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ESPACOMP-20-002: Do chronic patients perceive contradictory information about their prescribed medications?

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Introduction: As the number of individuals with multiple chronic diseases rises so does the need to visit various healthcare professionals, exposing a person to a larger risk of contradictory information on treatments.

Aim: This study investigates the epidemiology of medication contradictions perceived by individuals with chronic diseases and their impact on their medicine self-management and care trajectory.

Methods: This is a quanti-quali mix-method. We enrolled participants with ≥ one prescribed medicine for ≥ 6 months, and have visited ≥ two prescribers in the past 3 months. Participants filled in a survey on perceived contradictions, sociodemographic and clinical data and were asked to participate in a single 20-to-60-min interview.

Results: From March 2019 to February 2020, 405 participants completed the survey, 22 of which participated in the interviews. The survey showed that 47% of participants perceived at least one piece of conflicting information about their medicines whereas the qualitative analysis points out that the healthcare professionals lack time, active listening and coordination, and provide insufficient information.

Conclusion: The issue of conflicting information is prevalent in the ambulatory healthcare system but is widely overlooked because the health system is not yet organized to address it. National guidelines in Switzerland should help elaborate new models of interprofessional care.

ESPACOMP-20-004: Limited information for implementation of medication adherence interventions in real-world transplantation settings: A systematic review of RCTs

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Introduction: Randomized-controlled trials (RCTs) show effectiveness of medication adherence interventions in transplantation yet their translation in real-world-settings remains a challenge.

Aim: This systematic review assessed the type and the extent of implementation-relevant information for translation of effective interventions in transplantation clinical practice.

Methods: We included RCTs testing interventions to improve any phase of medication adherence in solid organs or allogeneic stem cell transplantation, published since 2015. We searched relevant databases and trial registries, using backward reference and forward citation tracking. Implementation-relevant information was evaluated using the adapted Peter’s criteria (description of implementation strategy, implementation outcomes, healthcare/organizational and social/eco-nomic/policy context; stakeholder involvement; sample representativeness; real-world-setting; feasibility study; process evaluation). The review was registered at PROSPERO (CRD42020161710).

Results: We identified 16’180 titles/abstracts, of which 21 RCTs involving 2’095 patients were included (19-209/study). All RCTs targeted the implementation adherence phase of the ABC-taxonomy. Twelve studies reported significant improvement in adherence and three in clinical outcomes. Most RCTs did not contain detailed information to guide the subsequent implementation of the intervention in real-world-setting. The least fulfilled criteria were: description of context (5/21) and implementation strategies (2/21), and stakeholder involvement (5/21).

Discussion: The lack of implementation-relevant information in RCTs hinders their translation in real-world-settings.

Conclusion: Integrating implementation science principles in RCTs from the start has the potential to accelerate the intervention’s implementation in real-world-settings and therefore reduce research waste. Implementation-relevant information of RCTs need to be reported.
ESPACOMP-20-005: Prevalence and explanatory factors of medication non-initiation in the pediatric population

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Introduction: Non-initiation is a complex behavior influenced by multiple determinants, which is well documented in the adult population. To date, no studies have deeply assessed non-initiation in pediatrics focusing on a wide variety of medication groups and a set of explanatory factors.

Aim: To estimate medication non-initiation prevalence in the pediatric population and to identify the explanatory factors of this behavior.

Methods: Observational real world data study of a cohort of patients (<18 y.o.) receiving at least a new prescription between July 2017 and June 2018. Twenty eight different medication groups were considered. Data was obtained from a healthcare database, which uses data from the electronic medical record of public providers covering the entire population in Catalonia (Spain).

Results: Overall prevalence of 1-month non-initiation was 9%. The highest non-initiation prevalence was observed in proton pump inhibitors (21.5%), while the lowest was observed in oral antibiotics (2.6%). A curvilinear relationship between age and non-initiation was observed. Explanatory factors related to the patient, such as age, copayment level and medication cost, to the healthcare system, such as the type of prescriber or healthcare center, increased the risk of non-initiation.

Discussion/Conclusion: Non-initiation in pediatrics varies within different patients’ ages and medical groups, and it is noticeable high in Catalonia. Results suggested that there are inequities in access to pharmacological treatments in this population that must be taken into account by healthcare planners and providers to improve pediatric initiation.

ESPACOMP-20-007: Promoting medication adherence and self-management among kidney transplant recipients (mars-trial): Intervention development and first experiences

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Aim: After kidney transplantation nonadherence is common. In this study we aimed to develop and pilot-test the feasibility and acceptability of an adherence promoting intervention.

Method: The developed intervention is outreaching, tailored, based on principles of (multi) systemic therapy and behavior change techniques. A random selection of patients, for whom there was an indication of medication nonadherence, were approached for participation in the pilot study. All participants were interviewed after participation.

Results: Six nonadherent patients participated (50% response rate). Reasons for declining were too busy or no interest. Median age was 24 yr (range 20–51 years) and 5 were male. A median of 13.5 (range 7–18) sessions were carried out. Patients appreciated the outreaching approach of the intervention and the methods used. They were intrinsically motivated to achieve and maintain their goals. Patients set goals aimed at achieving medication adherence, intricate relations, lose weight/more exercise, and work/income. Family members were positive about the intervention because of more understanding about patient perspective and their own role in the problems and solutions addressed.

Discussion: The developed intervention distinguishes itself from existing interventions in the sense that it is outreaching, tailored and involving the social network. Although participating patients appreciated the aspects of the intervention, including eligible patients was challenging. Effectiveness of the intervention is currently being assessed.

Conclusion: The pilot demonstrated feasibility and acceptability of this unique intervention among patients and their family members.

ESPACOMP-20-008: Preferred methods for translation of the ABC taxonomy for medication adherence

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Introduction: Medication adherence terminology has been an area of confusion and misunderstanding due to different interpretation in the past. In 2012, Vrijens et al. published a consensus of adherence terminology in English, which encompasses 7 terms and their definitions. A standardized terminology in different languages is crucial to facilitate valid comparisons between studies, and dialogue among scientists.

Aim: Provide a working practice for the translation of the ABC adherence taxonomy into other languages than French and German.

Methods: The key steps include: (1) pragmatic literature search to identify (a) key papers in the target language and (b) native experts in the concerned countries; (2) forward translation of terms and definitions with no backward translation; (3) selection of the panelists who should be fluent in the source and target languages, dedicated to research or education in medication adherence, and/or be practitioners; (4) design and administration of the Delphi survey through an online platform; (5) supplementary questions on experts’ demographics; (6) analysis of Delphi rounds; (7) cross cultural validation by linguist experts in the concerned countries.

Results: This preferred method using the Delphi technique will result in harmonized adherence terminology in other languages other. Specific adaptation in sampling or writing might be needed when the same language is spoken in several countries and contains differences.

Conclusion: The suggested procedure will facilitate international research into medication adherence, transferability between study results, and dialogue among adherence researchers.
ESPACOMP-20-009: Targeted and tailored pharmacist-led intervention improved adherence to antihypertensive drugs

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Introduction: Current intervention programme to improve drug adherence are either too complex or expensive for implementation in low-middle-income countries.

Aim: To assess the effects of a targeted and tailored pharmacist-led intervention among patients with type 2 diabetes (T2DM) who are non-adherent to antihypertensive drugs.

Methods: A cluster-randomised controlled trial was conducted in 10 community health centres (CHCs) in Indonesia among T2DM patients aged ≥ 18 years who reported non-adherence to antihypertensive drugs according to the Medication Adherence Report Scale (MARS-5). Patients in intervention CHCs received a tailored intervention based on their adherence barriers at baseline and 1-month follow-up. Patients in control CHCs received usual care. Primary outcome was the between-group difference in change in MARS-5 score from baseline to 3-months follow-up. Secondary outcomes included changes in blood pressure and medication beliefs. Differences in change in primary and secondary outcomes between groups were assessed using General Linear Models.

Results: In total, 201 patients were screened for eligibility, 113 met the inclusion criteria and participated; 89 (79%) had complete follow-up. Forgetfulness (42%) and lack of knowledge (18%) were the most common adherence barriers identified at baseline. The intervention improved medication adherence by 4.62 points on the MARS-5 [95%CI: 0.93 to 8.34, p value = 0.008]. There were no significant changes in blood pressure levels and beliefs about antihypertensive drugs.

Conclusion: A tailored low-cost pharmacist-led intervention aimed at non-adherent T2DM patients resulted in an improvement in adherence to antihypertensive drugs.

ESPACOMP-20-010: Interventions to improve adherence to cardiovascular medication: what about gender differences? A systematic literature review

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Introduction: Gender health disparities are an emerging field of research. Women have lower treatment rates for cardiovascular disease (CVD), are at higher risk for and have different reasons for medication non-adherence than men.

Aim: To evaluate gender-specific effects of adherence promoting interventions for cardiovascular medication.

Methods: A systematic literature search was performed in PubMed, Embase, PsycINFO, CINAHL and Cochrane Library (January 2007-October 2019). Intervention studies (with control group) aimed at improving cardiovascular medication adherence with minimally 14 weeks follow-up were included. Two reviewers independently screened titles and abstracts. Full text was obtained for selected abstracts and screened for final inclusion. Data extraction included gender-specific targeting or analysis.

Results: The search identified 6,502 citations. After screening title/abstract, full text was obtained from 127 potentially eligible articles. Eleven articles were included that analyzed gender differences in gender-neutral interventions, eight of which studied the implementation stage, three the initiation stage and four (also) discontinuation.

Conclusion: Increasing awareness of gender differences in adherence might lead to better tailoring of interventions to gender-specific needs and better results in adherence.

ESPACOMP-20-011: Comparison of statistical methods to address treatment nonadherence in pragmatic trials with only baseline covariate-measurements

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Introduction: To address medication nonadherence, many statistical methods are proposed: the naïve methods (e.g., intention-to-treat, naïve per-protocol, and as-treated), inverse probability-weighted per-protocol (IPW-PP), and instrumental variable (IV)-based methods (e.g., two-stage least square (2SLS), two-stage residual inclusion (2SRI), and nonparametric causal bound (NPCB)).

Aim: To compare the performance of the above methods under the null and non-null treatment effect scenarios with different nonadherence rates in the pragmatic trial settings.

Methods: We used four simulated data generating scenarios, and compared the performance of the methods in terms of bias, mean squared error (MSE), and 95% confidence interval coverage probability.

Results: The IPW-PP, 2SLS, and 2SRI produce small bias, small MSE, and higher coverage under both unobserved and no unobserved confounding scenarios with low (e.g., 10% or 20%) to moderate (e.g., 40% or 60%) nonadherence. For high nonadherence (e.g., 80% or higher), the IPW-PP produces a high MSE. The 2SLS and 2SRI perform the worst when the exclusion restriction of IV assumption violates. The NPCB produces narrower bound when nonadherence is low or high, and the naïve methods performed worst in all most scenarios.
Conclusion: The results suggested that we can use the IPW-PP, 2SLS, and 2SRI to address nonadherence in pragmatic trials when nonadherence is low or moderate. But we need to be cautious using the IPW-PP when nonadherence is very high, and should avoid using the IV-methods when the exclusion restriction of IV assumption violates.

ESPACOMP-20-012: Effectiveness of interactive e-Health interventions on improving medication adherence in long-term conditions: a systematic review

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Aim: (1) to evaluate effectiveness of interactive e-Health interventions on medication adherence in adult patients using long-term medication, (2) to describe strategies employed as part of the effective interventions.

Methods: MEDLINE, EMBASE, Cochrane Library, PsycINFO and Web of Science were systematically searched from January 2014 to July 2019. Eligible studies fulfilled the following criteria: (1) randomised controlled trial with usual care control group; (2) ≥ 50 adult patients with long-term conditions; (3) interactive e-Health intervention aimed at patients or their caregivers; (4) medication adherence as primary outcome. A best evidence synthesis was performed according to the Cochrane Back Review Group.

Results: Of the 9,047 records screened, 22 randomised clinical trials were included reporting on 29 interventions. 17 interventions (59%) had a statistically significant effect on medication adherence, 12 of these had at least a small effect (nine interventions with Cohen’s D ≥ 0.2 and three interventions with odds ratio > 2.0). Our best evidence synthesis showed strong evidence for effect when interventions provided adherence tele-feedback using mobile applications, telephone calls and short messaging service and/or interactive voice response. Effective interventions aimed ‘to teach medication management skills’, ‘to improve health care quality’ or ‘to facilitate communication and/or decision making’.

Discussion and conclusion: Interactive e-Health interventions can be effective in improving medication adherence. Interventions that support patients’ treatment involvement and medication management skills are most promising and should be considered for implementation in practice.

ESPACOMP-20-013: A deep learning model to monitor medication dosing frequency

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Introduction: When smart packages are used to manage medication adherence in daily practice, many users are polymedicated and take medications multiple times per day, often at their discretion. Manually configuring the regimen, including possible changes, is cumbersome.

Aim: To automatically identify a patient’s dosing frequency, as well as changes in this frequency.

Methods: 1082 subjects were extracted from AARDEX’s database (5 clinical studies). They were randomly split into training, validation, and testing sets. A convolutional neural network (ConvNet) was trained to predict the dosing frequency (0 to 4 intake per day) from 137,935 ten-day windows of intakes. The accuracy of the ConvNet was compared to human inspection of the data and average number of daily intakes.

Results: The investigated methods achieved the following accuracies on the test data (N = 40,082 ten-day windows):
- Human inspection: 95% (100 windows);
- Average number of daily intakes: 88%;
- ConvNet: 92%.

Besides the human inspection which is unfeasible in practice, the ConvNet achieved the best accuracy.

Discussion: The ConvNet can detect any change in dosing frequency within 10 days. In future applications, the patient will be asked for feedback on their dosing frequency to improve the model.

Conclusion: Deep learning can be used successfully to monitor medication dosing frequency, and its possible changes, from dosing history data recorded using smart packages. This information can then be used to effectively manage patient adherence to complex dosing regimens.

ESPACOMP-20-014: Prevalence and predictors of medication non-adherence in people with multimorbidity: a systematic review and meta-analysis

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Introduction: Global prevalence of multimorbidity is rising. Patients are often expected to engage in a range of self-management behaviours, including adherence to complex medication regimens.

Aim: To describe medication non-adherence in multimorbidity according to the current literature, and synthesise relevant predictors of non-adherence.

Methods: A systematic review was conducted according to PRISMA guidelines. PubMed, EMBASE, CINAHL and PsycINFO were searched between 2009 and April 2019. Quantitative studies reporting medication non-adherence and/or predictors of non-adherence among people with two or more chronic conditions were included. To provide a comprehensive overview of the adherence literature, studies were not excluded based on method of medication adherence measurement, nor phase of medication adherence studied, as defined by the ABC taxonomy. A meta-analysis and narrative synthesis were conducted.
Results: A total of 175 studies were included in the review. The range of non-adherence differed by measurement method, disease combinations and phase of adherence studied. A meta-analysis was conducted with 8 studies (n = 8949) that used an inclusive definition of multimorbidity. The pooled prevalence of non-adherence was 42.6% (95% CI = 34.0–51.3%, k = 8, I² = 97%, p < 0.01). Frequently reported correlates of non-adherence included previous nonadherence and treatment-related beliefs.

Discussion: The review identified a heterogeneous literature in terms of conditions studied, medication adherence measurement and definition of non-adherence.

Conclusion: Future attempts to improve medication adherence in multimorbidity should determine which patients, conditions and medications require most support.

ESPACOMP-20-015: Do kidney transplant recipients perceive corticosteroids more negatively than other immunosuppressants?

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Introduction: Non-adherence to immunosuppressants following kidney transplant (KTx) compromises treatment efficacy and increases the risk of graft rejection. Patient treatment perceptions including beliefs about necessity, and concerns, are important determinants of non-adherence. Evidence suggests that corticosteroids may be perceived more negatively than other immunosuppressants. This study sought to investigate patient attitudes towards corticosteroids and all other immunosuppressants and associations with adherence.

Methods: KTx Patients were recruited as part of the OuTSMART trial and administered validated psychological measures including Beliefs about Medicines Questionnaires (BMQ) and Medication Adherence Report Scale (MARS-5) at baseline before randomisation and intervention delivery.

Results: 1598 patients (68% male, age 50.3 ± 13 years) completed the survey of which 54% held a current prescription for a corticosteroid plus at least one other immunosuppressant, and were included in the analysis. Missing data were < 10%. Patients perceived corticosteroids more negatively than other immunosuppressants. Necessity scores were lower for corticosteroids (3.95 ± 0.8) compared to all other immunosuppressants (4.27 ± 0.5), P < .0005; and concern scores were higher for corticosteroids (2.74 ± 0.9) than all other immunosuppressants (2.42 ± 0.8), P < .0005. As expected from a clinical trial sample, levels of reported adherence were generally high and did not differ significantly between treatments; corticosteroids (4.89 ± 0.3) and all other immunosuppressants (4.88 ± 0.2). However, treatment beliefs were significantly associated with adherence.

Discussion: KTx patients perceive corticosteroids more negatively than other immunosuppressants. Negative perceptions were associated with low adherence, even within a trial cohort where adherence levels were generally high.

ESPACOMP-20-016: Predictors of Antiretroviral(ARV) Adherence among Youth Living with HIV(YLH) Participating in a Stepped Care Intervention

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Aim: To determine factors predicting ARV adherence among YLH at baseline preceding their enrollment in a Stepped Care Intervention.

Methods: YLH were recruited in Los Angeles, California, and New Orleans, Louisiana, from May 2017 to May 2020. The implementation phase of ARV adherence (defined as the extent to which a patient’s actual dosing corresponds to the prescribed dosing regimen) was measured over 30 days preceding administering self-reported adherence questionnaire by Wilson et al. & Lu et al. Sociodemographic, psychosocial and clinical variables were collected through self-assessment questionnaires and lab assessments. Multivariate logistic regression was used to assess predictors of ARV adherence at baseline.

Results: 139 YLH were included in the analysis: 105 (75%) male, 91 (65%) homosexual, median (Q1, Q3) ARV duration (months) was 15 (6, 36), 99 (71%) reported being adherent and 106 (76%) were virally suppressed (< 200 copies/mL). Multivariate analysis [OR (95% CI), P-Value] showed that having social support [1.11 (1.04, 1.18), 0.001] and shorter ARV duration [0.98 (0.97, 0.99), 0.008] were significant predictors of ARV adherence.

Discussion: Incarceration, anxiety, depression, substance use and sex work were not significant predictors of ARV adherence while social support and ARV duration were, indicating their relative importance. This differs from most studies and may be attributed to our relatively small sample size and the percentage of virally suppressed YLH.

Conclusions: A better understanding of clinical, psychosocial, and socioeconomic factors is needed to develop effective ARV adherence interventions.

ESPACOMP-20-017: Understanding antibiotic prescribing behaviour in ICU

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Introduction: Antimicrobial stewardship is important in ICUs; however, few studies have examined antibiotic decision making in this context. The INHALE programme investigates molecular diagnostics’ influence on ICU antibiotic prescribing.

Aim: To explore the influence of prescriber perceptions and contextual factors on ICU antibiotic initiation and discontinuation decisions, before implementing molecular tests.

Methods: Four focus groups and 34 interviews were conducted with prescribers in four UK ICUs. Focus groups explored factors influencing prescribing decisions and interviews explored decision
processes using clinical vignettes. Data were analysed using thematic analysis.

**Results:** Prescribers’ perceptions encouraged “errring on the side of caution” as a protective response in uncertainty. Antibiotics were often viewed as necessary to protect against consequences associated with under-treatment (e.g., patient mortality; clinician litigation). These consequences were frequently prioritised over those of over-treatment (i.e., antibiotic side-effects, resistance). Previous negative experiences reinforced prescribing ‘just in case’ of infection. Prescribing decisions were context-dependent, exemplified by a lower perceived threshold to prescribe out-of-hours, influence of non-ICU clinicians and varied local prescribing norms.

**Discussion:** When making prescribing decisions, prescribers are influenced by their personal evaluation of antibiotic necessity relative to their concerns about adverse antibiotic-related consequences. “Errring on the side of caution” was believed to protect against immediate risks of under-treatment.

**Conclusion:** To optimise antibiotic use, stewardship initiatives must diminish fears of withholding or de-escalating antibiotics.

**ESPACOMP-20-018: Outcomes of adherence intervention trials important to inflammatory arthritis patients: an international focus group study**

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**Aim:** To describe the perspectives of patients with inflammatory arthritis (IA) on outcomes of trials of medication adherence interventions.

**Methods:** An international qualitative study was conducted in Australia, Canada, and The Netherlands. Adult patients (≥ 18 years) with inflammatory arthritis using disease-modifying anti-rheumatoid drugs (DMARDs) were asked about outcomes of adherence trials that they consider important. Inductive thematic analysis was applied.

**Results:** We held six focus groups with 38 participants (63.2% with rheumatoid arthritis, 47.4% other IA; 55% female; mean age 57.3 [15.0] years). Outcomes of trials were extracted and categorised into the following categories: health outcomes (e.g. physical and psychological), life impact (e.g. quality of life), economic impact (e.g. healthcare consumption), trial related adverse events (e.g. time investment), and adherence related factors (e.g. medication knowledge). We identified three themes of outcomes important to patients. First, protecting and enhancing overall well-being, relating to how adherence interventions, reminders, motivational interviewing, feedback on medication use, shared decision making, caregivers support, simplifying the medication regimen and multiple-component interventions. Detection, performance and reporting bias scored worst. Subsequently, TAI responses were matched with the effective interventions, resulting in the “TAI-toolkit”. Healthcare professionals described the conceptual TAI-toolkit as: “seems practical”, “smart thinking”, “positive”, “looks good”, and “usable”. Mean SUS score was 71.4 (range 57.5–80.0).

**Conclusion:** The TAI-toolkit was well received by healthcare professionals. Further research is required to test its validity, practicality and effectiveness in practice.

**ESPACOMP-20-020: Development of the TAI-toolkit: a practical tool for medication adherence management in asthma and COPD**

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**Introduction:** Given the multitude of underlying reasons, non-adherence management of patients with asthma/COPD remains challenging. The Test of Adherence to Inhalers (TAI) can assess reasons for non-adherence, but does not provide guidance on how to act on it.

**Aim:** To develop a practical, evidence-based decision support tool for healthcare professionals managing patients with asthma and/or COPD, by matching TAI-identified adherence barriers to effective adherence enhancing interventions.

**Methods:** First, a systematic review in PubMed and Embase was performed identifying interventions, evaluated in randomized controlled trials, that improved medication adherence in patients with asthma/COPD. Studies were assessed by the Cochrane risk of bias tool. Second, a conceptual decision support tool was designed, informed by previous concepts. Third, the conceptual tool was assessed on content and usability (System Usability Scale, SUS) by a multidisciplinary group of healthcare professionals (N = 8).

**Results:** Forty-three studies were included in the review. In total, eight effective interventions were identified: educational interventions, reminders, motivational interviewing, feedback on medication use, shared decision making, caregivers support, simplifying the medication regimen and multiple-component interventions. Detection, performance and reporting bias scored worst. Subsequently, TAI responses were matched with the effective interventions, resulting in the “TAI-toolkit”. Healthcare professionals described the conceptual TAI-toolkit as: “seems practical”, “smart thinking”, “positive”, “looks good”, and “usable”. Mean SUS score was 71.4 (range 57.5–80.0).

**Conclusion:** The TAI-toolkit was well received by healthcare professionals. Further research is required to test its validity, practicality and effectiveness in practice.
Espacom-20-023: Introduction of a smart pillbox in Estonia– the initial feedback from patients and healthcare specialists

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Introduction: To improve medication adherence of geriatric polypharmacy patients, it is planned to develop and introduce a smart pillbox in Estonia. It is a device (connected to an app), including automatic sound and light reminders supporting correct and regular use of medicines. The app could be managed by patients and/or family members/caregivers/healthcare specialists. In addition to reminders the app would display potential adverse drug reactions and interactions with medicines, supplements and food to patient/caregiver and forward medicines administration data to healthcare professional.

Aim: The aim of this study is to evaluate interest and need towards smart pillbox amongst patients, caregivers and healthcare specialists.

Methods: Electronic survey among patients, caregivers and healthcare specialists identifying potential problems with medication adherence and expectations for the smart device. The research is conducted from June 2020 to December 2021. The planned number of patients recruited to the study and other participants is about 600.

Results: Initial results of patients’ study revealed that majority of the problems considering medication adherence were related to decrease of cognitive and physical ability of the geriatric patients, thus they would benefit from the device. Patients would also appreciate information regarding drug safety and direct contact with healthcare professionals.

Conclusions: Smart systems have a great potential to offer support to elderly polypharmacy patients that live at home. The information from device can be interpreted by healthcare professionals to monitor and increase medication adherence of the patients.

Espacom-20-024: A Nurse-led group intervention improves adherence and quality of life in haemophilia

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Introduction: Haemophilia is a congenital bleeding disorder, the treatment consists of intravenous injection 2–3 times a week. Adherence in haemophilia is reported at ± 50%, although a high adherence is needed to prevent bleeding. A nurse-led intervention was developed based on acceptance and commitment therapy (ACT) approach.

Aim: Evaluate a nurse-led intervention focused on illness acceptance and adherence in adults with haemophilia.

Methods: A pre post-study was executed in adults with (severe) haemophilia. The ACT based nurse-led intervention included a group training of 8 sessions (2-hours each, 5 editions) and was executed by trained haemophilia nurses and social workers. Adherence (Veritas-Pro, optimum 0), quality of life (QoL, SF-36, optimum 100) and illness perception (BIPQ, optimum 0) were measured before start, six and 12 (T12) months after the training.

Results: In total, N = 24 patients with a median age of 47 years (IQR: 39–56 years) were included. Adherence improved in 68% of
the patients, with significant improvement of the total score (from 35 to 25, \( P = 0.01 \)) and four of the six (mean diff between \(-8 \) and \(-14, P = 0.03 - 0.01 \)) domains at T12. Quality of life improved in 48% (mean diff \(5-12 \) points) and illness perception improved in 45% of patients.

**Discussion and conclusion:** The nurse-led group intervention resulted in significant improvement of adherence, quality of life and illness perception in haemophilia. Based on our current experience we are implementing this training in our clinic.

**ESPACOMP-20-025: Towards a systems model to inform policy and interventions for medication adherence in chronic disease**

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**Introduction:** Adherence is a complex and important determinant of efficiency in the pharmacological treatment chain. System dynamics (SD) modelling allows the study of variables and interrelationships in a complex system to explore effects of policy and interventions.

**Aim:** To develop a generalised SD model for medication adherence in chronic disease, focusing on persistence, to inform studies of policy and intervention.

**Methods:** A literature review was carried out to identify variables and relationships associated with adherence. These were collected and analysed for consistent trends, measurements of adherence and related factors. An SD model was developed based on the literature dataset. For preliminary verification, the model was reviewed by a small panel of experts in medication adherence.

**Results:** The literature review identified 23 relevant publications and 38 factors associated with medication adherence in chronic disease. Eight factors were excluded for being disease-specific or showing contradictory relationships in the literature. The main reoccurring factors included age, polypharmacy, comorbidity, disease knowledge, social support, and factors associated with treatment effect. The expert verification highlighted several areas of improvement, including patient behaviour and challenges of this general approach.

**Discussion:** Although the model described many of the key factors and relationships associated with adherence, further verification is needed to refine and build confidence in the model.

**Conclusion:** It is possible to construct a meaningful model that could serve as a useful tool for studying policy and interventions aimed at increasing medication adherence.

**ESPACOMP-20-026: Beliefs and attitudes towards an ehealth tool to improve medication adherence in breast cancer survivors**

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**Introduction:** Breast cancer survivors (BCS) experience mid and long term challenges specifically with post-acute medication management such as adherence or side effects during the period of survivorship.

**Aim:** The main objective was to assess BCS and healthcare providers’ (HCP) beliefs, attitudes, needs and expectations during breast cancer (BC) survivorship with a specific focus on the use of an ehealth tool to improve oral hormonal therapy adherence in a personalized real-time manner.

**Methods:** Semi-structured interviews were conducted with 14 BCS, 3 BC nurses, 4 oncologists and 3 pharmacists. These interviews explored BC survivors’ needs, attitudes and acceptance for support, communication with their healthcare team and medication adherence with regards to an ehealth tool. The HCP interviews focused on the acceptability, perceived efficacy, and possibilities to facilitate communication and their views on a potential integration in the care pathway. Once recorded, the interviews were transcribed and thematically analyzed.

**Results:** BCS had all initiated their oral hormonal therapy and their age ranged between 42 and 68 years. Two primary themes for the BCS regarding ehealth were discovered: (1) ehealth solution as an everyday companion and (2) barriers and facilitators of usability. HCP’s main concern was the potential additional workload. Yet both BCS and HCP accept an ehealth tool to support medication management during BC survivorship.

**Conclusion:** An ehealth tool supporting medication management might play an essential role in the short- and mid-term of BC survivorship.

**ESPACOMP-20-027: Assessing the utility of the decoy effect on biologic treatment preference**

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**Introduction:** While biologics have revolutionized dermatology, many patients struggle with initiating and adhering to them. A potential reason for poor initiation may be due to patient difficulty with choosing among the various forms of biologics.

**Aim:** We hypothesized the addition of an inferior treatment option (decoy) into a choice set would increase the selection of target treatment options, which may enhance treatment initiation and adherence.

**Methods:** Following IRB approval, 750 subjects > 18 years were recruited through MTurk. Subjects were randomized in a 1:1:1 ratio into the following groups: (1) baseline comparison between a more effective, weekly injection and a less effective, every three-month injection; (2) baseline with a decoy inferior to the weekly injection; (3) baseline with a decoy inferior to the every three-month injection. Treatment preference was self-reported and compared using Chi square tests.

**Results:** Sixty-six percent of subjects preferred the weekly injection versus 34% for the every three-month injection (group 1). There was a 4% increase in the number of subjects who preferred the weekly injection (70%; group 2; \( p = 0.34 \)) and a 3% increase for the every three-month injection (37%) when a decoy inferior to them was included (group 3; \( p = 0.56 \)).
Conclusions: Patients’ preferences for efficacy versus frequency of injection may be rather fixed. While psychological approaches can be used to influence patients’ treatment preferences and improve treatment initiation and adherence, the decoy effect did not appear to have a significant impact in this study.

ESPACOMP-20-028: Evaluation of the Accountability Measurement Tool in Spanish-speaking Patients with Psoriasis: A Validation Study

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Introduction: Accountability may be an important factor driving adherence initiation, implementation, and persistence. Measuring the role of accountability in adherence research studies requires a valid measure.

Aim: The purpose of this study was to assess the validity of a Spanish translated accountability measurement tool (AMT) in a cohort of Spanish-speaking psoriasis patients.

Methods: Thirty-one psoriasis subjects were recruited and administered a Spanish-AMT and Spanish versions of the Brief Fear of Negative Evaluation Straightforward (BFNE-S) and the Treatment Self-Regulation Questionnaire (TSRQ). Statistical analysis evaluated the internal consistency and convergent and divergent validity of the AMT compared to the BFNE-S and TSRQ.

Results: The Spanish-AMT and its subscales showed strong internal consistency (total accountability alpha:0.87; autonomous subscale alpha:0.80; controlled subscale: alpha:0.79). Total accountability correlated with TSRQ autonomous motivation (rho:0.456) and TSRQ introjected regulation (rho:0.573) but not with BFNE-S or TSRQ external regulation and TSRQ amotivation.

Discussion: The lack of correlation between total accountability and the BFNE-S and TSRQ external regulation differs from prior studies assessing the validity of the English-AMT: cultural and regional differences between study populations may contribute these differences. Regardless, the results support the validity of the Spanish-AMT and allow for assessment of the role of accountability in adherence in broader patient populations. Interventions designed to increase accountability may be used to improve medication adherence.

Conclusion: The results of this pilot study support the Spanish-AMT as a useful tool for evaluating accountability in adherence studies.

ESPACOMP-20-029: A Digital Innovation for the Personalized Management of Adherence: Analysis of Opportunities and Barriers

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Introduction: Personalized medicine and management of adherence are potential solutions for the suboptimal use of medicines. Digital medication management innovations can combine both aspects and are currently under development.

Aim: To investigate facilitators and barriers for the translation of digital innovations for personalized medicine and adherence management into practice from the policymaker and regulator perspective.

Methods: A mixed-method study was used combining a scoping review to identify main interests, semi-structured interviews (n = 5) with representatives of European health policymaking and regulatory organizations, and a supplementary literature review to investigate key subthemes. The SWOT-analysis was used as the underlying framework.

Results: Digital solutions can facilitate personalized medicine and adherence management and improve quality and safety but can put additional demand on patients. Digital solutions can promote the uptake of emerging service structures, while the integration of digital solutions depends on all stakeholders’ willingness and abilities to co-create change. Personalization of digital solutions and the integration in service structures is crucial as patients have different self-management capabilities. Developments in the digital infrastructure can enable the implementation of innovations in clinical practice leading to advances for future innovations.

Discussion: This study highlights that digital solutions and patient engagement can facilitate high-quality medication management, new service structures, and drive innovations in healthcare.

Conclusion: Well-conceived development and implementation processes for digital health solutions are necessary to avoid undesirable effects, especially within vulnerable population segments, and to improve equality and solidarity in health systems.

ESPACOMP-20-030: Physician–patient communication as an important determinant of the adherence of therapeutic areas

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Aim: The available data indicated that doctor-patient communication plays a pivotal role in the high quality health care. Communication has been identified as the most important factor in determining the effectiveness of treatment.
The aim was to assess the relationship between satisfaction with doctor-patient communication and the level of adherence with treatment recommendations by patients with arterial hypertension (AH).

**Materials and methods**: Two communication styles: negative (little information, rush, quick own doctors’ decisions, no patient’s opinion on treatment) and positive (lot of information, the doctor asks and listens to the patient and his needs) was estimated. The HillBone and ARMS questionnaires were used to assess adherence. 102 patients with AH (age 61.79 ± 15.05 years) were enrolled.

**Results**: Patients, who assessed the therapeutic communication as positive, obtained a significantly better adherence to treatment recommendations for all domains of the HillBone than patients, who assessed the communication as negative. Hill-Bone (overall score): 20.49 ± 3.48 vs. 27.85 ± 7.99; Hill-Bone (sodium intake): 5.74 ± 1.69 vs. 6.96 ± 1.73; Hill-Bone (check appointment): 4.28 ± 1.09 vs. 5.36 ± 0.99; Hill-Bone (drug intake): 10.47 ± 2.64 vs. 15.53 ± 6.42 (p < 0.001). In the group of patients, who assessed the communication with a physician as positive, a significantly higher level of compliance with pharmacological recommendations was observed, assessed with the ARMS questionnaire: 16.24 ± 4.42 vs 22.72 ± 7.91(< 0.001).

**Conclusions**: Good therapeutic communication is significantly related to the level of adherence with therapeutic recommendations regarding lifestyle changes and the use of medications. Building a good relationship is the basic elements of treatment.

**ESPACOMP-20-031: Compliance with pharmacological recommendations by patients with rheumatoid arthritis**

**Aim**: The treatment in rheumatology is difficult due to the frequent lack of cooperation on the patient. The aim was: Analysis of the level of adherence and predictors affecting the level of adherence among patients with rheumatoid arthritis (RA).

**Methods**: Analysis of the available in the period 2005–2020, studies in PubMed, MEDLINE, and CINAHL according PRISMA.

**Material**: Finally, 21 papers on the compliance with pharmacological recommendations in RA were analysed.

**Results**: The level of adherence ranged from 46% to 100%. The frequency was higher in the first year, then there was a decrease in the next 2 years treatment. Almost 30% of patients were considered to be successfully treated and the level of adherence in this group was 59%. The number of daily prescribed drugs was higher in the medication adherent group. Data from pharmacy allowed to establish that optimal adherence applies to 63.7%–84%, and the self-assessment by patient is overpriced 78%–92%. The strongest factors of adherence were: belief in the necessity and effectiveness of the treatment, self-efficacy and coping styles, mild course of the disease, low levels of DAS-28 and monotherapy. The negative predictors were: depressed mood, depression and anxiety, multi-morbidity, poor response to treatment, long duration of the disease, high rate of disease activity and pain.

**Conclusion**: Compliance with recommendations in the treatment of rheumatoid arthritis is insufficient. Identifying modifiable determinants of adherence will help to improve adherence by tailored education.

**ESPACOMP-20-032: Impact of cognitive function on the level of self-care of elderly patients with type 2 diabetes**

**Aim**: Elderly patients with diabetes (DM) have a significantly increased prevalence of cognitive impairment, compared with people without DM. Perennial diabetes increases the risk of cognitive impairment, which potentially creates obstacles to self-care and glycemic control.

**Introduction**: The aim of the study was to determine the correlation between cognitive deficits and self-care of patients with type 2 DM.

**Materials and methods**: The study involved 169 patients with type 2 DM. Standardized tools were used: Mini-mental State Examination (MMSE) to assess cognitive function and the Self-Care of Diabetes Inventory (SCODI) to assess the level of self-care. Socioclinical data were taken from the hospital records.

**Results**: 56.8% of patients had cognitive impairment (MMSE ≤ 26). In the comparative analysis, patients with cognitive impairment had significantly lower results in all domains of the SCODI: SCODI-A (72.9 vs. 75), SCODE-B (53.1 vs. 56.3), SCODE-C (71.9 vs. 84.4), SCODE-D (79.5 vs. 86.4). Correlation analysis showed that the MMSE score correlates significantly and positively (p < 0.05; r > 0) with all SCODI subscales, and the higher the MMSE score the higher the level of self-care (A: r = 0.252, B: r = 0.244, C: r = 0.019, D: r = 0.28). In multi-factor analysis the only statistically significant predictor of cognitive dysfunction development was SCODI-D < 66%.

**Conclusion**: Normal cognitive functions are related to a higher level of self-care in patients with type 2 DM. Cognitive function have a significant impact on self-care of patients with type 2 DM.

**ESPACOMP-20-033: Adherence to pharmacological recommendations of patients with ACOS**

**Aim**: Asthma-COPD Overlap Syndrome (ACOS) is characterized by persistent airway obstruction and the occurrence of asthma and COPD-related symptoms. Due to the severe course of treatment and the complexity of the treatment, adherence to the therapeutic recommendations may be difficult for patients with ACOS.

**Introduction**: The aim of the study was to assess the level of adherence to pharmacological recommendations of patients with ACOS.

**Materials and methods**: 74 patients (49 men) aged 62.2 ± 9.4 years with ACOS were included. Adherence was assessed using the
Adherence to Refills and Medication Scale (ARMS) and lower scores indicating better adherence.

Results: Average adherence score for the whole group was 21.85 ± 5.7 points. In the comparative analysis, men, people living in rural areas, smoking, hospitalized 2-3 times in the last year and admitting lack of self-control skills scored lower overall ARMS compared to women, people living in the city, non-smoking, not hospitalized and knowing the rules of disease self-control (respectively: 21.85 ± 6.09 vs. 20.42 ± 6.31; 22.16 ± 6.35 vs. 20.56 ± 6.1; 23.54 ± 5.36 vs. 19.64 ± 6.06; 22.2 ± 7.26 vs. 19.25 ± 4.19). In regression analysis the independent predictors of higher compliance with pharmacological recommendations were: professional inactive (β = − 5.07; p = 0.005) and non-smoking (β = − 1.98; p = 0.023). Frequent hospitalizations had a statistically significant negative effect on adherence (β = 1.897; p = 0.029).

Conclusions: Patients with ACOS present an average level of adherence. The independent sociodemographic determinants of higher adherence to pharmacological recommendations in ACOS are professional inactive and nonsmoking.

ESPACOMP-20-034: Healthcare professionals’ perspective changes promoted by a one-week educational course on medication adherence

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Introduction: The capacity of healthcare professionals to promote adherence in older adults may increase with dedicated training.

Aim: To qualitatively assess changes on healthcare professionals’ and students’ viewpoints regarding barriers/facilitators on medication adherence after a one-week structured educational course (Summer School under the framework of Skills4Adherence project).

Methods: At the beginning and at the end of the course, participants answered to series of questions requesting three-keywords responses. Conceptual categories were constituted following a bottom-up phenomenological approach.

Results: Regarding barriers, the occurrence of the category “Financial aspects” significantly decreased (14.1% vs 4.9%; p < .05); the categories “Poor patient engagement” (7.6% vs 19.5%; p < .05) and “Beliefs” (6.5% vs 20.7%; p < .01) were significantly more frequently mentioned. Concerning facilitators, the category “Financial aspects” significantly decreased (8.6% vs 1.2%; p < .01), while “Promotion of patient engagement” significantly increased (12.9% vs 29.4%; p < .01). Regarding professionals’ behaviors negatively affecting adherence, the frequency of “Clinician’s misconduct” (29.2% vs 13.4%; p < .05) and “Lack of time” (13.5% vs 2.4%; p < .01) significantly decreased. Conversely, the categories “Poor attention to treatment characteristics” (5.6% vs 14.6%; p < .05) and “Lack of social and family support” (2.3% vs 11.0%; p < .05) significantly increased. Considering professionals’ behaviors facilitating adherence, the occurrence of “Foster health literacy” significantly decreased (31.1% vs 13.4%; p < .01), while the category “Promotion of patient engagement” significantly increased (21.1% vs 36.6%; p < .05).

Conclusions: Debates and practical activities may trigger useful professionals’ exchange perspectives on medication adherence in the older adults.

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ESPACOMP-20-035: Skills4Adherence Online Educational Course on Patient Adherence and Polypharmacy Management designed due to iterative fine-tuning

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Introduction: Healthcare professionals need to possess knowledge and practical skills to manage patient adherence and polypharmacy in elderly. Unfortunately, pre- and postgraduate education in these fields was not widely available so far. Skills4Adherence Project aimed at changing this scenario.

Aim: To describe the process and outcome of designing Skills4Adherence Online Educational Course on Patient Adherence and Polypharmacy Management in Elderly.

Methods: Three literature searches targeting determinants and interventions effective in the field of patient adherence, behavioural factors, and polypharmacy management in elderly were conducted. Results informed educational content, which has been tested in iterative process with representatives of target end-users during two Skills4Adherence Summer Schools (Porto, 2018, Pavia, 2019). Feedback from Summer School participants allowed designing of the initial version of the online educational course. Feedback collected from its users enabled further fine-tuning, and release of the final version.

Results: Skills4Adherence educational program is composed of 17 cohesive items (videos and expert presentations), available in English, Italian, Polish, and Portuguese, knowledge test, and certification. Out of 225 users who completed it by July 31st, 2020, 74.7% rated it as “(very) good”. The same percentage found it “(very) useful” for their professional career.

Conclusion: Thanks to iterative process of fine-tuning, high quality educational content was designed for healthcare professionals willing to improve their skills in non-adherence and polypharmacy management in elderly.

Skills4Adherence course is freely available at wwwSkills4Adherence.eu

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ESPACOMP-20-036: DIGILPASs will create patient adherence standard measures for Big Data using public and patient involvement

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Introduction: Medication non-adherence remains a global problem with profound consequences. New opportunities to help this scenario come with digitisation of the healthcare. Real-world data of interest for adherence evaluation are already available in multiple repositories (e.g., electronic health records, pharmacy dispensing databases, etc.). Unfortunately, lack of standards for analysing this information hampers the use of Big Data for adherence assessment.

Aim: The aim of this work is to illustrate the way that the methodology of the DIGILPASs initiative will be developed around the idea of patient and public involvement and engagement (PPIE) in order to set consensus standards of adherence measures for Big Data.

Methods: PPIE is used in along the whole initiative, which started with expert meeting in 2019, followed by the ‘call’ publication (2020). The next step will be an extensive survey in relevant stakeholders in order to better understand their expectations from target standards. This will inform of reactive-Delphi study, which will produce final consensus standards.

Results: PPIE has been adopted to the Digi.PAS methodology in many ways in order to assure the acceptability, and usability of the final standards.

Discussion: Building over theoretical framework of ABC taxonomy and EMERGE medication adherence reporting guidelines, DIGILPASs will use PPIE to advance over state-of-the-art by agreeing operational adherence definitions.

Conclusion: PPIE will help DIGILPASs to create sound patient adherence measures for Big Data, and thus, help research, clinical practice, health policy and public statistics.

ESPACOMP-20-037: Aspirin non-adherence in pregnant women at risk of preeclampsia - a qualitative study

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Introduction: Antenatal adherence to aspirin prophylaxis is key to reducing occurrence of a very dangerous pregnancy complication: pre-eclampsia (PE). Up to 75% of pregnant women at risk of pre-eclampsia don’t take aspirin as prescribed. Little research has been done to understand psychological determinants of aspirin adherence in pregnancy.

Aim: To explore barriers and facilitators to adherence to aspirin in pregnancy using Theoretical Domains Framework V2 (TDF).

Methods: Fourteen women from the North-East of England, who declared various levels of non-adherence to aspirin (0–5 out of 7 prescribed tablets/week) were interviewed postnatally using semi-structures interviews based on the TDF. Interviews were digitally recorded, transcribed verbatim, and analysed.

Results: Women failed to initiate, implement and persist in taking medication as prescribed. Women expressed inadequate knowledge about PE and aspirin. Women struggled to identify themselves as ‘medication takers’ and relate to the risk factors for PE assigned by their carers. Significant barriers within the health-care environment and perceived intra-professional group conflict regarding use of aspirin precluded women from obtaining medication initially and from replenishing medication when needed. Subsequently, this raised already existent concerns regarding the use of aspirin in pregnancy. Lack of reinforcement of aspirin adherence was evident from the data.

Conclusion: A combination of inadequate knowledge, lack of identification with risk factors and beliefs about consequences of taking medication were interlinked with other domains, such as environmental context and resonate with the Necessity-Concerns Framework.

ESPACOMP-20-038: The eHealth intervention, SHINE, improves medication adherence in chronic myeloid leukemia patients

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Background: Chronic myeloid leukemia (CML) is a malignant hematological disorder, which can be effectively treated with tyrosine kinase inhibitors. Non-adherence has been associated with disease progression. To remedy this problem, an innovative eHealth intervention SHINE has been developed: a personalized program built as smartphone application (app). By using the app CML patients are supported in dealing with daily life issues.

Aim: This study aimed to investigate the effects of SHINE on medication adherence and quality of life (QoL) of CML patients.

Methods: A pretest–posttest intervention study including CML patients older than 18 years. During the three-month pretest period patients received usual care and used an electronic medicine box (MEMS). During the three months posttest period the SHINE app was used. The functionalities of the app includes: provision information and a medication overview, chat with the patient, sending reminders. Adherence was measured with MEMS and MARS. QoL was measured with EORTC-QLQ-C30.

Results: Of 67 registered patients 14 (21%) completed the study. Medication adherence increased from 83.4% ± 18.8% before to 96.9% ± 4.2% (*P* < 0.009) measured with MEMS after the SHINE app was introduced and increased from 38.5% to 84.6% (*P* < 0.031) measured with MARS. QoL was not influenced.

Discussion: Although dropout was considerable, the innovative app SHINE in combination with MEMS considerably increased medication adherence of CML patients.

Conclusion: The effects of the SHINE intervention on a long term need to be investigated.
ESPACOMP-20-039: Attitudes towards medication adherence of melanoma patients

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Introduction: The incidence of melanoma is growing rapidly, it can be doubled within 10–20 years. The tumor develops on the skin surface, the patients can notice it themselves. The early diagnosed thin tumors have excellent prognosis in contrast to the thick, neglected ones.

The aim of the research was to investigate the attitude of patients towards melanoma, including the medication adherence. We wanted to identify the attitudes associated with early and late stage tumors and to find out, whether there is difference between the perceived threat, medication adherence and the objective indicator of melanoma.

Methods: A survey was conducted among 105 clinical patients with printed self-administered questionnaire. The questionnaire was based on the Health Behaviour Model concept. The perceived data were compared with the objective indicator of disease: the registered thickness of melanoma.

Results and discussion: The respondents were patients hospitalized because of melanoma, but they were not always aware of the threat of the illness. 73% of them got checkpoint inhibitor therapy either in adjuvant or metastatic setting. High perceived threat, regular self skin examination and regular sport associated with significant thinner melanomas. The medication adherence of the patients getting systemic therapy was better than the other group of the respondents.

Conclusion: The results show that the patients are segmented according their behaviour and they should be informed on the disease and on prevention differently.

ESPACOMP-20-040: Evaluating Adjusted Per-Protocol Effect Estimators in Pragmatic Trials to Address Treatment Non-Adherence

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Introduction: Medication non-adherence during pragmatic trials may confound the estimation of the per-protocol (PP) treatment effect.

Aim: In the presence of non-adherence, particularly with a focus in persistence type of non-adherence, we compare conventional naïve analyses (intention-to-treat (ITT) and naïve PP) with inverse probability weighted (IPW) adjusted-PP effect estimates.

Methods: As we are considering pragmatic trials, it is realistic to assume that the initiation time and implementation of the dosage were adherent to the protocol, but persistence was sub-optimal due to treatment discontinuation. We have simulated two-armed pragmatic trial data with a baseline covariate and two post-randomization covariates and compared estimator performance under a variety of trial characteristics (non-adherence rates, event rates, trial size), measurement schedules, and causal relationships. We assessed the key statistical properties of the estimators.

Results: In the presence of non-adherence, our simulations show that the ITT and IPW-PP estimates are unbiased for null treatment effects. For non-null treatment effects, only the IPW-PP estimates were reasonably unbiased with good statistical properties. When receipt of treatment and post-randomization covariate measurements were infrequent, or the rate of non-adherence is quite high, IPW-PP estimates may be slightly biased, but are consistently less biased than naïve methods.

Discussion and Conclusion: This study demonstrates the necessity of designing pragmatic trials that measure and utilize during analysis both pre- and post-randomization covariates to reduce bias in treatment effect estimation in the presence of non-adherence.

ESPACOMP-20-041: Change in beliefs about immunosuppressants in kidney transplant patients related to adherence and clinical outcomes

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Introduction: Beliefs about medicines seem to play a decisive role in adherence behaviour, while patients may adapt them to ongoing treatment plan.

Aim: To evaluate beliefs about immunosuppressants over time in patients after kidney transplant in correspondence with self-reported adherence and clinical outcomes.

Methods: An observational unicentric follow-up study conducted in adult outpatients ≥ 4 weeks after kidney transplantation. Between 2016 and 2019, patients were invited for the structured interview, followed by self-administered questionnaire survey during their regularly scheduled visits in the clinic. Change of implementation and discontinuation adherence to and beliefs about immunosuppressants were evaluated using the validated tools (BMQ, MARS, BAASIS).

Results: In total, 134 patients participated. The perceived necessity of immunosuppressants decreased over time while concerns increased (p < 0.001). Less than perfect baseline adherence was observed in 18 (13.4%) patients, associated with higher concerns (p = 0.0445). Similarly, non-adherence was reported by 15 (11.2%) patients at the follow-up, apart from non-adherence to exact timing of taking immunosuppressants, which was a problem for 52 (38.8%) patients.

Discussion and Conclusions: Self-reported non-adherence to immunosuppressants decreased over time, however decreasing needs and increasing concerns should be pointed out in clinical practice according to their correspondence with outcomes related to both under- and over-immunosuppression.

ESPACOMP-20-042: Young adults’ preferences for technology to support adherence to inhaled corticosteroids in asthma: Qualitative study

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Introduction: Digital health technologies (DHTs) have demonstrated potential to improve adherence to inhaled corticosteroids (ICS) but existing DHTs are not tailored to young adult preferences. Better understanding of young adult preferences is essential to increase DHT uptake and engagement to improve adherence.

Aim: To explore young adults’ interest in using and preferences for DHTs to support adherence to ICS.

Methods: Thirty-nine young adults with asthma were purposively sampled to participate in qualitative, semi-structured interviews. To capture young adults’ experiences with ICS adherence, a current prescription for ICS was required. Therefore, implementation and persistence of adherence were focused on. Medication adherence was self-reported using the Medication Adherence Report Scale (MARS-5). Analysis followed an inductive, thematic analysis approach.

Results: Participants age ranged from 18 to 30 years (M = 24.7; 8 female). Most were interested in using DHTs to support adherence. Three main themes were identified in relation to preferences for DHT adherence supports: (1) Empowerment, (2) Supports habitual adherence, and (3) Provide accessible information. Preferred functions to deliver these supports included a medication and prescription refill reminder, adherence charts, and symptom monitoring.

Discussion: Young adults are interested in using DHTs to support ICS adherence however, it is crucial that these technologies are tailored to their preferences.

Conclusions: Young adults’ preferences for adherence supports, functions, and features need to be integrated into DHTs to support adherence to ICS to optimize engagement.

ESPACOMP-20-043: The impact of the COVID-19 pandemic on self-reported medication adherence of Dutch prescription medication users

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Introduction: Interruptions in daily routine have shown to negatively influence the medication intake. Measures to combat COVID-19 caused interruptions, especially for those who had to work from home and/or had children at home due to school closure.

Aim: To investigate whether the interruptions due to COVID-19 impacted medication adherence in the implementation stage.

Methods: A questionnaire was sent out in May 2020 to 1,500 members of the Dutch Healthcare Consumer Panel. Questions included work situation, having children at home and medication intake (number of missed doses, success in taking medications daily).

Results: 889 members completed the questionnaire (response rate 59%); 513 used prescription medicines. The majority (86%/n = 513) reported not to have missed any dose in the previous month, 95% reported that they have succeeded in daily taking their medication. Both behaviours did not change due to COVID-19. Subgroup analyses revealed no deviations from this pattern for respondents with paid work (N = 201), and slight deviations were seen for medication users with children at home (n = 86). Of this latter group, behaviour changed due to COVID-19: 13% of them reported to more often miss doses, 6% less often succeeded in their daily intake.

Discussion: Adherence of specific groups more vulnerable for COVID-19 (e.g., people with asthma/COPD, rheumatic diseases) might be more impacted.

Conclusion: The COVID-19 pandemic had little impact on self-reported medication adherence. Further research is needed to unravel impact for larger patient groups using objective adherence measures.

ESPACOMP-20-044: Medication Adherence for Growth Hormone Treatment within The MAGIC Foundation

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Aim: Maintaining adherence to growth hormone treatment (GHT) is thought to comprise a critical component of reaching therapeutic goals for patients with growth disorders, yet research in this area has shown varied rates of nonadherence. This study surveyed members of The MAGIC Foundation (a U.S.-based patient support and education group) to establish adherence measures for its member families.

Methods: Members of The MAGIC Foundation were invited to participate in an online survey regarding adherence to Growth Hormone. The questionnaire gathered patient demographics and self-reported reasons for missed doses. Results were analysed using definitions of adherence, as ‘optimal’ or ‘sub-optimal’ based on numbers of missed doses. Logistic multivariate regression modelling determined the contributions of each variable on the likelihood a participant was sub-optimally adherent.

Results: Approximately 25% of survey respondents reported sub-optimal adherence to treatment. The likelihood of participants being sub-optimally adherent was significantly predicted by an interaction between dose frequency (6 vs. 7 doses per week) and treatment duration (0-4 years vs. 5 years or more).

Discussion: The findings of this research suggest similar adherence at the beginning of treatment but worsening adherence for those prescribed 6 doses weekly versus those prescribed 7. Additional research is needed to explore the prescribed dosing frequency interaction.

Conclusion: This study suggests that medication adherence challenges persist for families with access to patient support groups. Further research comparing adherence of patients using patient support groups vs the population at-large is needed.

ESPACOMP-20-045: Depression but not non-persistence to antidiabetic drugs is associated with mortality in type 2 diabetes

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Introduction: Depression and non-persistence to antidiabetic medications are believed to be linked to increased mortality and incidence of complications in individuals with type 2 diabetes.

Aim: To measure the effect of depression on mortality of individuals newly treated with antidiabetic drugs, taking into account non-persistence to antidiabetic medications.
Methods: We conducted a nested case–control study within a cohort of newly treated subjects with diabetes. We identified all cases of deaths (all-cause, diabetes-related, and cardiovascular-related) that occurred during the 8-year follow-up. Each case was risk-set matched with up to 10 controls by age, sex, follow-up length, and comorbidity index. We used conditional logistic regressions to estimate the effect of depression on mortality, adjusting for nonpersistence and other potentially confounding variables.

Results: We retrieved 13,558 deaths, of which 3,652 were related to cardiovascular diseases, 2,112 to major cardiovascular events, and 311 to diabetes. These cases were matched to 135,411, 306,446, 21,082 and 3,108 controls, respectively.

Discussion: Depression was associated with an increased risk of all-cause and cardiovascular-related deaths, with adjusted odds ratios ranging from 1.32 (95% CI: 1.21–1.45) to 1.71 (95% CI: 1.57–1.87) for all-cause death and 1.19 (95% CI: 0.99–1.42) to 1.42 (95% CI: 1.20–1.70) for cardiovascular-related death, depending on the level of adjustment of the model. Non-persistence seemed to have no effect on mortality.

Conclusion: Depression is independently associated with all-cause and cardiovascular-related mortality in individuals with type 2 diabetes.

ESPACOMP-20-046: Relationship between inhaled corticosteroids adherence, short-acting beta agonists use, exacerbations and self-reported asthma control

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Introduction: The relationship between inhaled corticosteroids (ICS) adherence, short-acting beta agonist (SABA) use, and asthma outcomes is complex.

Aim: To investigate these relationships in a Dutch asthma patient cohort.

Methods: Patients aged ≥12 years diagnosed with asthma who received ≥2 inhalation medication prescriptions in 2016 were selected from Nivel Primary Care Database. This database contains information about patient characteristics, GP consultations, diagnoses and prescriptions. Adherence to ICS (implementation operationalized as Continuous Measure of medication Availability), SABA use (number of prescriptions), exacerbations (operationalized as a short course oral corticosteroids with daily dose > 20 mg) and self-reported asthma control (measured with the Asthma Control Questionnaire; ACQ) were computed. Multilevel logistic regression analyses were used to model associations between ICS adherence, SABA use, and asthma outcomes, controlling for age, sex, comorbidity, comodification and asthma severity.

Results: Prescription data of 13,756 patients were included. ICS adherence averaged 62%. About 31% of patients received ≥2 SABA prescriptions, 13% of patients experienced ≥1 exacerbations in 2016. Self-reported asthma control was available for a subsample of patients (n = 2,388); 51% reported controlled asthma (ACQ score < 0.75). A higher number of SABA prescriptions was associated with a higher risk of exacerbations and a higher risk of uncontrolled asthma, but also with being adherent to ICS. ICS adherence was not clearly associated with exacerbations, whilst an ICS adherence of > 50% was associated with controlled asthma.

Conclusion: Minimizing SABA use appears to be an important strategy in reducing exacerbations and improving self-reported asthma control.

ESPACOMP-20-047: A network approach for the study of drug co-prescriptions: new fields for management of adherence

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Introduction: The power of network approach in describing real-world data has attracted a growing interest recently.

Aim: To demonstrate the analytical power of a Drug Prescription Network (DPN)-based approach applied to the administrative pharmaceutical data analysis.

Methods: In a DPN, each drug is represented as a node and two drugs co-prescribed to the same patient are represented as an edge linking the nodes. Data collected from a Northern Pharmaceutical Centre (Piedmont, Italy) were used to create DPNs corresponding to the five levels of the Anatomical Therapeutic Chemical classification system, throughout a 12-month period (July 2018–June 2019). Statistical and network measures were used: density of the graph; assortativity coefficient; Pearson’s correlation coefficient for binary variables; Euclidean distance between graphs.

Results: A total of 5,431,335 drugs prescribed to 361,574 patients (aged 0–100; 54.7% females) were analysed. Drug co-prescription emerged to be a very common event and the structure of DPNs depicted the prevalence of coprescriptions too.

Discussion: The acknowledgment of the most prevalent medication co-prescriptions could lead to several evaluations by researchers and health professionals: the evaluation of prescription appropriateness, adherence to medications as set by clinicians (and guidelines), but also the possibility to focus the attention on a wide population as well as to a single patient behaviour.

Conclusion: By complementing more traditional pharmacoepidemiology methods, DPNs could provide an efficient approach to study the complexity of drug co-prescription.

ESPACOMP-20-048: SystemCHANGE™ Solutions to Improve Medication Adherence in Kidney Transplant Recipients: A Secondary Data Analysis

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Introduction: The SystemCHANGE™ intervention teaches person-level quality improvement solutions to link medication adherence implementation to established daily routines, environmental cues, and supportive people.

Aim: To determine frequency and mechanisms of action of SystemCHANGE™ intervention solutions predicting implementation medication adherence in our previously conducted RCT MAGIC study.
Methods: A secondary data analysis of 42 participants from 5 transplant centers in the Midwestern United States was conducted. Solutions were coded using the behavior change taxonomy.

Results: The average age was 52 years; 64.3% were both male and African American. Thirty-three percent were working full time. The most commonly utilized solution was alarm cue, followed by restructuring the physical environment. Solutions predicting medication adherence were alarm cues ($p = .0001$), time cues ($p = .006$), restructuring the physical environment ($p = .048$), and social support ($p = .023$). The average number of solutions utilized per participant was 2.35 (SD 1.7). Alarm cues and restructuring the physical environment were most common in those $< 55$ years of age. A majority of participants who selected restructuring the physical environment were employed.

Discussion: The SystemCHANGE™ intervention encompasses multiple behavior change intervention components. Consideration of personal routines and environments largely influence the solutions that are formulated. Multiple solutions were necessary to achieve optimum medication adherence.

Conclusion: Alarm and time cues, restructuring the environment, and social support were successful solutions that should be prioritized by researchers in future studies to understand best practices in implementing SystemCHANGE™ to improve health behaviors.

ESPACOMP-20-049: Systematic review on the scalability of effective CVRM medication adherence interventions in primary care

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Background: While many adherence enhancing interventions have been developed, widespread implementation is lagging behind. This leaves the question how scalable these interventions are.

Aim: To systematically assess the level of scalability of effective medication adherence interventions for patients using cardiovascular medication and to describe factors associated with scalability.

Methods: PubMed, EMBASE, Web of Science and CINHAL were systematically searched. 4097 studies were screened for eligibility. The Risk of Bias 2 (RoB2) tool for RCTs was used to assess quality of the included studies. Scalability and associated factors were assessed with the QUALI-DEC scalability tool.

Results (preliminary, final results expected October 2020): 30 out of 4097 articles were included. The overall quality of articles was low to medium. Included articles had an average scalability score of 43 out of 59. Interventions with higher scalability scores were characterized by simplicity, contained few components that could be easily added onto existing practice in various contexts. In contrast, interventions with lower scalability tended to be more time and resource consuming or lacked data to properly assess scalability.

Discussion: This review showed that some medication adherence interventions for patients using cardiovascular medication are feasible for scaling up, but many interventions were not scalable or lacked information to assess scalability.

Conclusion: Given the lack of data on scalability, future studies are encouraged to take scalability into account from the start and to report more elaborately on process evaluation data.

ESPACOMP-20-050: Medication self-management: considerations and decisions by older people living at home

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Introduction: Medication self-management by older people living at home is an important factor for successful adherence to therapy.

Objective(s): To explore how older people living at home self-manage medication and what considerations and decisions underpin their self-management behavior.

Methods: Semi-structured interviews with consenting participants (living at home, aged ≥ 65, polypharmacy) were recorded with supporting photographs. Content was analyzed with a directed approach according to three phases of medication self-management (initiation, execution, and discontinuation).

Results: 60 people were interviewed. Initiation: participants used different techniques to inform healthcare professionals (HCPs) and to fill and check prescriptions. Over-the-counter medication was seldom discussed, and potential interactions were largely unknown. Some participants decided to not start treatment after reading the patient information leaflets. Execution: participants had various methods for integrating use of medication in daily life. Usage problems were discussed with HCPs, but side effects were not because participants were not aware that signs or symptoms were medication-related. Medication was stored in various undesirable ways and participants devised their own systems for ordering and filling repeat prescriptions. Discontinuation: Participants discontinued or changed doses without consulting an HCP. Participants disposed their medication sometimes incorrectly, stored it for future use, or distributed it to others.

Discussion/conclusions: Problems in organizing medication intake, inadequate discussion of medication-related information and incorrect and undesirable medication storage and disposal were found at the patients homes and are largely unknown to HCPs.

ESPACOMP-20-051: Evaluation of pharmacist-patient communication through the testing of the “communication-assessment tool”

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Introduction: Information on the correct and appropriate use of a drug are an essential part of the pharmacist’s professional act at the time of dispensing on medical prescription.

Aim: To test the Communication Assessment Tool in the community-pharmacy setting through the CAT-Pharmacommunity Test and perform a preliminary evaluation of the patient perception of pharmacist communication skills.

Materials and methods: A version of the Communication Assessment Tool (CAT) adapted to the community-pharmacy setting (CAT-Pharm) has been developed. The questionnaire, consisting of 16 questions, explores different areas of communication at the time of medication dispensing. It employs a five-point response scale, with 5 = excellent. A field test with community-pharmacies and patients from Italian regions has been conducted to assess the feasibility of using the CAT in everyday practice.

Results: Eleven community-pharmacies and 67 patients participated in the field test. The reported results represent the percentage values of the subjects who rated the pharmacist’s communication as “excellent”. The patients interviewed were satisfied with the pharmacist’s communicative effectiveness on how to correctly follow the prescribed therapeutic scheme (80.6%). The welcome (85.1%), the completeness of responses regarding the information requested (74.6%), clarity of presentation (80.6%) and the time dedicated to consultancy were also positively evaluated (77.6%).

Conclusions: The introduction of a tool for verifying the quality of communication with the patient is a useful aid to the pharmacist to improve professionalism and measure the quality of the pharmacy service following the dispensing of medication.

ESPACOMP-20-052: Investigating the Intentional Non-adherence Scale – modelling and scale validation

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Introduction: Since there is still considerable unexplained variance in studies investigating the determinants of nonadherence, it is necessary to evaluate new measurement tools.

Aim: 1. Testing and validation of the recently developed Intentional Non-adherence Scale in a non-hospital sample
   2. Build up and test a model of determinants of medical adherence

Methods: A questionnaire survey of an online panel (N = 1000) in London, UK (judit.simon@uni-corvinus.hu)

Discussion: This systematic review represents the first phase of Italian contribution to the project aiming to harmonize the ABC Taxonomy adherence-related terms in all languages. A second phase will consist in enlisting Italian research groups on adherence and, through a Delphi survey, reaching a consensus on terminology and definitions in Italian.

Conclusion: These findings address the need to standardize adherence terminology to eliminate any misunderstanding in this field. **Winner of the 2020 Student Award for Best (PhD) Student Contribution.

ESPACOMP-20-054: Treatment Patterns and Medication Adherence Among Newly Diagnosed Migraine Patients: A Drug Utilization Study

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Introduction: The ESPACOMP group led to a consensus regarding the harmonization of adherence-related terms according to ABC Taxonomy. Currently, only the English, French and German versions exist.

Aim: To identify the adherence-related terms and their definitions in Italian published researches.

Methods: A systematic review of Italian written studies on medication adherence, according to the PRISMA statement guidelines, was conducted to detect terms and definitions related to ABC Taxonomy. PubMed and EMBASE were queried from 2012. ABC Taxonomy publication year; to July 2020. Search strategy combined 7 terms (Medication adherence; Initiation; Implementation; Discontinuation; Persistence; Adherence management; Adherence science) with their synonyms using the Boolean operators AND/OR. Four researchers screened titles, abstracts and full-texts for their eligibility according to shared inclusion/exclusion criteria.

Results: Seventy-two articles were selected and independently evaluated. Nineteen studies met inclusion criteria and were included in the review. Eighteen of these mentioned and defined “adherence to treatment”; ten mentioned “discontinuation”, seven cited “persistence” and two named “initiation”. No other ABC Taxonomy adherence-related terms were detected.

Discussion: This systematic review provides a broader understanding of the factors influencing medication adherence and multimorbidity will be tested as well.

Conclusion: The reported results represent the percentage values of the subjects who rated the pharmacist’s communication as “excellent”. The patients interviewed were satisfied with the pharmacist’s communicative effectiveness on how to correctly follow the prescribed therapeutic scheme (80.6%). The welcome (85.1%), the completeness of responses regarding the information requested (74.6%), clarity of presentation (80.6%) and the time dedicated to consultancy were also positively evaluated (77.6%).
Aim: To describe utilization patterns of migraine drugs, evaluate adherence to prophylactic medications.

Methods: Retrospective population-based study using administrative health-related database of Campania region, Southern Italy. 12,894 subjects with any primary or secondary hospital discharge with migraine diagnosis, or at least two medical dispensions of migraine-specific acute or prophylactic medications from 2016 to 2018 were included. Subjects were classified into four cohorts: no treatment, acute, prophylactic, both; followed-up for 1 year. We evaluated drug-utilization patterns of migraine at initiation, third phase of adherence to prophylactic treatment (persistence), according to the EMERGE guidelines on medication adherence.

Results: 81.1% subjects received acute treatment as initial treatment, 10.7% prophylactic treatment, 8.2% both acute and prophylactic treatment. 599 patients were treated prophylactically, 26.2% was adherent while 73.8% interrupted the treatment. Among the latter, 46.4% of patients discontinued treatment completely within 103 days, 31% restarted 46 days after interruption, and 22.6% switched to another treatment within 98 days.

Discussion: Fewer subjects began prophylactic migraine therapy. Major of these discontinued their initial treatment after approximately three and a half months. Migraine treatment with acute medications is still prevalent in Italy; only few patients received prophylactic treatment with poor adherence to treatment.

Conclusion: These findings reflect an unmet need for improved treatment with poor adherence to treatment.

ESPACOMP-20-056: Implementation of Watchyourmeds, an animated video library, in community pharmacy to support patients’ medication use

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Introduction: Watchyourmeds is a Dutch e-health application that provides over 8,000 multilingual animated videos for prescription medicines. Watchyourmeds aims to support and empower patients with limited health literacy skills in their understanding of the medicines and improve their medication adherence.

Aim: to evaluate implementation of Watchyourmeds in the community pharmacy from the pharmacist perspective.

Methods: Pharmacists completed an online questionnaire based on RE-AIM framework. Moreover, barriers and facilitators were captured. Data were analyzed using bivariate- and multiple regression analyses.

Results: Most pharmacists perceive Watchyourmeds to be a useful addition to the information that is provided at medication dispense, especially at first dispense and for non-native Dutch speakers. The largest barriers identified by the pharmacists are patients’ inadequate technological skill and resources, which impedes accessibility of Watchyourmeds.

Discussion: The results indicate that Watchyourmeds overall is positively valued as an e-health application. However, it seems that successful implementation still depends on the difficulty and amount of effort it takes to be fully adopted by patients, and be thoroughly integrated in the health care system.

Conclusion: The implementation of Watchyourmeds in community pharmacies is overall successful. However, since the route to reach Watchyourmeds might be troublesome for some patients, efforts can be made to make the road to reach Watchyourmeds more direct, and to increase the efficiency in which Watchyourmeds can be provided to patients.

ESPACOMP-20-057: Changes of multimorbidity and polypharmacy patterns in young and adult population over a 4-year period

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Introduction: Multimorbidity and polypharmacy profiles reveal diseases and drugs systematic associations by exploring existence of potential adverse reactions, leading to poor medication adherence.
ESPACOMP-20-059: Responding to social needs and financial barriers to improve medication adherence in primary care

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Introduction: For uninsured, low-income patients in the US, medication assistance programs (MAPs) seek to address barriers related to financial insecurity that impede adherence to medications at the initiation, implementation, and discontinuation phases.

Aim: This study has two objectives: 1) to quantitatively evaluate the effectiveness of an intervention that connects patients to MAPs, and 2) qualitatively describe patients’ experiences collaborating with their health care team to address cost-related non-adherence.

Methods: Using social needs screening and referral data from a safety-net community health center’s primary care clinics, we used bivariate and multivariate analyses to evaluate predictors of a MAP referral and the uptake of MAPs. Additionally, we conducted qualitative analysis on patient interviews and case management notes to describe barriers and facilitators to accessing MAPs.

Results: Of the 1,327 patients, 202 (15%) had received a MAP referral. Of those eligible for follow-up, 25% had obtained MAP services and 14% had begun an application. Only a reported need for transportation was associated with a MAP referral (OR: 2.24); each additional reported need was associated with an increase in the odds of having a MAP referral (OR: 1.34). Qualitative findings inform designing approaches to care that address adherence-related social needs.

Discussion and Conclusions: Referrals alone were not enough to connect patients to MAPs and better strategies are required for addressing medication adherence related social needs. Future research should focus on the impact of MAPs on adherence outcomes.

ESPACOMP-20-060: The impact of health literacy on beliefs about medication in a Dutch medication-using population

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Introduction: Medication beliefs are likely contingent on aspects of health literacy: knowledge, motivation and competences to access, understand, appraise, and apply health information. An association between medication beliefs and health literacy is expected as they both influence self-management. The aim of this study was to examine the association between health literacy and the beliefs about overuse and harmful effects of medication and to examine modifying effects of age, gender and number of medications on this association.

Methods: The data were collected using the online ‘Medication panel’ of the Dutch Institute for Rational Use of Medicine. A linear regression model was used to examine the association between health literacy and beliefs about medication and the modifying effects of age, gender and number of medications on this association.
Results: Respondents with a lower level of health literacy had more concerns about overuse (β adj. = −.174, p < .001) and harmful (β adj. = −.189, p < .001) effects of medication. This study found no modifying effects.

Conclusions: A lower health literacy level is associated with more concerns about overuse and harmful effects of medication. The results of this study suggest that extra attention should be given to persons with low health literacy level by healthcare professionals, to decrease their concerns about overuse and harmful effects and improve adherence to self-management behavior.

ESPACOMP-20-062: Characterizing Patterns of Medication Implementation in Glaucoma

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Introduction: Medication implementation is the extent to which patient dosing corresponds to prescribed dosing. Distinct patterns of implementation have been identified in glaucoma. However, little is known about the specific contribution of sociodemographic factors.

Aim: Use clinical and demographic variables to characterize observed patterns of implementation.

Methods: Participants included 84 glaucoma patients who used hypotensive eye drops and had visual acuity better than 20/40. Medication events monitoring systems recorded patients’ dosing events over a 6-month period to account for the Hawthorne effect. Using established criteria (Ajit, 2010), we determined the prevalence of each implementation pattern in our sample. Predictors of observed patterns were identified using logistic regression and Mann–Whitney U test.

Results: Four patterns were identified: Type 1 (early discontinuation) (3.7%), Type 2 (implementation rate above 80%) (67.1%), Type 3 (drug holidays with implementation rate below 80%) (18.3%), and Type 4 (drug holidays with implementation rate below 60%) (11%). Higher education level was associated with Types 2 and 3 (p < 0.05). Relative to Type 2, patients with Type 3 trended towards more complex regimens (p = .09) and patients with Type 4 were more likely to be non-white and have lower education levels (all p < 0.05).

Discussion: Race and education level were the strongest predictors of Type 2 implementation—the most prevalent.

Conclusion: Further exploration of social and environmental factors may improve clinicians’ ability to identify their influence on medication implementation and preemptively target

ESPACOMP-20-063: Patient and public engagement in medication adherence research *

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Introduction: Patient and public engagement offers further opportunities to improve medication adherence research. The ABC taxonomy provides a clear definition of “Medication Adherence” for the scientific community, however, interpretation by lay audiences can prove challenging.

Aim: To explore lay perspectives on communicating medication adherence and associated research.

Methods: We engaged members of SUPER (“Service Users for Primary Care and Emergency care Research”) - a group convened in Wales, to provide lay perspectives on developing, conducting and disseminating research. During a one-hour meeting (November 2019) we asked a group of 12 members to comment on: public understanding of the term medication adherence, how best to communicate medication adherence to patients, and how best to involve service users in the design of future studies.

Results: Members agreed that medication adherence was an important topic and suggested future research on an illustrated/animated taxonomy. Discussions focused on the need to adapt terminology for different medicinal forms and potential for subjective interpretation according to experience of acute/chronic and symptomatic/asymptomatic conditions. Members encouraged service user involvement throughout the research process and highlighted the need to communicate the rationale for improving adherence in addition to explaining the process.

Discussion: Views and experiences of service users provide valuable insight and an opportunity to explore subjectivities that may influence participation and interpretation of medication adherence research.

Conclusion: Public and patient engagement has potential to strengthen the relevance, quality and dissemination of medication adherence research. *Winner of the 2020 Jean Michy Métry Poster Prize.

ESPACOMP-20-064: A Systematic review to adapt and validate the ABC Taxonomy into Portuguese (Portugal/Brazil)

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Introduction: The ABC Taxonomy provides terms and definitions of medication adherence that can be quantified, interpreted and analyzed in clinical and research settings.

Aim: Describe the systematic review conducted as first phase study for translation and cross-cultural validation of the ABC Taxonomy from English to Portuguese, from Brazil and Portugal.

Method: Timeless systematic review was conducted in four databases (MEDLINE, SciELO, LILACs and EMBASE) following the recommendations of the Preferred Methods for Translation of the ABC Taxonomy for Medication Adherence and the Reporting Items for Systemic Reviews and Meta-Analyses. Were included original studies and research protocols published up to March/2020, reported in Portuguese, and excluded those published in journals not indexed in PubMed or with absent impact factor according to Web of Science Group.

Results: Of the 778 studies retained, were included 84 (Brazil = 80, Portugal = 4), published between 2000 and 2019, mapping 154 terms and 32 definitions: Medication adherence—44 terms, 25 definitions; Initiation—11 terms, no definition; Implementation—16 terms, 1 definition; Persistence—21 terms, no definition; Discontinuation—35
terms, 2 definitions; Management of Adherence—27 terms, 4 definitions; and no term/definition for Adherence related sciences.

**Discussion**: Systematic review is an important approach to identify terms and definitions of medication adherence used in clinical and research settings.

**Conclusion**: Following standard recommendations, it was possible to conclude the first phase of this study, identifying in the literature terms and definitions related to medication adherence.

**ESPACOMP-20-065: A Delphi study to adapt and validate the ABC taxonomy into Portuguese (Portugal/Brazil)**

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**Introduction**: The ABC taxonomy promotes consistency and quantification of terms used to describe phases of medication adherence and is currently available in English, French and German.

**Aim**: To describe the method used to translate and cross-culturally adapt the ABC taxonomy, for use in Brazil and in Portugal.

**Methods**: A literature search was conducted to identify experts in adherence and published taxonomy terms and definitions in the target language. An initial phase to select the most suitable terms and definitions retrieved was held among seven experts before the Delphi, through consensus (75-100%). Data were analysed descriptively. The study was submitted to Egas Moniz ethics committee.

**Results**: A total of 814 experts were identified. Terms identified included medication adherence (n = 10), discontinuation (n = 7), management of adherence (n = 7), persistence (n = 3) and initiation (n = 2). No terms for implementation and adherence-related sciences were retrieved, hence directly translated. Consensus reduced the initial list of 154 terms to 29 terms for inclusion in the Delphi. Definitions of medication adherence (n = 3) and discontinuation (n = 1) were identified and the remaining were directly translated, all of which to be included in the Delphi panel.

**Discussion**: The detailed literature review enabled identification of additional terms and definitions, in comparison with previous studies translating the ABC taxonomy, and the identification of more panellists, enabling future sub-analysis by country.

**Conclusion**: The study presents an alternative to cross-culturally adapt the ABC taxonomy to other languages spoken in different countries, considering local culture and linguistic diversity.

**ESPACOMP-20-066: A New Proportion-of-Days-Covered (PDC) Algorithm to Measure Implementation Adherence in Real-World Datasets**

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**Introduction**: Proportion of days covered (PDC) is frequently used to assess medication adherence (implementation stage). Implementation is the extent to which a patient’s actual dosing regimen corresponds to the prescribed dosing regimen, from initiation until last dose. However, traditional PDC calculations can be difficult to apply in real-world datasets.

**Aim**: To develop and evaluate PDC algorithms to increase the potential accuracy of implementation adherence estimates from real-world drug order data.

**Methods**: Three algorithms with different denominators and increasing complexity were developed. Denominators were the total number of days between day one of the period of interest (POI) or first dispensation from this provider and either: the last day of the POI (PDC1); the end of supply date at this provider, if earlier than the last day of the POI (PDC2); or the end of supply date, less the number of days in ‘large’ gaps between refills (PDC3). These large gaps could reasonably indicate a legitimate reason—such as temporarily switching pharmacies—for discontinuing treatment from the provider. The algorithms were evaluated using a UK online pharmacy dataset.

**Results**: The dataset included patients taking ACE inhibitors (n = 65,905), statins (n = 100,362), and/or thyroid hormones (n = 30,637). In all drug classes, there were substantially more individuals with a low PDC1 than there were with low PDC2 or PDC3.

**Conclusion**: The new algorithms allow assessment of pharmacy and individual levels of adherence from real-world databases.

**ESPACOMP-20-067: Racial differences in the association between coping styles and the implementation phase of medication adherence**

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**Introduction**: Health disparities in medication adherence exist and likely contribute to the poorer health outcomes observed in minority groups. Coping mechanisms have been shown to affect adherence, and while racial differences in coping styles have been reported, it is unclear how they affect adherence in different groups.

**Aim**: To identify racial differences in the association between coping styles and the implementation of medication adherence.

**Methods**: We tested 80 patients (37 Blacks; 43 Whites) with primary open-angle glaucoma who were in the implementation phase of medication adherence to ocular hypotensive eye drops. Adherence was measured for 6 months using medication event monitoring systems. Coping was assessed using the raw weighted scores from the eight subscales of the Ways of Coping questionnaire. Associations were assessed using linear regression and Bonferroni corrections for multiple comparisons were applied.

**Results**: Mean adherence and standard deviation was 75 ± 20% in Blacks and 91 ± 13% in Whites. In Blacks, significant negative associations were observed between adherence and the confrontive coping style and the accepting responsibility coping style (all p-values < 0.003). No significant associations were observed in Whites.

**Discussion**: The negative associations between confrontive and accepting responsibility coping styles and adherence is unexpected as these styles are typically thought to be adaptive. This suggest that other factors may hinder the impact of these adaptive coping styles in Blacks.
ESPACOMP-20-068: Real-world data on the association between treatment beliefs, adherence and asthma outcomes: a multi-country study

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Introduction: Poor implementation adherence to inhaled corticosteroids (ICS) is a key modifiable predictor of asthma morbidity and mortality. Implementation adherence is related to patients’ treatment beliefs, but how these beliefs relate to asthma outcomes is less certain.

Aim: This study explores ICS treatment beliefs across six countries and their relationship with ICS implementation adherence and outcomes.

Methods: Patients ≥ 12 years with asthma on ICS treatment were included from a cross-sectional survey across Europe and the US. Information on treatment beliefs, measured using the Beliefs about Medicines Questionnaire, and on implementation adherence and asthma control, were collected by self- and physician-report.

Results: Data from 1337 patients (484 physicians) from Germany (25%), US (21%), France (20%), Spain (16%), Italy (10%) and UK (9%) were included. Mean(SD) age was 40(15.5) years. There was considerable variation in necessity beliefs (M = 3.4, SD = 0.8) and concerns (M = 2.6, SD = 0.7), with 31% reporting low necessity and 27% high concerns. Patients with doubts about ICS necessity and high concerns had significantly lower self-reported (necessity, χ²(2) = 34.31, p < 0.001; concerns χ²(2) = 20.98, p < 0.001) and physician-reported adherence (necessity, χ²(2) = 11.70, p = 0.003; concerns χ²(2) = 34.45, p < 0.001). Patients with high necessity beliefs (F(2,483) = 3.33, p = 0.037) and concerns(F(2,483) = 23.46, p < 0.001) reported poorer asthma control. A higher number of physician-reported exacerbations in the last 12 months was significantly associated with higher necessity (F(2,481) = 4.18, p = 0.016) but not concerns(F(2,481) = 2.66, p = 0.071). Physician adherence estimates did not correlate well with patient self-report (r = 0.178, p < 0.001).

Conclusion: ICS necessity beliefs and concerns were associated with self- and physician-reported adherence, asthma control and exacerbations. Longitudinal studies are needed to further explore these relationships.

ESPACOMP-20-069: Exploring Patients’ Beliefs about Antibiotics for Upper Respiratory Tract Infections: a Qualitative Study

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Background: Reducing antimicrobial resistance (AMR) is a priority for medical science. Inappropriate patient demand is an important driver of unnecessary antibiotic use. To develop or adapt an effective intervention to reduce inappropriate demand for antibiotics in upper respiratory tract infections (URTI) in the Saudi healthcare setting, it is important to identify patient perceptions that motivate requests for antibiotics prescriptions.

Aim: To identify and describe the perceptions and beliefs about antibiotics that patients with URTI have, in Riyadh, Saudi Arabia.

Method: An exploratory qualitative approach was used. One-to-one semi-structured interviews with 32 participants recruited using purposeful sampling from primary healthcare centres were conducted. The interview structure explored patients’ necessity beliefs and concerns about antibiotics, AMR perceptions, and expectations from URTI consultation. Interview transcripts were coded using QSR NVivo 11 using framework analysis to identify key motivations driving antibiotic requests and consultations.

Results: Preliminary results identified that the patients often relate their necessity beliefs for antibiotics when encountering an URTI symptoms to the type, severity and duration of symptoms. Patients also linked antibiotics with quicker recovery, generally expressing few concerns about antibiotics mainly because of its short duration of use.

However, some conveyed their concern about frequent administration of antibiotics and effect on the body’s immune system function. Participants varied widely in their awareness of AMR; this was associated with many misconceptions.

Conclusion: This study highlighted important beliefs and misconceptions about antibiotics and AMR in Saudi community.

ESPACOMP-20-070: Support through Mobile Messaging and digital health Technology for Diabetes (SuMMiT-D): Feasibility of economic evaluation

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Introduction: SuMMiT-D is a UK study aimed to develop and test a mobile-device based system delivering automated, tailored brief messages to offer support for medicine use alongside usual care to people with type 2 diabetes.

Aim: To assess the feasibility of an economic evaluation, alongside the clinical trial to test the cost-effectiveness of the text messaging-based intervention, compared to usual care.

Methods: The feasibility of economic data collection was assessed within the SuMMiT-D feasibility trial: a multi-centre individually randomised, controlled trial in primary care recruiting 200 adults (≥ 35 years) with type 2 diabetes in England. Participants were randomised to behaviour changes or non-health related messages for 6-months. Economic data were collected using online questionnaires at baseline and 6-months. Utility was measured using the EQ-5D-5L and healthcare resource use obtained using a self-report questionnaire with 3-month recall period. Questionnaires were assessed for completeness and free-text responses reviewed to refine the resource use items.

Results: 209 patients were randomised between November 2018 and April 2019. All participants completed the baseline questionnaires and 81% completed both follow-up questionnaires. Free-text reporting of primary care use was most common (diabetes nurse, health care assistant, phlebotomist).

Discussion: Ensuring economic measures are acceptable increases patient engagement and ensures adherence-enhancing intervention trials are appropriately costed from the health provider’s perspective.

Conclusion: The definitive trial will use EQ-5D-5L (Baseline,13,26,52-weeks) and a modified version of the resource use questionnaire (baseline,52-weeks).
ESPACOMP-20-071: Non-participation of diabetic nephropathy patients in an interventional medication adherence study

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Introduction: A medication adherence intervention combining motivational interviewing and electronic medication adherence monitoring/feedback was introduced to all consecutive diabetic patients with kidney function decrease (eGFR ≤ 60 ml/min/1.73 m²) visiting their nephrologist or diabetologist in a University Hospital. About 70% (179/250) of eligible patients refused to participate.

Aim: The aim of this study is to understand risk factors for non-participation.

Methods: Age and gender of patients who accepted versus refused to participate are compared using t-Student and Chi-2 test respectively. Reasons for non-participation were collected during the recruitment.

Results: Patients who refused to participate tend to be older: mean age 67 yrs (IC95% 65–68, SD: 11) than those who accepted: 64 yrs (IC95% 61-66, SD: 10), p = 0.051. More women vs. men refused participation (52/62 women vs. 128/187 men, p < 0.05). Main reasons for non-participation were use of a weekly pill-organizer (49/180, 27%), intervention perceived by patients as too demanding (33/180, 18%), no need perceived for such a program (26/180 patients, 14%) or patients did not agree to use the MEMS® (23/180, 12%).

Discussion: Although this intervention program is running successfully with other chronic patients such as patients with HIV, it is not with polypharmacy patients with diabetes and renal failure. An in-depth qualitative analysis has been launched for understanding patients’ needs, their perception of the intervention, and factors influencing their choice.

Conclusion: The design of successful adherence interventions should be cautiously adapted when transferred to other populations of patients.

ESPACOMP-20-072: Is the healthy adherer effect present in all the new lipid-lowering drug users?

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Introduction: According to the “healthy adherer effect”, individuals who adhere to medication also adhere to healthy lifestyle behaviours, and thus have a better health status.

Aim: To identify profiles of new lipid-lowering drug users based on persistence with therapy and lifestyle and to analyse differences in comorbidities and healthcare utilisation.

Methods: Observational study in 517 participants in the Aragon Workers’ Health Study, without previous cardiovascular disease, who initiated lipid-lowering therapy. Data collected from occupational medical examinations and health databases (2010–2018). We performed cluster analyses to identify profiles according to persistence with therapy and lifestyle, and compared comorbidities and healthcare utilisation across clusters.

Results-Discussion: Subjects were aggregated into four clusters based on therapy persistence, smoking, Mediterranean diet adherence and physical activity. Cluster 1 (n = 113) comprised those with a healthiest lifestyle (14.2% smokers, 84.0% with medium–high Mediterranean diet adherence, high physical activity) and 16.8% were persistent. In cluster 3 (n = 108), comprising those with the least healthy lifestyle (100% smokers, poor Mediterranean diet adherence, low physical activity), all were discontinuers. Clusters 2 (n = 150) and 4 (n = 146) comprised subjects with intermediate lifestyle behaviours but differed in persistence (100% and 0%, respectively). Compared with other clusters, burden of morbidity and healthcare utilisation were lower in cluster 1.

Conclusions: The healthy adherer effect was only observed in new lipid-lowering drug users of certain profiles. These results may help to identify homogeneous groups with similar engagement and needs, and contribute to personalization of cardiovascular preventive strategies.