knowledge gaps exist about medication adherence and its measurement for OAM therapy. We aimed to examine PMAS and EEM concordance.

Methods: Data from participants on OAM for multiple myeloma were analyzed (n = 66). OAM adherence was assessed at 3- and 6-months via PMAS (Total, Global, and medication beliefs and knowledge [MBK] and medication taking behaviors [MTB] subscales) and continuously over 6 months via EEM (doses and

days adherence for the first and second 90-day and total 180-day periods). Spearman's rank-order correlations summarized PMAS and EEM associations.

Results: Participants were prescribed lenalidomide (69.7%) or pomalidomide (30.3%) for 11.5 months (range:0–78). For the first 90-day period, moderate associations were observed for 3-month MTB with EEM doses and days ($r = .32$ and .30, $p = .01$). For the 180-day period, moderate associations were found for 3-month Total, Global, and MTB with EEM doses ($r = .31, .27, .35$, $p < .05$) and days ($r = .29, .27, .33$, $p < .05$). For the second 90-day period, moderate associations were found for 6-month Total, MBK, and MTB with EEM doses ($r = .41, .26, .29$, $p < .05$) and 6-month Total with EEM days ($r = .33$, $p < .01$). For the 180-day period, moderate associations were found for Total with EEM doses and days ($r = .27$ and .27, $p < .05$).

Discussion/Conclusion: Some support for concurrent criterion validity for PMAS was found using EEM as criterion. Future research should determine whether PMAS distinguishes patients with good versus poor OAM adherence.

56 Methodology

Variation in Adherence Measures as a Function of Calculation Methods

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Abstract

Aim: We aim to compare and contrast different operational definitions of medication adherence as well as examine the within-patient variability among these measures.

Methods: Electronically monitored adherence data from a study on comorbid conditions were examined using three different calculation methods. Daily adherence calculated the number of administrations divided by the number prescribed, without considering inter-dose interval. Timing used predefined inter-dose intervals. Measures were aggregated to six 30-day periods. A pill count approach counted the total administrations divided by the expected number in each 30-day period. Within-patient variability was computed based on daily and timing results for each 30-day period.

Results: Results varied by adherence calculation method. Pill counts demonstrated the largest adherence rates (94%–98%); Daily adherence rates were lower (76%–80%); and Timing was the lowest (59%–64%) over the six-month period. Timing within-patient variability (27%–33%) was larger than daily (19%–24%).

Discussion: Differences among the three methods confirm the importance of the adherence definition. Timing may underestimate medicinal effects because patients may take medication as instructed (e.g., with meals) rather than at fixed intervals. Pill counts may overestimate adherence by not accounting for inconsistent use. Daily adherence may best provide daily estimates of correct administration. Higher variability for timing may indicate patients are more likely to vary the time between doses.

Conclusions: Adherence calculation methods are important in interpreting results. Variability measures also provide a more complete picture of adherence and may raise the likelihood of effects on biological outcomes.

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What do heart failure patients say to doctors about their use of medication?

Lucrezia Greta Armando
Describing treatment intensifications in naïve diabetic patients of the ASLTO4 (Piedmont Region, Italy)

Martin Wawruch
Patient- and medication-related characteristics associated with the probability of non-persistence with antiplatelet treatment

Daniel Wright
Patterns of suboptimal allopurinol implementation: impact on gout outcomes

Nouf Aloudah
Health behavioural theory and medication adherence

Poster walk 2: Medication adherence in different patient groups

Maria Rubio-Valera
Factors influencing initiation of treatments in the paediatric population: a qualitative study

Sara Malo
Prescribing and initiation of lipid-lowering drugs in patients older than 70 years

Sara Mucherino
Immune checkpoint inhibitors for solid tumours treatment: medication adherence, mortality and drug utilization profiles

Ádám Konstantin Rojkovich
Motivating factors affecting adherence in diabetic patients – a qualitative research

Nasser Al Salmi

Predictors of medication adherence among adults with type 2 diabetes

Poster walk 3: Medication adherence education and training

Dalma Erdősi

Adapting and Evaluating the Cost-Effectiveness of the Polish "My Health Everyday" Medication Adherence Coaching Application for Hypertension Management in Hungary

Fatima Rezae

Adherence experts' perspectives and experiences of educating healthcare professionals on medication adherence: A qualitative study

Christabelle Elbitar

Development and initial evaluation of a medication adherence training package for health care professionals supporting people with gout

Cristina Mihaela Ghiciuc

The role of the short-term scientific mission (STSM) activities to exchange knowledge on medication adherence and digital health

Francisca Leiva-Fernández

Impact of a training intervention in inhalation techniques on adherence in patients with chronic obstructive pulmonary disease (COPD)

Francisca Leiva-Fernández

Is possible to diagnose therapeutic adherence in mild dementia patients in clinical practice?

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Klarissa Sinnappah

Risk of bias assessment instruments for medication adherence research

Ignacio Aznar-Lou

Estimating medication duration using EHR without knowing the prescribed dose: A case with benzodiazepines

Razvan-Nicolae Rusu

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Charlotte Bekker

Outcome Measures in Rheumatology – Interventions for Medication Adherence (OMERACT-Adherence): Delphi Survey

Kevin Dolgin

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Debi Bhattacharya

A core outcome set for primary care medication adherence interventions

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Lisse Commandeur

Do patients interpret a personalized patient leaflet as personal? A qualitative study among patients in the community pharmacy

Sabrina Grigolo

Medication reconciliation of older home care patients involved in an educational intervention aimed at improving medication adherence

Lisa Gualtieri

Hosting a Co-Design Workshop: Older Adults Ideate Medication Adherence Solutions

Lisa Gualtieri

An Interview Study with Older Adults to Identify Medication Management Strategies

Lisa Gualtieri

Searching for Medication Adherence Devices

Lisa Gualtieri

Do Older Adults Identify Their Medication by Appearance, Purpose, or Name, and Does it Correlate with Adherence?

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Antoine Pironet

A digital medication adherence solution decreases treatment-related anxiety

Zoe Moon

Preliminary real-world evaluation of an online adherence support programme

Maria Achterbosch

Usability and feasibility of the TAI Toolkit in daily clinical practice

Jacqueline Hugtenburg

Medication use support by the ASSUSTENT app or ASSIST brochure for patients using sunitinib: a feasibility study

Brian Liang

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Technology to Support Medication Adherence for Chronic Diseases: A Bibliometric Analysis

Poster walk 7: Healthcare professional perspectives and collaboration

Ruby Janssen

Dutch Living Labs implementing medication adherence improvement interventions, supported by the Medication Adherence Knowledge Expertise and Implementation Taskforce (MAKE-IT) Consortium

Sander Borgsteede

Evaluating the implementation of two interventions to improve medication adherence in the Living Lab Utrecht: comprehensible prescription label instruction and teach back at first dispension

Abdullah Albassam

Systematic review of studies utilising placebo substitution to determine the forgiveness of antihypertensives to non-adherence

Sarah Serhal

Understanding the context for implementing collaborative care for patients commencing long-term medications in Switzerland – The myCare Start-I project

Dijana Miceva

Improvement of medication adherence of asthma patients in North Macedonia

Poster walk 8: Medication adherence and patient-centered care

Aref Rashed

Changes in medical adherence among patients with hypertension. Is it an achievable objective?

Zsuzsanna Kun

The difference in the level of adherence along medication preferences

Beatriz Santos

The language of medication adherence: how do patients describe managing their chronic treatments?

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Andrew Owen

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Poster presentations

Poster walk 1: Medication adherence in different chronic conditions

20 Patient and caregiver perspectives

What do heart failure patients say to doctors about their use of medication?

Christine Frigaard[1,2], *Herman Bjørnstad*[1,2], *Julia Menichetti*[1], *Pål Gulbrandsen*[1,2], *Jennifer Gerwing*[1]

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Abstract

Aim: During interactions with patients, clinicians have opportunities to assess, support, and address their reported adherence directly: How often and how do these opportunities emerge? This exploratory study aims to operationalize and analyse *medication adherence disclosures in clinical interactions* (MADICI); i.e., when patients provide information to clinicians about their initiation, implementation, or discontinuation of medication at home. Research questions are: (RQ1) what features of patient utterances make them recognizable as MADICI? (RQ2) How frequently do MADICI occur? (RQ3) What information do patients provide in them? (RQ4) What elicited MADICI?

Method: We collected 75 audio-recordings of consultations between 25 patients with heart failure and clinicians at: (1) first ward visit in hospital, (2) discharge from hospital and (3) follow-up visit with general practitioner. Recordings are being analysed inductively.

Preliminary results: We have developed definitions and a code book to identify and characterize MADICI. Preliminary analysis shows that patients convey information about use of medication most frequently during first ward visit and GP-visits. Clinicians often elicited this information, asking closed questions (which patients answered affirmatively) or making statements assuming adherence (which patients confirmed). However, patients often disclosed risks of non-adherence in spontaneous utterances.

Discussion and conclusion: Using audio-recorded interactions from authentic, consecutive interactions with the same patient is a novel approach to discovering the details of how clinicians and patients discuss adherence. MADICI coding provides means to study the process and quality directly, something that self-reports cannot elucidate.

27 Healthcare professional perspectives

Describing treatment intensifications in naïve diabetic patients of the ASLTO4 (Piedmont Region, Italy)

Lucrezia Greta Armando[1], *Clara Cena*[1], *Gianluca Miglio*[1,2], *Raffaella Baroetto Parisi*[3], *Mariangela Esiliato*[3], *Cristina Rolando*[3], *Valeria Vinciguerra*[3], *Abdoulaye Diarassouba*[3]

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Abstract

Aim To describe the prescribing choices of general practitioners to intensify antidiabetic therapy of naïve patients in a Local Health Authority in the Piedmont Region (ASLTO4).

Methods Patients naïve to antidiabetic drugs (ADs) and who started their therapies with metformin in 2019 were selected from drug dispensing data of the ASLTO4 (January 2018 – December 2021). Patients who either died within the study period or with <2 AD dispensations/year were excluded. New AD classes added to metformin were identified for each patient to assess treatment intensification. The following ADs were considered: fast-acting and long-acting insulins, acarbose, pioglitazone, DPP-4 inhibitors (DPP-4i), GLP-1 analogs (GLP-1a), SGLT2i, sulfonylureas (SUs), combinations of ADs and repaglinide. Patients were classified according to the number of intensifications.

Results Four-hundred and thirty patients were considered: 289 had 1 intensification, 92 had 2, 31 had 3 and 18 had ≥4 intensifications. The drugs added to metformin (first intensification) were a SGLT2i (25.8%) and a SUs (18.4%). Combinations of ADs (19.9%) and long-acting insulins (19.1%) were the most frequent classes for the second intensification, while GLP-1a (22.4%) and SUs (10.2%) for the third. Patients with ≥4 intensifications mainly added either a long-acting insulin (33.3%) or combinations of ADs (16.7%).

Discussion A wide spectra of treatment intensifications were found in our study population, with 78 different combinations of AD classes.

Conclusion Strategies need to be implemented to encourage greater adherence to the guidelines to treat diabetes in the ASLTO4.

13 Determinants of medication adherence

Patient- and medication-related characteristics associated with the probability of non-persistence with antiplatelet treatment

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Abstract

Aim: Our study was aimed at analysing non-persistence with antiplatelet treatment in patients with peripheral arterial disease (PAD) and at identifying patient- and medication-related characteristics associated with non-persistence.

Methods: Patients with PAD newly diagnosed during 2012 and treated with antiplatelet medication were included in the study cohort. Patients were followed for five years. Non-persistence was identified according to the presence of a 6-month treatment gap period without any prescription of antiplatelet medication. Factors associated with the likelihood of non-persistence were identified with Cox regression.

Results: In the final cohort of 13,869 subjects (aged 69.3 ± 10.5 years), 5,158 (37.2%) patients became non-persistent with antiplatelet treatment. Increasing age, history of ischemic stroke and myocardial infarction, diabetes mellitus, dementia, general practitioner as index prescriber, increasing number of medications,

administration of beta-blockers, loop diuretics, mineralocorticoid receptor antagonists, use of clopidogrel, combination of aspirin and clopidogrel and increasing patient´s co-payment were associated with persistence. On the other hand, female sex, university education, employment, atrial fibrillation, anxiety disorders, bronchial asthma, administration of antiarrhythmic agents, anticoagulants and being a new user of antiplatelet medication increased the likelihood of non-persistence.

Discussion and Conclusion: In PAD patients at increased probability of non-persistence, special attention should be paid to the improvement of their persistence with antiplatelet medication.

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42 Determinants of medication adherence

Patterns of suboptimal allopurinol implementation: impact on gout outcomes

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Abstract

Aims: To determine the impact of suboptimal allopurinol implementation patterns on target urate achievement (<0.36 mmol/L), gout flares, and health utility in gout patients.

Methods: Adherence data from 31 patients were collected using electronic monitoring (MEMS®) for 1 year. Pre-defined implementation patterns included: occasional or repeated sequential missed doses (≤2 followed by ≥30 or <30 doses taken) and occasional or repeated drug holidays (≥3 missed doses followed by ≥30 or <30 doses); OMD, RMD, ODH and RDH respectively. Participants were categorised based on the most common implementation pattern(s) observed. Time at the target urate, flares, and EQ-5D-5L health utilities were compared between adherence categories.

Results: Median adherence was 91%. Fifteen people experienced ≥1 gout flare. Adherence categories included; no missed doses (n = 2), OMD (n = 4), RMD (n = 8), OMD&RMD (n = 10), and, RMD&RDH (n = 7). People in the latter group recorded nearly half of the gout flares, spent less time at the urate target (28% vs 99%, $p < 0.0001$) and had lower adherence (64% vs 96%, $p < 0.0001$) compared to the other groups. Health utility was not predicted by the implementation patterns ($p = 0.9001$), nor was the odds of flares (odds ratio 1.8, 95%CI 0.4-8.8).

Discussion and conclusion: Individuals who took repeated drug holidays only spent ~25% of time at the urate target. An understanding of common implementation patterns in people with gout will aid the development of interventions to target adherence behaviours most likely to impact outcomes.

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Health behavioural theory and medication adherence

Nouf Aloudah

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Abstract

Oral hypoglycemic agents (OHAs) are highly effective in managing type 2 diabetes, if taken appropriately. Studies have indicated that half of all patients with diabetes do not take their prescribed medications. Patient social circles, including professionals (healthcare providers) and non-professionals (family and friends), might contribute to low medication adherence. Integrating health behavioral theory with medication adherence

strategies allows for a comprehensive approach to understanding, addressing, and improving medication adherence. This presentation presents two studies that explored the perceptions of patients, in addition to the social circle of patients with diabetes, toward adherence to OHAs using theoretical behavioral theories. Semi-structured interviews were conducted using the Theoretical Domain Framework (TDF) to explore the key determinants of adherence. TDF was used to build a topic guide and frame data analysis. The interviews were transcribed verbatim and thematically analyzed using the MAXQDA 2022 program. Semi-structured interviews were completed with 20 patients, 12 HCPs, and 5 family members. The participants identified various factors potentially associated with adherence to diabetes medication. By applying TDF, we systematically analyzed and addressed various factors that influence medication adherence in patients with diabetes. This approach allows for a more comprehensive and tailored intervention design, increasing the likelihood of successful behavioral changes and improving medication adherence outcomes. By considering psychological, social, and environmental factors, healthcare providers can design interventions that are tailored to individual patients' needs, increasing the likelihood of successful medication adherence.

Poster walk 2: Medication adherence in different patient groups

49 Determinants of medication adherence

Factors influencing initiation of treatments in the paediatric population: a qualitative study

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Abstract

Introduction: Nine percent of medication prescribed to the paediatric population in Catalonia is not initiated. Although evidence exists about adults' motivations to not initiate a pharmacological treatment, little is known about what influences the decision when the patient is a child or adolescent. The aim of this study was to explore the factors that affect initiation of treatment in the paediatric population including the carers and patients' perspective.

Methods: The research was conducted in Spain through an exploratory, explanatory qualitative study based on Grounded Theory. Individual semi-structured interviews were conducted with participants until saturation (February 2021/2022). A content analysis was performed inductively.

Results: Nineteen interviews were conducted. Generally, the decision on whether to initiate is made by parents. The main influencing factors are related to the age of the child, perception of severity of the health problem and the characteristics of the new treatment. Other factors are related to the parents (e.g. burden of deciding for a child), the parents-professionals relationship (e.g. trust), healthcare system (e.g. access barriers), social context and other external influences.

Discussion and Conclusions: Our results contradict the models describing a triad (children-parent-physician) in the decision-making process. Although the results are similar to those described for the adult population, there are relevant differences, such as the burden of responsibility and the role of parents in decision-making. These results will help design future interventions to improve prescription and drug use in the paediatric population.

59 Determinants of medication adherence

Prescribing and initiation of lipid-lowering drugs in patients older than 70 years

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Abstract

Aims: Current cardiovascular prevention guidelines are not clear regarding the therapeutical management in patients older than 70. This study aimed to characterise individuals of this age who are prescribed a lipid-lowering drug and to analyse factors associated with the initiation adherence phase.

Methods: Observational study in the CARhES population-based cohort, that comprises individuals in Aragón (Spain) with dyslipidemia, hypertension and/or diabetes. Data were obtained from healthcare system data sources (2018–2021). Those older than 70 with a first prescription of lipid-lowering drugs were identified and characterised. Initiation was analised by assessing the concordance between prescription and dispensation. A logistic regression analysis was conducted to know patient, clinical and therapeutical factors associated with initiation (versus non-initiation).

Results: A total of 16,457 individuals older than 70 showed a first prescription of a lipid-lowering drug during the study period, representing about 8% of the population of that age in Aragón. Of them, 67% initiated the therapy. Being male, younger than 90, having heart failure, ischemic cardiopathy or diabetes, and a high pharmacological burden were statistically associated with initiation in the adjusted analysis. Dementia was a predictor of non-initiation.

Conclusions: One third of the individuals older than 70 who are prescribed a lipid-lowering drug at the first time do not initiate the therapy. The study of factors associated with initiation results of interest for knowing the real conditions of drug use at this age.

91 Determinants of medication adherence

Immune checkpoint inhibitors for solid tumours treatment: medication adherence, mortality and drug utilization profiles

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Abstract

Background: Immune checkpoint inhibitors (ICI) are used across multiple cancer types and little is known about real-world outcomes. This study aimed to assess drug utilization patterns, reasons for treatment interruption and mortality of patients diagnosed with solid tumours treated with ICIs in Italy.

Methods: A retrospective study (PRIN2017 Prot.2017NR7W5K) was conducted in Campania Region during 2017–2021. Data were retrieved from the Monitoring Registries of the Italian Medicine Agency, i.e. the Drug-product Registry (DPR), consisting of dispensed treatments and clinical info on patients with a cancer diagnosis using ICI in Italy. Outcomes were end of drug-treatments, frequent immune-related adverse events (irAEs), mortality rates and all-cause mortality.

Results: In total, 7,456 patients started an ICI treatment between 2017 and 2012. Overall, the 66.4% of these interrupted the immunotherapy treatment cycle within about 8 months (264.9 mean days; SD 325.2 days). Majority of patients were treated with Nivolumab (41.2%) and Pembrolizumab (40.5%). The overall IrAEs rates recorded was very low (0.1%), the highest addressed for pembrolizumab and atezolizumab treatments (0.2%).

Same trend was recorded for mortality rates and causes. The overall mortality rate was 4.3%, highest rates were recorded for avelumab (9.1%) and ipilimumab (8.2%). Altogether, all-causes mortality were rarely related to disease progression (8.1%) or to drug toxicity (0.6%) for all seven ICIs.

Conclusions: High rates of interruption were related to ICIs caused by disease progression, but low rates of irAEs, mortality, and drug toxicity were detected.

53 Determinants of medication adherence

Motivating factors affecting adherence in diabetic patients – a qualitative research

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Abstract

Aim: The aim of this research is to understand the factors that prevent people living with diabetes from regularly measuring their blood sugar and how the use of an electronic blood sugar diary could help with this.

Methods: 15 in-depth interviews were conducted with patients who have been living with diabetes for 1 to 44 years about the usage and experience of paper-based and electronic blood sugar diary. Some interviews were combined with observation. 3 in-depth interviews with experts were additionally conducted, in order to better understand the benefits of electronic blood glucose monitoring.

Results: It is mainly the length of time patients live with the disease that determines how strictly they follow their doctor's instructions. People who have been living with the disease for longer feel they have better control over their condition, while newly diagnosed patients find comfort in frequent and regular self-monitoring of blood glucose. Fear is a strong disincentive. Some people are afraid of the needle prick that comes with blood glucose testing, others are afraid of the possible bad results. The high cost of the test strips needed to measure blood glucose levels has also been identified as a barrier.

Discussion and Conclusion: Internal and external motivators could be used to increase the adherence of blood glucose measurement. Internal motivation can be helped by patient education and following their status regularly. An external motivator could be to link public support for test strips.

81 Patient and caregiver perspectives

Predictors of Medication Adherence Among Adults with Type 2 Diabetes

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Abstract

Aim: The purpose of this research is to predict factors leading to poor medication adherence. The aims of this research study are (1) to characterize the predictive value of health beliefs on medication adherence and (2) to characterize the predictive value of psychosocial factors (fatigue, depression, and social support) on medication adherence.

Methods: This cross-sectional study involved 194 adults with type 2 diabetes. Convenience sampling was used and participants received a self-reported questionnaire that includes questions about medication adherence, health beliefs, self-efficacy, depression, fatigue, and social support. Additionally, a biological marker of blood glucose was obtained from health records.

Results: Descriptive analysis showed that 154 participants (79.4%) of the sample were adherent to their diabetes medication. Univariate logistic regression showed that better health benefits OR = 1.17, 95% CI [1.04- 1.32], fewer health barriers OR = .77, 95% CI [.696-.844], fewer side effects OR = .81, 95% CI [.703-.930], higher

self-efficacy OR = 1.13, 95% CI [1.02-1.25], fewer depressive symptoms OR = .96, 95% CI [.92-.98], less fatigue OR = .90, 95% CI [.826-.984], and better socially supported patients OR = 1.05, 95% CI [1.00-1.09] were significantly more likely to be adherent to their medications.

Discussion and Conclusion: The findings of this study will help to furtherly explore the individual-level factors and biobehavioral determinants of medication adherence. The findings encourage conducting interventional and longitudinal studies to explore factors leading to non-adherence and examining effective interventions to improve adherence levels.

Poster walk 3: Medication adherence education and training

7 Medication adherence education and training

Adapting and Evaluating the Cost-Effectiveness of the Polish "My Health Everyday" Medication Adherence Coaching Application for Hypertension Management in Hungary

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Abstract

Aim: To adapt the Polish "My Health Everyday" medication adherence coaching application for use in Hungary and assess its cost-effectiveness compared to usual care in adults with hypertension from a Hungarian healthcare payer's perspective.

Methods: The study, conducted from January to June 2023, involved a 5-step translation process of the application. A decision-analytic Markov cohort model with a 12-month time horizon was developed, utilizing literature-based model parameters. The application was estimated to improve medication adherence to anti-hypertensives by 20%. The primary outcome measure was the incremental cost-effectiveness ratio (ICER).

Results: Translation challenges emerged due to differences between the Polish and Hungarian healthcare systems, medical terminology, and other cross-cultural aspects. The Hungarian version of the application consisted of 72 patient advice items (Polish version had 79 items). The ICER analysis demonstrated the coaching application's dominance over usual care. Patients with improved adherence achieved an estimated gain of 0.0001 quality-adjusted life years (QALYs) over 12 months. In a population of 1,000 patients, the application was projected to prevent 1.8 cases of stroke, coronary heart disease, or heart failure, along with 0.2 deaths.

Discussion and Conclusion: The adapted medication adherence coaching application holds promise for enhancing hypertension management in Hungary. Our findings underscore the importance of cross-cultural and conceptual adaptation when introducing healthcare applications across different countries. Furthermore, evaluating cost-effectiveness prior to implementation is crucial for informed decision-making.

24 Medication adherence education and training

Adherence experts' perspectives and experiences of educating healthcare professionals on medication adherence: A qualitative study

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Abstract

Aim: Training healthcare professionals (HCPs) on managing medication non-adherence needs an evidence-based approach. We aimed to explore the perspectives and experiences of adherence experts in educating HCPs about medication adherence.

Methods: We conducted semi-structured interviews online, face-to-face, and via phone. Inductive thematic analysis was conducted.

Results: We interviewed 15 adherence experts between May 2022 – March 2023. We identified five themes.

Enhancing awareness among HCPs (recognizing the magnitude of the problem, regularly addressing adherence in a holistic consultation, clarifying/strengthening interdisciplinary roles). Seeing life through the patient's lens (aligning with patient values and beliefs, delineating between intentional and unintentional behaviours, being vigilant of changing circumstances). Communicating to build empathy and rapport (becoming a trustworthy information source, asking non-judgmental but factual questions, listening attentively). Having a structured approach to address individual patient behaviours (using tools to initiate adherence conversations, theoretical-frameworks to categorise/understand non-adherence, setting goals using motivational interviewing). Delivering enriching and targeted training (clinically relevant learning, extending existing skillsets, promoting behaviour change, skills, confidence over-time).

Conclusion: Adherence experts emphasised the impact HCPs can play by regularly addressing the issue of adherence in their clinical setting. HCPs can elicit behaviour change by understanding the patient's perspective, the complexity of adherence, and communicating effectively. Structured approaches include utilising existing tools, frameworks, and communication methods. Continuous training that is clinically relevant and builds on existing professional expertise is required to overcome HCPs' own barriers to behaviour change.

46 Medication adherence education and training

Development and initial evaluation of a medication adherence training package for health care professionals supporting people with gout

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Abstract

Aim: Health care professional awareness and training is a key component in addressing the global issue of medication non-adherence. We aimed to develop and pilot a training package for nurses/pharmacists for use in a hospital-based medication adherence program for gout.

Methods: We conducted 68 multi-stakeholder semi-structured interviews with patients, caregivers, health professionals, pharmacists, rheumatologists/trainees, nurse, general practitioner, organisational leaders, policymakers, adherence experts, and gout experts. Inductive thematic analysis was used for data analysis and incorporated into the training content and delivery based on principles of adult learning theory and motivational interviewing. The training modules were tested and reviewed by a multi-disciplinary team. Feedback and recommendations were provided, and changes were applied.

Results: Five interactive self-paced modules built around a gout case study were developed (Introduction to adherence; Strategies to promote adherence; Assessment of adherence; Motivational interviewing; and a Refresher on gout management). At the end of each module, participants completed a knowledge quiz. This was followed by two face-to-face motivational interviewing workshops. The training will be evaluated using surveys and interviews of the participants and recorded patient-provider interactions.

Discussion and conclusion: The modules could enhance awareness and expertise amongst health professionals to manage medication non-adherence in patients with gout. We are planning for the training to be accredited and available for all pharmacists in Australia via a pharmacy educational platform to extend the reach and further evaluate uptake and utility.

77 Medication adherence education and training

The role of the short-term scientific mission (STSM) activities to exchange knowledge on medication adherence and digital health

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Abstract

Introduction: "CA19132 – European Network to Advance Best practices & technoLogy on medication adherencE" (ENABLE) project is composed of 40 European countries and aims to raise awareness of medication adherence (MA) and digital technologies. STSM activity is an opportunity to exchange knowledge on MA and digital health.

Aim: To identify benefits associated with undertaking an STSM and gain a deeper understanding of the participants' experiences.

Methods: We conducted a two-step qualitative study. After narrative analysis of summaries of the STSM participant experiences, we developed a set of open-ended questions to be distributed among them. We planned to ask about the directions they consider most important, the most important achievements and how they plan to use this knowledge in their country.

Results: There were 13 STSMs completed between 2020–2023, spanning 8 countries. The most common themes and terms identified in the STSM summaries provided by the participants were collaboration, eHealth solutions, research capacity building, data mining and analysis, databases for drug utilization, knowledge sharing,

different methods and technologies in medication management, integration of digital tools in clinical practice, and measuring MA using various methods. Based on these themes, we developed a survey- work-in-progress- to distribute among the participants.

Conclusion: The STSMs have demonstrated the benefits of undertaking such missions in enhancing understanding and implementation of MA strategies, paving the way for improved MA and the utilization of digital technologies in healthcare across European countries.

31 Medication adherence interventions

Impact of a training intervention in inhalation techniques on adherence in patients with chronic obstructive pulmonary disease (COPD)

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Abstract

Objectives: to analyse the impact of an educational intervention about inhalation technique on therapeutic adherence(TA) in COPD patients.

Methods: 286 patients. Pragmatic, randomised, cluster-controlled clinical trial. First level: patients, second level: GPs. Follow-up 1 year. Variables: age, sex, COPD treatment, spirometric pattern and severity, smoking habit, number pack/year, comorbidities, correct IT, TA by Morisky-Green test (MGT) and Batalla test (BT).

Results: Age 69.84 (9.9)years; 84%male; 77.2%married; 58.7%ex-smokers, 49.5+2.1pack/year; 56.8%mixed pattern, 22.1%obstructive, FEV1/FVC% 65.6(0.8); pFEV1% 62.1(1.2); pFVC% 67.4(1); severity: 54% moderate, 24.3% severe. 77.6%Diabetes, 46.2%High Blood Pressure, 67.2% osteoarthritis. Exacerbations/last year 1.1(0.9); 62.4% treated with anticholinergics, 89.4% beta-2-adrenergics, 67.4% inhaled corticoid. 93% have received IT instructions, by GP 50.9%; pneumologist 35%; 31.7% demonstration without device; 43.7% explanation with device. Devices: 33.6% Handihaler, 22.4% Accuhaler, 46.9% Turbuhaler, 20.3% Breezhaler, 23.1% pressurised cartridge.

Baseline: IT: 8% correct; TA: 65.5% with BT, 54.9% with MGT. Final visit: IT: 30.8% correct($p \leq 0.001$); TA 79.5% with BT and 70.4% MGT($p \leq 0.001$). Improvement in TA with MGT is related to using Turbuhaler($p = 0.006$); with BT it is related to performing demonstration without device($p = 0.007$) and explanation with device($p = 0.008$).

Conclusion: It is observed an improving the inhalation technique and an increase in therapeutic adherence, related to the use of the Turbuhaler, explanation of the inhalation technique with device or demostration without the device.

48 Methodology

Is possible to diagnose therapeutic adherence in mild dementia patients in clinical practice?

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Abstract

Non-adherence is common and contributes to adverse health outcomes, reduced quality of life and increased healthcare expenditure.

Aim: to assess diagnostic validity to estimate the prevalence of non-adherence in patients with mild cognitive impairment and dementia using self-reported methods (SRM).

Methodology: Cohort of 387 patients, 8 health-centers. Follow-up: 6(V1),12(V2),18(V3)months. Variables: age, sex, comorbidities, MMSE-test, AT:Morisky-Green test (MGT), Batalla test (BT) and pill counts (PC) as gold-standard. Open comparison: $\chi 2$-test; hierarchy comparison: PC as best and calculating kappa value, SRM diagnostic validity: sensitivity(S), specificity(Sp) for non-adherence.

Results: 73.29(IC95%,72.54-74.04)years; 59.5%female; Comorbidities:54.4%HTA, 35.9%osteoarticular pathology, 24.5%DM. MMSEscore:25.57(CI95%,25.34-25.8).

Baseline: AT-PC22.5%; AT-MGT37.7%; AT-BT43.5%; AT-MGT+BT20.1%. $\chi 2$-test AT-PCvsSRM $p \leq 0.001$. Kappa(k) AT-PCvsMGT 0.215($p \leq 0.001$), $k = 0.25$ AT-PCvsBT($p \leq 0.001$), $k = 0.262$ AT-PCvsBT+MGT($p \leq 0.001$). MGT:S = 0.58/Sp = 0.68; BT: S = 0.7/Sp = 0.64; MGT+BT:S = 0.4/Sp=0.85.

V1: AT-PC26.2%; AT-MGT24.2%; AT-BT32.4%; AT-MGT+BT12.3%. $\chi 2$-test AT-PCvsSRM $p \leq 0.001$. AT-PCvsMGT $k = 0.2$($p \leq 0.001$), $k = 0.344$ AT-PCvsBT($p \leq 0.001$), $k = 0.153$ AT-PCvsBT+MGT($p = 0.012$). MGT:S = 0.39/Sp = 0.8; BT S = 0.61/Sp = 0.78; MGT+BT:S = 0.22/Sp = 0.9.

V2: AT-PC14.8%; AT-MGT21.9%; AT-BT19.6%; AT-MGT+BT 9.6%. $\chi 2$-test AT-PCvsSRM $p \leq 0.001$. AT-PC vs MGT $k = 0.321$($p \leq 0.001$), $k = 0.22$ AT-PCvsBT($p \leq 0.001$), $k = 0.236$ AT-PCvsBT+MGT($p = 0.001$). MGT:S = 0.54/Sp = 0.84; BT:S = 0.4/Sp = 0.84; MGT+BT:S = 0.26/Sp = 0.93.

V3: AT-PC14.8%; AT-MGT21.9%; AT-BT19.6%; AT-MGT+BT9.6%. $\chi 2$-test AT-PCvsSRM $p \leq 0.001$. AT-PCvsMGT $k = 0.321$($p \leq 0.001$), $k = 0.22$ AT-PCvsBT($p \leq 0.001$), $k = 0.236$ AT-PCvsBT+MG($p = 0.001$). MGT:S = 0.54/Sp = 0.87; BT:S = 0.5/Sp = 0.9; MGT+BT:S = 0.25/Sp = 0.96.

Conclusion: SRM classify correctly adherent subjects, they are very easy and fast for use in the clinical practise, so SRM would be usefull for the non-adherence diagnosis.

Poster walk 4: Methodology

9 Methodology

Risk of bias assessment instruments for medication adherence research

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Abstract

Introduction: Guidance to aid researchers in the understanding of bias risk when measuring, designing, analysing or evaluating research involving medication adherence has hitherto been unclear. We developed two tools to identify and gauge the magnitude of important biases that may impact medication adherence research; 1) Risk of Bias for Interventional Adherence Studies (RoBIAS) and 2) Risk of Bias for Observational Adherence Studies (RoBOAS).

Aim: To pilot draft versions of the risk-of-bias instruments (RoBIAS & RoBOAS).

Methods: Draft versions of the tools were piloted by participants with expertise in adherence research, study design, and/or development of risk-of-bias instruments. We aimed to recruit at least 30 participants. The tools were implemented online using a survey tool (Qualtrics). Participants were asked to complete a survey which involved reviewing and assigning risk-of-bias scores in two published adherence papers, an interventional study and an observational study, and providing free text responses to highlight possible deficiencies and improvements. Participants' risk-of-bias scores will be analysed to assess each instrument's consistency, reliability and dimensionality.

Results: This is an ongoing project. We are currently recruiting participants and collecting feedback to create revised versions of the tools. The revised instruments based on findings from the pilot exercise will be presented.

Discussion and conclusion: We are evaluating and validating risk of bias instruments (RoBIAS & RoBOAS) for medication adherence research. These are expected to guide and aid researchers involved in the measurement, analysis and interpretation of adherence data.

23 Methodology

Estimating medication duration using EHR without knowing the prescribed dose: A case with benzodiazepines

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Abstract

Aim: Using electronic health records (EHR) to estimate medication consumption and adherence is becoming one of the main sources for this purpose. However, EHR, do not always contain the accurate information to estimate medication adherence. For estimating medication adherence in an accurate way is desirable have prescription and dispensing data. We explain a case where prescription dose is missing and dispensed DDD is recorded. We use three approximation to estimate the proportion of patients that are taking medication for six months. These approximations are based on dispensing acts, number of boxes and dispensed DDDs.

Methods: Restrospective study using EHR from primary care setting in Spain. The study period is 06/2021 to 12/2022. The proxy to consider that the patient is covered by medication for one month in each

approximations was: i) dispensing act, ii) box and iii) 30 DDD dispensed. We calculated the proportion of patients considered under treatment at 3 and 6 months using each approximation.

Results: The proportion of patients considered covered by medication at 3 and 6 months was 24,7 and 13,3% using the dispensing act, 28,5 and 18,8% using the box and 12,2% and 9,9% using DDD dispensed approximations.

Discussion and Conclusion: There are no great differences between considering dispensing acts or boxes as proxies of monthly medication, however considering DDDs dispensed seemed to underestimate the number of patients under treatment. Differences seemed to become smaller with large follow-up periods.

28 Methodology

Translation and adaptation of the Hill-Bone Compliance to High Blood Pressure Therapy Scale in Romanian

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Abstract

Introduction: In Romania, the prevalence of high blood pressure is 45%. Its management is complex and involves pharmacological treatment as well as lifestyle modifications. Adherence and its proper assessment are thus of major importance.

Aim: The study aims to translate and adapt the Hill-Bone Compliance Scale in Romanian according to a formal methodology, since no available information exists regarding such a version. This is an important step for adherence research in Romania.

Methodology: The original version of the scale and permission for its use was obtained from the developing team. The translation and adaptation were done according to the guideline proposed by Rojjanasrirat W. by two independent translators, one with a medical background. The two versions were discussed with a group of patients and the appropriate changes were made. A pre-test version was obtained and back-translated into English.

Results: The questions which needed clarifying were especially the ones related to appointments to the doctor, followed by the items related to filling prescriptions. The tool was used for interviewing and not self-reporting. After discrepancies were solved, the Romanian version was piloted on a group of patients, thus leading to the final-translated version.

Discussion and Conclusion: We described the translation and adaptation of the Hill-Bone scale in Romanian following a formal methodology. This led to a version which can be validated and tested for its psychometric properties, for a proper use in adherence research in Romania.

55 Methodology

Outcome Measures in Rheumatology – Interventions for Medication Adherence (OMERACT-Adherence): Delphi Survey

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Abstract

Aim: Medication non-adherence is a challenge for many rheumatic conditions. We aim to improve the quality of medication adherence research by developing a core set of meaningful and relevant outcomes to be consistently reported in medication adherence trials for Rheumatic conditions.

Methods: A three-part international Delphi survey will be conducted with two stakeholder groups; patients/caregivers and healthcare professionals/researchers/other stakeholders. In round 1, participants rated 34 outcomes using a nine-point Likert scale (Ratings 1–3: not important; 4–6: important but not prioritised; 7–9 very important and prioritised). After two further rounds and a Best-Worst Scale survey, the core outcome set will be determined based on outcomes rated 7–9 from ≥ 70% of both stakeholder groups.

Results: In the initial round, 224 participants (55% patients/caregivers) from 30 countries participated. Twelve out of 34 outcomes received ratings of 7–9 from ≥ 70% of both stakeholder groups. These include medication adherence, adherence phases, health outcomes, core outcomes for specific conditions, and medication-related adverse events. The following additional outcomes/factors were also rated highly: medication beliefs, medication satisfaction, ease of taking medication, patient activation, medication acceptance, access to medications, and cognition/memory. Patients/caregivers rated more outcomes 7–9 compared with other stakeholders (31/34 vs 13/34). No outcomes were rated not-important (1–3) by ≥ 70% of stakeholder groups.

Discussion and conclusion: This study identified prioritised outcomes for both stakeholder groups. Consistent reporting of prioritised outcomes could improve the quality of medication adherence trials in rheumatology.

70 Methodology

Meta-analysis of five patient cohorts to assess the usefulness of the SPUR PRAM

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Abstract

Introduction: The SPUR tool was developed to provide an assessment of individual risk of medication non-adherence and a measure of the drivers of that risk. The tool has been refined over a series of studies, across three countries and two pathologies. This meta-analysis on the raw data used in these studies aims to further test and refine the model.

Methods: All four existing SPUR studies, and data from a fourth as yet unpublished study, were included. The consolidated data consists of 1793 patients, who each responded to the SPUR questionnaire. Diverse data like Medication Possession Ratio (MPR), Hba1c (for diabetes patients), and results from questionnaires such as MARS, BeMQ, PAM and MMAS-8 were available depending on the cohort. Spearman correlation coefficients were calculated, both on the basis of the original SPUR scoring and the most recent SPUR 24, on the individual cohorts and the combined data.

Results: SPUR24 proved to be correlated with all the other questionnaires (r between 0.2 and 0.51, $p < .01$ in all cases) and HbA1c in each of the individual studies and on the consolidated data. Rescoring using SPUR24 proved as robust or more so in all cases. The three studies that measured MPR showed mixed and contradictory results for all questionnaires.

Conclusion and Discussion: SPUR24 seems robust across studies and pathologies. The consolidated analysis suggests baseline values for SPUR's risk measure. The difficulties in using MPR highlight the importance of rigorous methodology.

86 Methodology

A core outcome set for primary care medication adherence interventions

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Abstract

Aim: To develop an agreed minimum set of outcomes, a Core Outcome Set (COS), that should be measured in all trials of medication adherence interventions in primary care.

Methods: A list of potentially relevant outcomes from the literature was formulated. Using a two-round Delphi survey of patients and their carers, primary care staff and researchers with medication adherence expertise, each outcome was scored for its importance in the evaluation of medication adherence interventions in primary care. This was followed by two consensus workshops, where importance, as well as feasibility and acceptability of outcome measurement were considered in order to finalise the COS.

Results: Delphi Round 1 had 150 respondents, Round 2 had 101 respondents and eight people attended the consensus workshops. Seven outcomes were selected: Health-related quality of life, medicine taking initiation, medicine taking persistence, dosing regimen implementation by the patient, relevance of the medication adherence intervention to the patient, adverse medicine events and mortality.

Discussion: This COS comprises the minimum outcomes that should be measured in all trials of medication adherence interventions in primary care. Unlike many COSs, feasibility and acceptability of outcome measurement has been considered. Medication adherence trials may include additional outcomes specific to their population such as the health condition associated with their medication adherence intervention.

Conclusion: Medication adherence trials should as a minimum, measure the COS outcomes to reflect what is important to stakeholders, permit comparison of results between trials and data pooling in meta-analyses.

Poster walk 5: Patient and caregiver perspectives

40 Patient and caregiver perspectives

Do patients interpret a personalized patient leaflet as personal? A qualitative study among patients in the community pharmacy

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Abstract

Aim: Personalized information is needed to improve medication adherence effectively. The aim of this study was to evaluate whether patients recognize a personalized patient leaflet (PPL) as an individual, personally composed document, and which characteristics in the text facilitate or hinder recognition. We also aimed to examine whether health literacy affects the recognition of the personalized aspect.

Methods: Thirty-two patients received a PPL at first dispensing. In this leaflet, information about other medications and co-morbidities was personalized, patients were addressed personally, information was adapted to the indication and patient characteristics, and a disclaimer pointed out the personalized aspect. Qualitative, semi-structured interviews were conducted. Interviews were transcribed, coded and analysed thematically.

Results: About half of the patients did not recognise the personalized information at first sight, as patients did not expect personalized information about medication. Recognition of the personal aspect was mainly by patients' medication overview, personal data and the vocative case ('your medication'). Respondents with adequate health literacy recognized the personalized information better than those with limited health literacy.

Discussion and conclusion: We concluded that patients need support to understand that the leaflet is personalized and created especially for them. Pharmacyworkers can provide understanding by pointing out personalized characteristics in the leaflet, such as the medication overview and personal data. Recognition of personalization will ensure that the patient is more inclined to read the leaflet, which will positively impact adherence to therapy.

58 Patient and caregiver perspectives

Medication reconciliation of older home care patients involved in an educational intervention aimed at improving medication adherence

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Abstract

Aim: To assess pharmacotherapy appropriateness of home care patients and to propose solutions to optimize their medication management.

Methods: Home care patients from ASLTO4 (Piedmont Region, Italy) were enrolled on a voluntary basis for a therapeutic education intervention. Drug therapies were collected through narrative interviews with patients and caregivers. Prescriptive appropriateness was assessed in terms of drug interactions, Beers criteria, STOPP&START and anticholinergic cognitive burden (ACB). Narrative interviews will be analyses through Nvivo software to identify the problems faced by patients in the management of their morbidities and therapies and to highlight their educational needs to address this condition.

Results: Twenty patients (65.0% females) with a mean age of 74.7 years were enrolled. Patients had an average of 4.6 diseases and 85.0% of them were treated with ≥5 daily medications. The following prescribing inappropriateness were detected: an average of 2.8 major drug interactions, 6.1 potentially inappropriate prescriptions (PIPs) according to both Beers criteria and START&STOPP and 1.4 ACB score. The main PIPs involved pantoprazole, furosemide, ibuprofen and nimesulide and were more frequent in women. For each patient, a report including PIPs and suggestions to optimize pharmacotherapy was prepared and delivered to the project physician.

Discussion: Thanks to the collaboration between different disciplines (educators, nurses, physicians, researchers on drug use) avoidable PIPs were identified.

Conclusion: Narrative interviews analysis and medication review by the physician can lead to improved pharmacotherapy management and adherence.

44 Patient and caregiver perspectives

Hosting a Co-Design Workshop: Older Adults Ideate Medication Adherence Solutions

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Abstract

Introduction: Medication adherence solutions are generally designed for, instead of with, intended patient populations.

Aim: Our objective was to guide older adults to design interventions to make medication adherence more manageable.

Methods: Participants were recruited through the Osher Lifelong Learning Institute at Tufts University, whose members are over the age of 50. Five people signed up for the 2-hour Zoom workshop. The format was designed to promote ideation on improving patients' experiences of obtaining a prescription in the physician's office, obtaining medications at the pharmacy, and managing medications under routine circumstances or anomalous events.

Results: The key results of the workshop among our sample of three older adults who participated focused on receiving a new prescription from a physician, specifically a desire for:

- More education on the impact of a medication and the gravity of adhering to a medication
- More personalized guidance about taking a new medication
- More time with physicians to have questions fully answered

Additionally, a suggestion for the pharmacy was providing adherence reminders using the same mechanism as refill reminders.

Discussion: Involving older adults in the design of medication adherence interventions is an underutilized approach to improve patient outcomes. The discussion identified ways of scaffolding patients at the critical juncture of being prescribed a new prescription, which is when patients may be most receptive to guidance. Our next step is to run more co-design workshops recruiting at other settings, including senior centers and assisted living facilities.

45 Patient and caregiver perspectives

An Interview Study with Older Adults to Identify Medication Management Strategies

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Abstract

Introduction: We sought to understand older adults' medication management strategies to design tailored interventions to increase adherence.

Aim: Our objective was to identify home medication management practices used by community dwelling older adults with simple medication regimens.

Methods: Participants were recruited through the Osher Lifelong Learning Institute at Tufts University. Inclusion criteria were 50 years of age or older, taking 1-3 prescription medications, proficient in English, and with no cognitive impairment. Semi-structured qualitative interviews were conducted with 22 participants on Zoom during August 2022. Thematic analysis was performed by reviewing and coding recordings and transcripts. Study protocols were approved by Tufts University Health Sciences Institutional Review Board.

Results: Among our sample, despite simple medication regimens, medication management strategies varied widely. To develop strategies, no participants received guidance from a provider and Instead used trial and error (59%), caregiving experience (23%), or suggestions from family or friends (18%). Pill cases (77%) were more popular than prescription bottles (23%). Most (91%) participants relied on a routine or object as a pill-taking trigger. For 59%, nonadherence occurred when a change of routine eliminated triggers. Participants indicated that they treated adherence to vitamins and supplements the same as prescriptions.

Discussion: While a small sample, the interviews indicate the incredible variability of home medication management strategies. The analysis suggests opportunities to both ease the process of managing an initial prescription and, for those taking medications, design adherence aids that are tailored to existing strategies.

67 Patient and caregiver perspectives

Searching for Medication Adherence Devices

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Abstract

Introduction: We sought to answer (1) what do healthcare consumers find when they look for medication adherence devices online and (2) is innovation taking place in adherence devices?

Aim: Our objective was to scour the internet to understand the volume and variety of medication adherence devices available to healthcare consumers.

Methods: A search was conducted in June 2023 using the terms "medication adherence device" and "pill organizer" on both traditional retail sites, Amazon and CVS, and non-traditional sites, Indiegogo, Kickstarter, and TikTok™. The most relevant results were categorized by one expert based on target consumer attributes and evidence of clinical effectiveness.

Results: The search term "medication adherence device" on Amazon yielded 236 results, while "pill organizer" yielded 4,000. A search on CVS using "medication adherence device" yielded no results while "pill organizer" resulted in 35. Devices on Amazon and CVS were mostly pill cases with variations in size, color, and material. Searches on Indiegogo, Kickstarter, and TikTok yielded a greater variety of device designs, of which half targeted specific patient populations. Overall, only one product mentioned evidence for clinical effectiveness, another indicated use of a focus group, while a few incorporated physician testimonies.

Discussion: The plethora of online options may lead to choice confusion for patients during the implementation phase of adherence, especially without guidance tailored to their needs or evidence of effectiveness. Innovative designs may reduce any stigma associated with pill case use yet are only found on crowdfunding and social platforms.

92 Patient and caregiver perspectives

Do Older Adults Identify Their Medication by Appearance, Purpose, or Name, and Does it Correlate with Adherence?

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Abstract

Introduction: Most prescription drugs are taken by patients at home, where about 59% have made at least one medication error, such as mixing up drugs with similar appearances.

Aim: Our objective was to identify if older adults refer to their medications by appearance, purpose, or name and explore implications for home medication management and adherence.

Methods: Twenty-two participants 50 years of age or older and taking 1–3 prescription medications were recruited through the Osher Lifelong Learning Institute at Tufts University. Semi-structured interviews were conducted in August 2022. Study protocols were approved by Tufts University Health Sciences Institutional Review Board.

Results: When asked how they refer to their medication, 46% of participants responded pharmaceutical name, 36% appearance, specifically shape and color, 9% purpose, and 9% generic name. No significant correlation was found between adherence and medication identification – notably, the sample size was small.

Discussion: Understanding how patients think about their medication is a critical step in reducing medication error and unintentional nonadherence, particularly when patients fill a weekly pill case, switch to a different

dose, or switch to a generic agent. This research could inform better alignment between clinicians and patients in how medication is presented or discussed. Finally, with over 20,000 prescription drugs available in the US and more under development, pharmaceutical companies could name or design drugs to help patients to more easily identify and manage medications.

Poster walk 6: Medication adherence interventions

19 Medication adherence interventions

A digital medication adherence solution decreases treatment-related anxiety

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Abstract

Aim: This prospective observational study aimed to assess the impact of the MEMS® digital solution on medication adherence and treatment-related anxiety in patients taking chronic medication.

Methods: Belgian French-speaking participants who met the inclusion criteria (>18 years old, owning an NFC-compatible smartphone, autonomously taking chronic medication) were recruited between October 2022 and March 2023. The MEMS® digital solution, comprising a MEMS® Button to record medication intakes and a companion mobile application, was provided for three months. Data collection included treatment-related anxiety and self-reported use of the solution using questionnaires. Out of 42 enrolled participants, 19 already completed the study, with treatment-related anxiety measured at baseline and after three months of follow-up. Three participants were excluded from the present analysis (2 dropped out, 1 did not have an NFC-compatible smartphone).

Results: After 3 months with the MEMS® digital solution, treatment-related anxiety significantly decreased (43.6 to 34.9, $p = 0.031$). Four participants reported not using the solution at all.

Discussion: The findings suggest that the MEMS® digital solution effectively decreases treatment-related anxiety in patients taking chronic medication. Limitations include subset analysis and potential biases associated to self-reported data. The complete analysis will be presented at the conference.

Conclusion: This prospective observational study demonstrates that the MEMS® digital solution significantly reduces treatment-related anxiety in patients taking chronic medication. Future analysis will identify factors influencing MEMS® solution acceptance and usage. Digital medication adherence solutions show potential for enhancing patient well-being and addressing medication non-adherence in chronic disease management.

34 Medication adherence interventions

Preliminary real-world evaluation of an online adherence support programme

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Abstract

Aim: This study aimed to conduct a real-world evaluation of PERSIGNIA™, an adherence support module included in a digital adherence support programme developed by Sciensus, a speciality pharmacy. The Sciensus app aims to support adherence and persistence using a range of digital interventions, addressing the 22% of patients with chronic conditions who discontinue treatment annually.

Methods: Adults prescribed an adalimumab biosimilar were invited to join the adherence programme and complete PERSIGNIA™ through Sciensus's patient app, compiling a validated adherence profiler to identify the key perceptual (necessity beliefs and concerns) and practical barriers to adherence, coupled with personalised support to address them. Patients were then provided digital adherence support including goal-setting and reminders. Data was collected from app analytics.

Results: Of 2819 patients offered the PERSIGNIA™ module in March 2022, 1238 (44%) completed it (48% female; mean age = 50, SD = 14). PERSIGNIA™ identified that 30% of patients were at risk of non-adherence; 26% had concerns about treatment, 12% reported practical difficulties and 1% had doubts about their personal need for treatment. A single iteration of the PERSIGNIA™ application resolved 50% of medication concerns and 38% of practical barriers. Doubts about personal need for treatment were resolved for 75% of patients.

Discussion and conclusion: The PERSIGNIA™ module, delivered as part of a digital patient support programme, effectively identified and addressed adherence barriers. This approach offers promise for digitally driven personalised adherence support delivered at scale, as recommended by NICE.

52 Medication adherence interventions

Usability and feasibility of the TAI Toolkit in daily clinical practice

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Abstract

Aims: To support healthcare professionals (HCPs) in giving tailored feedback on patient's medication adherence, a novel toolkit has been developed. This toolkit comprises the Test of Adherence to Inhalers (TAI) and an overview of effective interventions for different causes of non-adherence. This study aimed to assess the usability and feasibility in of the TAI Toolkit in daily clinical practice.

Design: Observational feasibility study.

Methods: The TAI Toolkit was developed and designed for use in clinical practice. This prototype binder was piloted by HCPs in eight primary and secondary care organisations. Each study site aimed to include ten consecutive patients with asthma and/or COPD and suspected non-adherence, then applied the TAI Toolkit and collected patient data. Subsequently, HCPs were interviewed using a semi-structured interview using the RE-AIM framework. The usability of the toolkit was scored using the System Usability Score (SUS).

Results: Four general practices, three hospitals and one rehabilitation centre/nursing home participated. The HCPs (N = 11) included 79 patients (Nasthma = 37, NCOPD = 41). The toolkit had a SUS of 85,9. HCPs stated the toolkit was 'visual attractive', 'easy to use' and 'gives an overview and insight into the patients adherence'. By contrast, the TAI Toolkit did not contain unfamiliar information and a smaller and digital version was desired. 81% of the included patients were non-adherent and were mostly sporadic non-adherent.

Conclusion: The TAI Toolkit shows great potential in supporting HCPs in detecting and guiding patients into more adherend behaviour.

76 Medication adherence interventions

Medication use support by the ASSUSTENT app or ASSIST brochure for patients using sunitinib: a feasibility study

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Abstract

Introduction: Patients treated with tyrosine kinase inhibitors often experience severe symptoms impacting medication adherence which reduces clinical outcomes. ASSUSTENT app and ASSIST brochure were developed to support patients using sunitinib with medication information, registration of medication intake and side effects and advices regarding side effects. We aimed to investigate the usefulness of the app and brochure.

Methods: A feasibility study with a mixed method design. Patients using sunitinib were asked to use the app or brochure for 6 months, to fill out a questionnaire at (T0), after 3 and 6 months (T1,T2), including the MARS, BMQ, SIMS and QLQ C30 and to participate in a semi-structured interview.

Results: Of 34 patients approached, 19 (56%) were included, 15 (44%) completed the study, and 12 (35%) participated in the interview. At T0, T1 and T2, 57.9%, 60% and 75% were adherent and 78.9%, 83.9% and 89.2% were satisfied with information about medication. The QLQ C30 increased from 69 (T0) to 84 (T2). The app and brochure were considered clear, easy to use, useful for keeping track of symptoms and preparing consultations with physicians. Patients recommended the app and brochure to other patients and to use it in the initiating phase of medication use.

Conclusion: Apps and similar brochures can support cancer patients with monitoring side effects, medication intake and preparing routine consultations. These apps should be clear, simple and flexible in use.

54 Medication adherence interventions

Implementing an Interprofessional Medication Adherence Program for People with Gout: A Pilot Feasibility Study

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Abstract

Aim: Despite the availability of effective long-term therapies in gout, poor adherence to medication poses a significant barrier to effective treatment. This pilot study assesses the feasibility and acceptability of a nurse-led interprofessional medication adherence program for people with gout at Liverpool Hospital (Australia).

Method: Patients ≥18 years with gout, English or Arabic speaking, with serum urate >0.36 mmol/L, previous hospital presentation with gout (past 12 months), and prescribed allopurinol are invited to participate in the pilot study.

A nurse provides monthly medication support, education, motivational interviewing and electronic adherence monitoring and feedback for 3 months. At the conclusion of the study, semi-structured interviews with patients and health professionals are conducted and thematically analysed to describe their experiences and satisfaction of the program. Study participation (recruitment/attendance/attrition), adverse events, and intervention costs will also be evaluated.

Results: The IIMAP-Gout feasibility study currently has 8 participants (7 males, 1 female, mean age 50) recruited April–June 2023. In total 23 eligible participants were contacted (recruitment rate 34%). Difficulties encountered in recruitment include patients not attending scheduled appointments, and declining participation due to excessive time commitment.

Discussion and Conclusion: Initial poor rates of recruitment to the service require further investigation. The pilot study will inform the feasibility and acceptability of the nurse-led interdisciplinary medication adherence program, allowing for further adaptions for a model of care that addresses barriers to medication adherence and improves outcomes in people with gout.

85 Medication adherence interventions

Technology to Support Medication Adherence for Chronic Diseases: A Bibliometric Analysis

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Abstract

Background: Technology for medication adherence in chronic disease is widely used in recent years. However, there is a gap on global trends and hotspots.

Aim: This study aimed to analyze the bibliometric patterns of technology for medication adherence in chronic diseases.

Methods: A bibliometric analysis methodology was used in the "Web of Science Core Collection" database in English. The co-citation and co-occurrence analyses were performed using Voswiever program. The keywords "chronic disease, chronic illness, chronic condition, long term condition, medication adherence, drug adherence, medication compliance, patient compliance, medication persistence, patient persistence, medication concordance and technolog*" were used. A total of 3795 studies were attained in the last 10 years (2014–2023).

Results: 1178 authors from 98 countries, 1323 institutions contributed to 3795 studies published in 542 different journals between 2014 and 2023. "Journal of Medical Internet Research, JMIR mHealth and uHealth, Plos One" were the journals in which the most articles were published and cited. The most productive countries were United States of America, England and Italy. The most used keywords were "adherence", "mhealth", "medication adherence", "telemedicine", "compliance", "technology" and "ehealth". The most prominent concepts in the abstract were "intervention, drug, patient compliance, medication adherence".

Conclusion: This study showed there has been an increasing attention in the last 10 years in technologies for medication adherence in chronic diseases. The researchers will benefit from this study for finding potential collaborators, countries, and institutions.

Poster walk 7: Healthcare professional perspectives and collaboration

65 Healthcare professional perspectives

Dutch Living Labs implementing medication adherence improvement interventions, supported by the Medication Adherence Knowledge Expertise and Implementation Taskforce (MAKE-IT) Consortium

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Abstract

Introduction: Over the past decades, numerous interventions have been developed to promote medication adherence in patients, but implementation in daily practice is limited. The MAKE-IT consortium was set up to support living labs in the Netherlands with implementing established medication adherence interventions in primary care settings.

Aim: The aim of this project was to assess the support to living labs in order to facilitate the implementation of medication adherence interventions.

Methods: Four living labs in primary care implemented an intervention to improve medication adherence. The different interventions focused on improving adherence at start of therapy or during long-term medication use, and improving medication adherence of patients with limited health literacy. The living labs consisted of general practitioners, pharmacy technicians, nurse specialists and patients, with community pharmacists in the lead. These interventions were intended for approximately 500 patients per living lab.

Results: Support by the MAKE-IT teams was overall appreciated, pharmacists indicated that they highly valued the reflection meetings. Implementation of the interventions in the four living labs has been successfully performed.

Conclusion: Living labs indicate the importance of support and expert opinions delivered by the MAKE-IT Consortium during the implementation. They state contact on a regular basis and sharing lessons learned are key elements to successful implementation of their projects. They also state support was important for creating a sustainable change in routine practice and for scaling up the interventions.

68 Medication adherence interventions

Evaluating the implementation of two interventions to improve medication adherence in the Living Lab Utrecht: comprehensible prescription label instruction and teach back at first dispension

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Abstract

Background: two evidence-based interventions to improve patients' understanding of correct medication use were implemented: comprehensible prescription label instructions and the teach-back method at first medication dispensing. The aim of this study was to investigate to what extent the interventions have been implemented by evaluating the reach, adoption and implementation.

Method: Intervention were implemented between June 2021 – January 2022 in Kanaleneiland. Utrecht. The RE-AIM framework was used to determine the reach, adoption and implementation. Reach was established by the proportion of interventions that were performed during the implementation. Adoption was determined by measuring how often employees issued a first prescription and in how many of these cases the teach-back method was used.

Results: comprehensible prescription labels instructions were used in (88%) of the cases and the teach-back method was used in 67% of all first issues. All employees were willing to execute the interventions. An important facilitator was the advantage of the interventions: the teach-back method could make clear whether the patient understood the information, and to have someone in the team who performed as role-model. Barriers were that teach-back was that initially experienced as scary because of possible negative reactions.

Conclusion: This study shows that in this pilot project, these interventions are well implemented in the pharmacy. A challenge for implementation on a larger scale will be to have sufficient pharmacy staff.

69 Healthcare professional perspectives

Systematic review of studies utilising placebo substitution to determine the forgiveness of antihypertensives to non-adherence

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Abstract

Aim: The ability of medicines to continue providing therapeutic benefit despite the occasional missed dose depends on their property of 'forgiveness'. This is defined as the maximum duration of dose interruption while maintaining drug effect. We aim to perform a systematic review of randomised controlled trials (RCTs) that examine the duration of permissible interruption by substituting active drug doses(s) with placebo during the course of antihypertensive therapy.

Methods: The study protocol was registered on PROSPERO. Searches were undertaken in Embase, Medline, Cochrane library, and Web of Science to identify all RCTs reporting placebo-substitution for active antihypertensive medicines. Outcome measures included the differences in blood pressure between intervention (placebo substitution) and control (continued active treatment) following a specified time interval.

Results: A total of 363 records were identified, of which 21 were included after removal of duplicates and assessment of eligibility. We found that: (i) aliskiren more forgiving than irbesartan, ramipril, or telmisartan; (ii) amlodipine more forgiving than diltiazem, enalapril, felodipine ER, losartan, nifedipine GITS; (iii) betoxolol more forgiving than atenolol; (iv) enalapril less forgiving than trandolapril or valsartan; (v) candesartan or candesartan/hydrochlorothiazide more forgiving then losartan or losartan/hydrochlorothiazide; (vi) olmesartan/amlodipine more forgiving than perindopril/amlodipine; and (vii) telmisartan more forgiving than valsartan.

Discussion: RCTs involving placebo substitutions can provide evidence to support labelling instructions on missed doses, and identify medicines that may diminish the potentially hazardous effects of missed doses.

Conclusion: Further utilitisation of placebo substitution trials is warranted to understand the pharmacodynamics of sub-optimal implementation.

57 Medication adherence interventions

Understanding the context for implementing collaborative care for patients commencing long-term medications in Switzerland – The myCare Start-I project

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Abstract

Aim: Effective transfer of interventions to improve initiation adherence to long term treatments requires careful consideration of the implementation context. For example, global applications of the UK's New Medicines Service (NMS) faced implementation barriers including poor patient uptake, underdeveloped pharmacist and physician relationships and pharmacist time constraints. The myCare Start implementation science project (myCare Start-I) will reimagine the NMS for use in Switzerland's community pharmacy-physician network using a context informed approach. Methods: Guided by the Basel Approach for coNtextual ANAlysis (BANANA) and the Context and Implementation of Complex Interventions (CICI) framework, the contextual analysis will be conducted in 10 Swiss pharmacies. A convergent mixed-methods approach including individual interviews, surveys, focus groups and group model building will be utilised to understand current patient journey, practice patterns and structural characteristics within pharmacies and general practice, the multi-level factors influencing medication adherence to long term treatment and myCare Start implementation and existing levels of interprofessional collaboration. Patients with long term diseases, pharmacy technicians, pharmacists, family physicians and primary care stakeholders will be involved. Based on these findings an adapted and optimised myCare Start intervention and contextually fitting implementation strategies will be created. Results: Preliminary results will be presented at the conference, while final results will be available in 2024. Conclusion: myCare Start-I will provide a much-needed, contextually appropriate, model for improving primary care for patients prescribed new long-term medications in Switzerland.

87 Healthcare professional perspectives

Improvement of medication adherence of asthma patients in North Macedonia

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Abstract

Aim: Asthma, as a chronic respiratory disease, is usually treated with inhalation therapy. Asthma patients' adherence to prescribed therapy depends on the type of medication and inhalation technique and is crucial to controlling the disease and improving quality of life.

The aim of this research is to identify questionnaires available for use in North Macedonia and evaluate the need of updating asthma guidelines to improve medication adherence.

Methods: Literature research was performed through PubMed search (keywords: asthma patients, medication adherence, guidelines) and BiblioPRO International for analysis of questionnaires for measuring adherence in asthma patients (English and Macedonian language). General principles of Gina main report were compared

with the guideline for long-term treatment of asthma in North Macedonia. Data on medication adherence, inhalation technique, and personalized care framework were extracted.

Results: Our research in PubMed and the comparison of guidelines determined that the guideline in North Macedonia provides only basic information for long-term asthma treatment. This guideline does not present any recommendations or guidelines for monitoring patient adherence. Through the process of analyzing the questionnaires, our research has shown that there are no questionnaires in Macedonian language.

Discussion and conclusion: The conducted research has indeed confirmed that it is extremely important to update the guideline in North Macedonia. By introducing questionnaires adapted for the country, with performing both translation and cultural adaptation, a better asthma control and increase of the awareness of medication adherence among patients with asthma can be achieved.

Poster walk 8: Medication adherence and patient-centered care

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Changes in medical adherence among patients with hypertension. Is it an achievable objective?

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Abstract

Aim: We aim to investigate the impact of complex status evaluation and motivational interviews on medical adherence among patients with hypertension.

Methods: A self-reported questionnaire survey has been conducted among 58 patients with hypertension. The survey, conducted by physician and clinical psychologist, reveals information considering cardiovascular risk, stress status, sleep habits, depression level and baseline medical adherence attitude (measured by validated scales of health care literature). An intervention based on personalized motivational interviews, evaluation of current medical therapy and dosing was carried out. Changes in medical adherence attitude was documented after the intervention.

Results: 36 patients (62%) had higher systolic blood pressure values measured (>140/90 mmHg). After modification of medical therapy or dosing, addressing side-effects of calcium channel blockers and ACE inhibitors, and adequate patient education, higher systolic blood pressure values were measured only in 4 patients (6.89%). The average improvement in medical adherence attitude, based on validated scales measurements, was around 30% compared to baseline measurements. This was shown to be statistically significant ($p < 0.001$).

Discussion and Conclusion: Our results show that co-creation of person-oriented relationship between patients and care providers based on motivation and value delivery could improve patients' medical adherence attitude among patients with hypertension. Considering the mediator role of hypertension in development of cardiovascular diseases, improvement of medical adherence attitude could be a key element in planning of comprehensive preventive programs.

75 Determinants of medication adherence

The difference in the level of adherence along medication preferences

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Abstract

This study covers two phases. The first phase aims to group chronic patients into medication preference clusters based to their preferences. The second phase's aim is to describe these patient clusters' (non)adherent characteristics.

Methods: In a survey in Hungary, a representative sample of people aged over 30 was collected (n = 1000). For this study (n = 482), only people living with chronic illnesses were selected. ABC conjoint flashcards, MARS-5, INAS, BMQ-Specific, and PAM were applied as measurement tools.

Results: Based on the conjoint importance of the medicine choice attributes, three clusters emerged. The first cluster's top priority is that it cause no side effects (n = 147), the second cluster concentrates on infrequent medication (n = 135), the third cluster emphasise the health benefit of the medicine (n = 146). MARS-5, BMQ-Necessity, and PAM do not differ between the three clusters (ANOVA), but INAS-Testing treatment (F = 3,546, p = 0,030), INAS-Resisting illness (F = 3,049, p = 0,049) and BMQ concern (F = 3,153, p = 0,044) do. According to post-hoc analyis, the side-effect group is more adherent than those who prefer infrequent medication.

Discussion and Conclusion: While the general preferences were still relevant in our sample, they have been further elaborated. Three relatively same-sized clusters were differentiated. It is clear from these three preference sub-groups that not only the success of the treatment is the main attribute for choice. Adherence is less challenging for those who are more concerned about side effects than it is for those who do not favour frequent medication use.

83 Patient and caregiver perspectives

The language of medication adherence: how do patients describe managing their chronic treatments?

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Abstract

Aim: The main objective is to list and describe the vocabulary used by patients to talk about their chronic treatments. The secondary objective is to propose a theoretical framework or to amend an existing framework to facilitate communication between patients and health professionals to support medication adherence.

Methods: The study is a secondary analysis of data from individual semi-directed interviews conducted among French-speaking chronic patients from Switzerland and France. A thematic and discourse inductive analysis was performed.

Preliminary results: Alanysis from 15 interviews generated three main themes: 1. The Patient and the disease: related to patients' perception of themselves and appropriation of their diseases, 2. The medication: its' description, perceived necessity and the way it is taken, and 3. The System: or context in which the patient is taking the medication such as interactions with healthcare professionals, support from family or patients associations. Participants didn't use the term "adherence", and different vocabulary was employed when discussing adherence versus non-adherence behaviours. The use of positive vs negative adjectives as well as action verbs and metaphors are examples of semantics which differ. Analysis is currently ongoing.

Discussion & Conclusion: First results show that the semantics used by patients to discuss their medication intake varies reflecting different experiences, sometimes for the same individual. The analysis of the adjectives, verbs, figures of speech used by patients should help us to better support medication adherence and prevent non-adherence behaviours collaboratively.

88 Medication adherence interventions

Pillbox Use and Medication Nonadherence

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Abstract

Aim: This quantitative descriptive study investigates the association between pillbox use and nonadherence in the implementation phase of medication adherence.

Methods: The study employed an electronic survey questionnaire shared via social media targeting adults in the United States aged 18 and older taking prescribed medications. Medication adherence was assessed with self-report items to determine if people missed taking a dose of medication and their overall perceived percentage of medication taken. The chi-squared test evaluated associations between pillbox use and missing doses, and the Mann-Whitney U test for pillbox use and adherence percent.

Results: A total of 473 people responded. Respondents had a median age of 34 (range 18–89) years; 74% identified as female, 24.7% male. Regarding ethnicity, 84.6% identified as white, 8% as African American/Black, 5.7% as Asian, and 0.2% as American Indian. Among participants, 44.8% reported using a pillbox. Self-reported instances of missing doses were found among 48.6% of the respondents. Median adherence was 92% among those using and not using pillboxes, with a range of 87 and 100, respectively. Pillbox use was significantly associated with missing medication doses, $X2 = 7.287$, $p = 0.02$, but not overall self-reported percentage of adherence, $p = .328$.

Discussion: Pillboxes may increase awareness of missed doses but might not enhance certain aspects of adherence. Further investigation into pillbox mechanisms with objective adherence measures is needed.

Conclusion: The link between pillboxes and nonadherence requires mechanistic research to identify factors affecting their effects, particularly for specific user groups.

93 Medication adherence in drug development

Application of long-acting technologies as an approach to overcome medication adherence challenges in treatment or prevention of infectious diseases

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Abstract

For infectious diseases with high burden in low- and middle-income countries (LMIC), current treatment and prevention strategies predominantly rely upon daily oral administration. Medication adherence and retention in therapy programmes is often woefully low. Long-acting (LA) medicines mitigate the need for daily drug intake, providing extended durations of drug exposure often measurable in months. The recent approval of LA medicines for HIV has sparked broader interest for other common pathogens, with high levels of acceptability from patients and healthcare providers. The Centre of Excellence in Long-acting Therapeutics (CELT) is applying LA technologies to reposition existing medicines for HIV, HCV, malaria and TB amongst other indications, alongside fundamental research to understand properties of drugs optimally compatible with

these approaches. LA technologies can be classified into injectable, implantable or transdermal formats with growing interest in oral LA administration. Potency and metabolic stability are key drivers of compatibility with LA applications, but for many approaches controlled drug absorption flip-flops the pharmacokinetic half-life from rate of elimination to rate of absorption. A greater understanding of physicochemical properties that are optimal for different technologies is required along with a better understanding of the biological processes involved in drug absorption. This presentation will summarise recent advances in development of LA medicines, and highlight current understanding of drug compatibility that may be used to identify other drugs / indications amenable to this approach for overcoming medicine adherence challenges.