2026 Geriatric Medication Safety Symposium Abstracts

PODIUMS

POD 1

Differences In Pain Treatment By Pain Location Clusters Among Older Adults With Chronic Pain

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Objective: Overlapping pain sites are common among older adults, and treatment guidelines vary by pain location. Little is known about how treatment varies by pain clusters. This study examined differences in pain treatment by clusters among older adults with chronic pain.

Methods: We used the Health and Retirement Study linked to Medicare Claims (n=3,510). Participants had a chronic pain diagnosis and continuous enrollment in Medicare Parts A and B for six months before the survey and Parts A, B, and D for 12 months after, excluding those with health maintenance organization plans. Our exposure was clusters of pain diagnoses, identified using latent class analysis. Our outcomes were prescriptions for opioids, gabapentinoids, serotonin-norepinephrine reuptake inhibitors (SNRIs), and nonpharmacologic treatments. We used logistic regression to examine the association of pain class with treatment.

Results: We identified three classes: abdominal/chest and back pain (28.9%), joint and musculoskeletal pain (43.3%), and widespread pain (27.8%). Compared to those with abdominal/chest and back pain, those with widespread pain had higher odds of receiving opioids (OR: 2.94, 95% CI: 2.42–3.59), gabapentinoids (OR: 3.63, 95% CI: 2.69–4.90), SNRIs (OR: 2.75, 95% CI: 1.74–4.33), and nonpharmacologic treatment (OR: 3.09, 95% CI: 2.23–4.29). Those with joint and musculoskeletal pain had higher odds of receiving opioids (OR:1.27, 95% CI: 1.06-1.52) or non-pharmacologic treatments (OR: 1.45, 95% CI: 1.04-2.01). These associations were reduced after adjusting for number of pain locations.

Conclusion: Pain medication use among older adults may be driven more by overall pain burden than by specific pain profile. Current pain treatment guidelines are largely site-specific and may not adequately address pain conditions in older adults. This highlights the need for guidelines that consider multiple concurrent pain sites.

POD 2

Risk of Antipsychotic Initiation with Cholinesterase Inhibitor Use in Alzheimer's Disease and Related Dementias

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Objectives: Cholinesterase Inhibitors (CHEIs) were widely used as the first-line pharmacotherapy for patients with Alzheimer's Disease and Related Dementias (ADRD). Management with CHEIs may necessitate the use of antipsychotic medications for behavioral symptoms. This study aimed to evaluate the risk of antipsychotic initiation with the use of CHEIs among ADRD patients.

Methods: We conducted a nested case-control study using 2013-2018 Medicare fee-for-service claims among patients aged 65 years or older with ADRD and no antipsychotic prescriptions in 2013. Controls were selected from patients without antipsychotic use using incidence density sampling, matched to cases on age and sex, with up to 5 controls per case. CHEI (donepezil, rivastigmine, and galantamine) exposure was assessed during the 180 days before the event date and further categorized by utilization patterns as current (0-30 days), recent (31-90 days), and past (91-180 days). We excluded patients without continuous enrollment between 2013 and the event dates. We used adjusted conditional logistic regression to examine the association between CHEI use and the risk of antipsychotic initiation, controlling for key sociodemographic and clinical factors.

Results: We identified 1,763,433 patients with ADRD, with the final selection involving 59,722 cases and 175,092 controls. Among cases,16.65% had CHEI use within 180 days before antipsychotic initiation, compared with 7.33% among controls. In adjusted analysis, overall CHEI use was associated with a higher risk of antipsychotic initiation (Adjusted Odds Ratio [aOR]=4.83, 95% Confidence Interval [CI]: 3.35-6.96). Consistent increases in the risk of antipsychotic initiation were observed for both recent CHEI use (aOR=5.66, 95% CI: 2.70-11.84) and past CHEI use (aOR=4.67, 95% CI: 3.11-7.00) compared to non-users.

Conclusion: The study found an increasing risk of antipsychotic initiation with recent and past use of CHEIs. The findings highlighted the importance of medication monitoring and management to optimize antipsychotic use in ADRD.

POD 3

Detection of Potentially Inappropriate Medications Using Beers Criteria with Large Language Models

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Introduction: The prevalence of potentially inappropriate medication (PIM) use remains high among older adults. The Beers Criteria is one of the most widely used tools to identify PIMs. However, many medications listed in the criteria are only inappropriate under certain conditions. Therefore, reviewing the clinical documentation is essential to determine if these conditions are present and to accurately identify PIMs. Identifying Beer Criteria-related violations from clinical text remains challenging because medication information is often embedded in unstructured clinical notes. Natural language processing (NLP) and large language models (LLMs) provide a scalable approach for helping clinicians identify potential Beers Criteria violations in clinical documentation.

Objectives: To develop and evaluate a two-stage NLP pipeline for identifying Beers Criteria violations from clinical text by first extracting patient medication lists and subsequently detecting guideline-based violations.

Methods: We developed a two-stage information extraction pipeline. In the first stage, a large language model (GPT-5.2) was used to extract medication mentions from clinical notes and construct structured patient-level medication lists. In the second stage, these medication lists were evaluated against a curated Beers Criteria table using LLM-based reasoning to identify potential violations. Pipeline performance was assessed by comparing predicted outputs to manual review.

Results: Across 628 clinical notes from eight patients, the pipeline identified 70 medication events matched to Beers Criteria. Of these, 7 were classified as potential Beers concerns and 63 as non-concerns. Agreement with manual review was high, with 6/7 (85.7%) concern cases and 63/63 (100%) non-concern cases correctly identified, yielding an overall accuracy of 98.6%. Correspondingly, performance for detecting Beers Criteria violations was strong, with a precision of 1.00, a recall of 0.86, and an F1-score of 0.92.

Conclusion: This two-stage pipeline demonstrates high accuracy in identifying Beers Criteria violations and highlights the effectiveness of combining LLM-based medication extraction with guideline-informed evaluation for scalable medication safety screening.

POD 4

Effect of GLP-1 receptor agonists on incident dementia with and without SGLT2 inhibitors

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Background: Alzheimer's disease and related dementia (ADRD) involve multiple biological pathways, suggesting combination therapies may offer synergistic benefits. RWE suggests potential benefit of GLP-1 receptor agonists (GLP1RA) and SGLT2 inhibitors (SGLT2i) for ADRD prevention. However, their combined effect remains unknown.

Objective: To assess the effect of GLP1RA vs. long-acting insulin (LAI) and sulfonylurea (SU), with and without concomitant SGLT2i, on incident ADRD among older adults.

Methods: Using a 20% random sample of fee-for-service Medicare beneficiaries aged 70+ with parts A, B, and D coverage (2013-2019), we conducted 3 active-comparator, new-user studies comparing GLP1RA initiators with LAI and SU, assessing treatment effect and stratified by baseline SGLT2i use among: 1) overall population; 2) patients with baseline SGLT2i use (initiated within 180 days before GLP1RA or comparator; >=2 prescriptions); and 3) patients without baseline SGLT2i use. Initiation required a 2nd prescription and no ADRD during a 3-year baseline (relaxed to 1-year for combination therapy due to small sample size). We used our recently published claims-based algorithm to identify incident ADRD, defined by two diagnosis codes or a diagnosis code with a new ADRD medication within 90 days of the code. Propensity scores computed from ~80 baseline covariates (demographics, comorbidities, comedications, and healthcare utilization) measured in the 1-year baseline period were used to estimated inverse probability treatment–weighted 3-year adjusted risk difference (aRD) and 95% CI. Intention-to-treat analyses follow-up began at the 2nd prescription until disenrollment of any Medicare parts, death (competing event), ADRD, 3-year follow-up, or 12/31/2019, whichever came first.

Results: Covariates were well balanced after weighting. GLP1RA was associated with lower ADRD risk vs LAI (N 22878 vs 50066; crude risk 4.3% vs 9.4%, aRD% -2.0 (-2.4, -1.6)) and SU (N 11825 vs 55246; crude risk 6.3% vs 9.5%, aRD% -2.4 (-2.9, -1.8) . Results were similar when excluding baseline SGLT2i users. In combination with SGLT2i (N 464 v 535), ADRD risk was markedly lower (crude risk 2.4% v 5.4%) and GLP1RA benefit slightly increased vs LAI (aRD% -2.7 (-5.0, -0.4). Limited A1C data (available for ~10% population) suggested strong unmeasured confounding, e.g. for combination therapy: 32% of GLP1RA vs 17% of LAI had an A1C<7, and 34% of GLP1RA vs 24% of SU had an A1C>9.

Conclusions:GLP1RA use was associated with reduced ADRD risk overall. SGLT2i showed potential added benefits, highlighting both promise and methodological challenges (limited sample size, confounding) when evaluating combination therapies for ADRD prevention.

POSTERS

POS1

Check, Monitor, Control Hypertension in Older African American Adults (#Check, Monitor, Control)

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Objectives: African Americans experience disproportionately higher rates of hypertension and related cardiovascular and stroke mortality compared to the general population. Despite higher antihypertensive medication use, long-term blood pressure (BP) control remains suboptimal. This study aims to evaluate whether a collaborative pharmacist and Community Health Worker (CHW) intervention improves hypertension self-management and BP control among older African American adults.

Methods: *Check, Monitor, Control* is a prospective, randomized study enrolling predominantly African American adults aged 55 years and older with hypertension (n=480). Participants will be recruited through community-based and faith-based organizations and randomized to receive either pharmacist-led virtual medication therapy management (MTM) alone or MTM combined with CHW support for 24 months. Pharmacists will provide comprehensive medication reviews, BP monitoring education, lifestyle counseling, and medication organization app training. CHWs will support behavioral change, address lifestyle challenges, and facilitate engagement through health workshops. BP readings and BP control rates will be assessed at baseline and at 6-, 12-, 18-, and 24-month intervals.

Results: It is anticipated that participants receiving the combined pharmacist–CHW intervention will demonstrate greater improvements in BP control and hypertension self-management compared to pharmacist-led care alone, reflecting a synergistic effect of interdisciplinary collaboration.

Conclusions: This study is expected to inform scalable, community-engaged care models integrating pharmacists and CHWs to improve hypertension outcomes and reduce cardiovascular disparities in populations at risk.

POS2

NLP-Assisted Clinician Identification of Adverse Drug Events from Heart Failure Medications

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Introduction: Adverse drug events (ADEs) from heart failure (HF) medications are common in older adults and are difficult to identify in clinical documentation. Natural language processing (NLP) can extract medication and symptom data from electronic health records, but clinician interpretation is needed to confirm ADEs.

Objectives: To evaluate translation of an NLP-based adverse drug event (ADE) detection model into clinical practice by (1) developing a gold-standard annotation guideline, (2) accurately annotating patient clinical notes to generate training data for NLP model development, and (3) describing the clinician-informed process of identifying ADEs from HF medications using NLP-extracted data.

Methods: A gold-standard dataset of HF patient notes was used to support NLP development for ADE detection. An NLP-assisted system extracted medication and symptom mentions from clinical notes, which reviewers manually verified and annotated for symptoms, medication status, and ADEs. Medications were linked to corresponding adverse effects using established guidelines, with full chart review used to confirm whether symptoms reflected medication-related events.

Results: Manual annotation using MedTator supported development of a gold-standard guideline for identifying adverse drug events in HF patients. After training, annotators achieved strong agreement (F1 = 0.89), indicating reliable annotation. Several documentation challenges required manual verification, including medications misidentified as active when listed as allergies or discontinued, and symptoms documented indirectly (e.g., hypotension inferred from blood pressure trends). Some relevant symptoms, medications, and ADEs were not captured by the NLP tool and required manual identification. Polypharmacy, overlapping HF symptoms, and non-chronological documentation complicated attribution of adverse effects and temporal relationships. Overall, the process produced a high-quality dataset for training and validating NLP models for ADE detection.

Conclusions: NLP-assisted extraction of medications and symptoms can help identify ADEs in HF patients, but clinician review is essential. Combining automation with human oversight improves data quality, guides NLP development, and may enhance medication safety in older adults.

POS3

Medcap: Modernizing Patient-Facing Medication Safety Tools Beyond Mobile Apps

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Objectives: Patient-facing technologies (PFTs), typically in the form of mobile health applications (mHealth apps), demand significant development effort, ongoing maintenance, and pose potential security risks, which can restrict their scalability and generalizability. MedCap, a revolutionized PFT infrastructure, offers a faster, cheaper, and more maintainable alternative to mHealth apps, showcased by a project on medication safety for cancer patients during transitions of care.

Methods: MedCap was created using REDCap, a HIPAA-compliant web-based platform that enables cost-effective deployment and maintenance. It is guided by a four-tier maturity model that outlines the evolution from basic data collection to proactive intervention and system integration, aiming for intelligent patient care in the future. The MedCap infrastructure is designed to be FAIR (Findable, Accessible, Interoperable, Reusable) by promoting standardized data elements, institution-governed access, API-enabled interoperability, and reusable configurations. This foundation supports AI-ready workflows. The design of dashboards beyond the native modules provided lightweight visualizations of patient-tracking activities, and semi-structured interviews supported participatory design through iterative refinement.

Results: MedCap comprises three components for patients, administrators/clinicians, and staff/technicians. The patient-facing component delivers medication and symptom reporting forms, individual dashboards, and educational materials. The admin component provides dashboards to support monitoring and follow-up interventions. The technician component enables platform configuration, governance, and role-based data management, along with an API-enabled pipeline for generating tracking reports and updating downstream visualizations.

Conclusion: MedCap demonstrates a paradigm shift from costly mobile apps to sustainable PFT. Guided by the maturity model and FAIR-ready design, MedCap holds promise as a vital foundation for interoperability among health information systems and AI readiness while keeping patients in the loop.

POS4

Integrating Google Workspace To Deliver Secure, Sustainable Patient-Facing Dashboards For Medcap

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Objectives: MedCap is a HIPAA-compliant patient-facing technology (PFT) designed to offer secure, sustainable support concerning medication safety among patients during transitions of care. As a core MedCap component, web-based dashboards were developed to provide centralized, real-time interfaces for patients and providers.

Methods: The component operates within an institutional Google Workspace to ensure secure storage and processing of protected health information (PHI). Patient-reported data are periodically **Extracted** from an API-enabled REDCap instance, **Transformed** and **Loaded (ETL)** into lightweight Google Sheets, then subsequently visualized via Looker Studio. This ETL pipeline provides a scalable mechanism, supporting both data accessibility and the rigorous security required for PHI. A patient dashboard was designed to support tracking, trending, and communication. An administrator dashboard was designed for real-time monitoring and generating actionable insights.

Results: The patient dashboard delivers longitudinal visualizations of signs, symptoms, and concerns, along with community comparison tools, evidence-based educational materials, and printer-ready summaries, collectively enhancing patient-provider communication and supporting patient self-management. The administrator dashboard aggregates patient-reported data to monitor system activity, track technical requests, and identify emerging issues. Integration with Google Workspace provides a unified, secure environment that strengthens system connectivity, reduces maintenance burden, and supports long-term dashboard sustainability.

Conclusion: The design and implementation of the integrated dashboards serve as a sustainable strategy within MedCap, addressing the gaps between patient engagement and security compliance to enhance medication safety and patient-centered care during transitions of care.

POS5

Examining The Utilization And Disparities Of Immune Checkpoint Inhibitors In Cancer Treatment.

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Objective: Immune checkpoint inhibitors (ICI) have transformed cancer treatment, yet disparities in medication access persist. This study examined the ICI prescribing trends across multiple cancer types and disparities in medication utilization among Medicare beneficiaries, with a focused analysis on disparities among lung cancer patients.

Methods: Using SEER-Medicare linked data (2016-2021), we identified patients diagnosed with one of the ten cancer types (colorectal, cervical, bladder, breast, prostate, kidney, lung, skin, lymphoma, and oropharyngeal) and who received at least one ICI within five years of diagnosis. Monthly utilization rates were calculated per cancer type, and joinpoint regression models assessed trend changes. For lung cancer patients eligible throughout 2019 or 2021, we examined utilization by demographic and clinical characteristics using generalized estimating equations and multivariable logistic regression.

Results: In our sample (n=94,280), lung cancer accounted for the highest proportion of ICI recipients (61.95%). Utilization increased across all cancer types, with rapid adoption (2016-2018). By 2019, SCLC utilization was approximately twice that of NSCLC. Rate of change differed significantly by dual eligibility for NSCLC (p=0.010), and by race/ethnicity (p=0.011), and stage (p=0.022) for SCLC. Distant stage was the strongest predictor of ICI use (OR=14.21). Hispanic (OR=0.84) and dual-eligible patients (OR=0.92) had lower odds of use. SCLC had higher odds at localized (OR=1.68) and distant (OR=1.85) stages but lower odds at regional stage (OR=0.80) versus NSCLC.

Conclusion: Rapid ICI uptake across cancer types demonstrates successful translation of clinical trial evidence into prescribing practice, with adoption driven by FDA approvals. Distinct histology-driven lung cancer patterns suggest that biomarker requirements and treatment guidelines influence medication utilization. Persistent disparities by race/ethnicity and socioeconomic status indicate that expanding ICI availability alone is insufficient to ensure equitable access, highlighting the need for targeted interventions, including enhanced care navigation and reduction of systemic prescribing barriers.

POS6

Gerontechnology for Medication Safety in Older Adults: A Scoping Review

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Background: The rapid growth of the older adult population, alongside rising prevalence of chronic disease, sensory and mobility impairments, cognitive decline, and social isolation, has created increasing demand for healthcare resources that remains unmet. These gaps threaten older adults' ability to age in place. Gerontechnology—technology designed to support aging populations—offers a strategy to promote independence, enhance safety, and mitigate age-related risks. Prior research indicates strong interest in medication adherence technologies: 77% of older adults report willingness to use such devices, with this willingness increasing with regimen complexity, and 91–95% would adopt them if recommended by a physician or associated with reduced costs.

Objectives: To examine current gerontechnology related to medication safety and explore concepts influencing its implementation in home settings.

Methods: A scoping review was conducted following the Arksey and O'Malley framework and reported using a modified PRISMA-ScR checklist. Literature published between 2016 and 2026 was searched in CINAHL and PubMed, limited to English-language, full-text studies addressing gerontechnology and medication safety in older adults' home environments.

Results: Thirteen studies were identified; seven met the inclusion criteria after screening. Included studies primarily reviewed home-based technologies targeting medication safety. Interventions included voice-activated wearables, monitoring devices, telemonitoring systems and robotics, smart medication dispensers, external memory aids, and mobile health (mHealth) applications.

Conclusions: Gerontechnology demonstrates potential to improve autonomy, confidence, and caregiver burden. However, barriers persist, including privacy concerns, overreliance on technology, cost, usability challenges, the need for technological literacy, and dependence on reliable connectivity.

POS7

Prevalence, Risk Factors, and Safety Implications of Potentially Inappropriate Medication Use Among Older Adults with Dementia: A Systematic Review

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Objectives: Older adults with dementia often have multiple comorbidities, resulting in the use of multiple medications. Polypharmacy is a significant risk factor for potentially inappropriate medication (PIM), and PIMs are strongly associated with significant adverse drug events (ADRs), including mortality. This systematic review evaluates the prevalence of PIMs and frequently reported PIM classes from 2020–2025 among patients with dementia and examines the associated risks of PIM use.

Methods: This systematic review adhered to Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. PubMed and EMBASE were searched for English-language observational studies published between January 2020 and June 2025. Eligible studies assessed PIM use in individuals with dementia and reported prevalence, use patterns, or clinical implications. Data on study characteristics, Criteria used to identify PIM (e.g., Beers Criteria, Screening Tool of Older Persons' Prescriptions [STOPP]), prevalence, medication types, and outcomes were independently extracted and synthesized.

Results: The literature search identified 852 articles, of which eighteen studies met the inclusion criteria. Reported PIM prevalence ranged from 32.7% in community-dwelling cohorts to over 80% in acutely admitted Australian aged care residents. Central nervous system–acting drugs (antipsychotics, benzodiazepines, anticholinergics) were consistently identified as major PIM classes, alongside proton pump inhibitors, antidepressants, and nonsteroidal anti-inflammatory drugs. PIM use was largely driven by polypharmacy related to comorbidity management, with higher odds observed among female patients. PIMs were strongly associated with adverse events, hospitalizations, functional decline, and increased mortality.

Conclusion: PIM use is highly prevalent and associated with adverse outcomes in patients with dementia. Effective management requires multi-pronged strategies involving providers and caregivers to reduce PIM-related harm and improve medication safety in this vulnerable population.

POS8

A Scoping Review of Natural Language Processing to Analyze Unstructured Data for Medication Safety in Rheumatoid Arthritis: Data Utility and Quality Perspectives

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Introduction: Unstructured datasets, powered with Natural Language Processing (NLP) approaches can address the limitations of structure data and demonstrates potential in improving the identification of adverse drug events (ADEs) in RA. This scoping review provides a specific focus on the utility of NLP for application to unstructured data for RA

Methods: By following PRISMA-SCR protocol, this scoping review was conducted summarizing the literature documenting adverse event prediction for geriatric population in unstructured datasets powered with NLP approaches, characterizing the ML methods employed, and use of unstructured clinical data. Search using key words involving "NLP" and "RA" was made in the PUBMED and EMBASE on February 27th 2026. In this scoping review, the Embase and PubMed electronic databases were searched to find relevant publication available from the database inception until Feb 27, 2026. Search terms involving NLP, and RA were used. Exclusion criteria included no implementation of NLP, absence of unstructured data, and no evaluation of ADE outcome. Data extraction included application of NLP, and type of unstructured dataset intervention.

Results: Literature search yielded 274 citations. After eligibility assessment, 8 studies published between 2014-2026 were included. Majority were conducted in the US (4), with remaining from others (UK=1, Australia=1, Japan=1, India=1). Common unstructured datasets were social media analytics (n=6) (reddit, disease blogs, facebook, twitter, discussion boards and others) and unstructured EHR notes (n=2) (physician notes, discharge dummies and clinical narratives). Of these studies, ADEs detected included herps zoster infection, liver toxicity, or RA related broad pharmacovigilance. However, discrepancies were observed in evaluation protocols.

Conclusions: This review showed the potential of NLP in analyzing unstructured datasets to learn about patients' perception about medication safety or detection ADEs in RA. Future efforts may expand standardized evaluation framework and enhancing transparency to support th effective applications in RA based medication safety research.

POS9

Bridging Implementation Barriers Through Narrative Analysis In Medcap

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Objectives: MedCap is a medication safety reporting and tracking platform for transitional oncology care, serving mostly older adults who are vulnerable to the digital divide. This study aims to evaluate the social, technical, and cognitive factors shaping patient onboarding and early data generation within MedCap.

Methods: Leveraging Qualified Health (QH), an institutional PHI-secure GenAI, we conducted an inductive thematic analysis of logs from facilitator-led onboarding sessions and patient-generated data, specifically narratives. The sessions guided patients through MedCap functions, including reporting and data visualization. Open coding of facilitator logs revealed implementation barriers, while cross-sectional and longitudinal thematic analysis of patient entries characterized narrative patterns. Identified themes were refined through collaborative review to inform the iterative platform development.

Results: The analysis revealed key implementation barriers, notably technical support requirements and heightened performance anxiety during onboarding. A strong patient preference for narrative entries over structured fields further widened the disconnect between data entry practices and the platform's visualization capabilities. QH's automated synthesis addressed this gap by transforming low-barrier narrative data into high-quality clinical data. Cross-sectional analysis identified recurring clinical themes and contextual details absent from structured data, while longitudinal case studies traced individual trajectories, delineating recovery patterns and critical timeframes for clinical intervention, guiding the refinement of MedCap.

Conclusion: This study identified key social, technical, and cognitive barriers to patient onboarding and early data generation in MedCap, with strong reliance on narrative reporting and significant support needs. Together, patient-centered facilitation and AI-driven narrative synthesis improved data completeness and usability, strengthening the platform's capacity to support timely, personalized transitional oncology care.

POS10

Cardiovascular Safety of Nucleot(s)ide Analogues in Older Adults with Hepatitis B: Target-Trial Emulation

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Background: Older adults with chronic hepatitis B (CHB) frequently require long-term nucleos(t)ide analogue (NA) therapy. Tenofovir alafenamide (TAF) is increasingly used as a first-line agent for CHB due to its improved renal and bone safety profile; however, TAF has been associated with adverse lipid changes. Therefore, we aim to compare the risk of major adverse cardiovascular events (MACE) among older adults initiating first-line NA for CHB.

Methods: This target trial emulation study used Medicare fee-for-service claims data (Parts A, B, and D) from 2014 to 2019. Beneficiaries aged ≥65 years with CHB initiating entecavir (ETV), tenofovir disproxil fumarate (TDF), or TAF between 2014-2019 were followed from treatment initiation for a MACE outcome (i.e., hospitalization for acute myocardial infarction or ischemic stroke, or revascularization). Death was modeled as a competing event using Fine-Gray sub-distribution hazards models involving stabilized inverse probability of treatment weights to evaluate the risk of MACE.

Results: The cohort included 4,679 beneficiaries (TDF: 1,710; ETV: 2,218; TAF: 751). Mean follow-up was 21.9 months for TDF, 21.3 months for ETV, and 13.5 months for TAF. In intention-to-treat analyses, TAF initiation was associated with higher MACE risk compared with TDF (sHR,1.77;95% CI, 1.07–2.93), whereas ETV was not (sHR:1.13; 95%CI:0.85–1.50). At 36 months, direct-adjusted absolute risks of MACE were 6.64% (95%CI:5.32%–8.27%) for TDF, 7.36% (95%CI:6.10%–8.89%) for ETV, and 10.43% (95%CI:6.96%–15.63%) for TAF. Similar results were observed for the per-protocol analysis: TAF vs. TDF (sHR:1.86; 95%CI:1.05–3.28) and ETV vs. TDF (sHR:1.23; 95%CI:0.81–1.87). Sensitivity analyses were consistent with the primary findings.

Conclusions: This study found that TAF was associated with a higher risk of MACE than TDF, whereas ETV had a risk similar to TDF. These findings suggest cardiovascular risk may warrant additional considerations when selecting

POS11

Out-of-Pocket Costs Did Not Predict GLP-1 RA Persistence in Pre-Guideline Medicare Enrollees

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Background: During 2017–2019, GLP-1 receptor agonists were recommended as second-line therapy after metformin, with increasing prioritization for cardiovascular disease; however, their use remained influenced by cost, and the relationship between OOP costs and persistence remains unclear.

Objective: To identify demographic, clinical, and treatment-related predictors of OOP costs and evaluate their association with 1-year persistence among Medicare beneficiaries.

Methods: A retrospective new-user cohort study using 2019 MarketScan® Medicare data included adults ≥65 years with type 2 diabetes and 365-day continuous enrollment pre/post GLP-1 RA initiation. Log-transformed OOP [ln(OOP+1)] was analyzed via multivariable linear regression, and 365-day persistence (gap >60 days) via logistic regression (90-day sensitivity), using SAS 9.4 (α=0.05).

Results: The cohort included 8,416 patients (mean age 73.1±5.9 years; 54.3% male). Median index OOP cost was $50 (IQR: $25–$85). In adjusted analyses, older age was associated with lower OOP costs (99.5% per year; 95% CI 99.1%–99.9%; p=0.0095), and females had lower costs than males (92.9%; 95% CI 88.7%–97.4%; p=0.0021). GLP-1/insulin combination products were associated with higher OOP costs versus single-agent GLP-1 RAs (154.0%; 95% CI 119.3%–198.6%; p=0.0009). Hypertension, cardiovascular disease, and metabolic conditions were associated with lower OOP costs (84.9% [95% CI 79.0%–91.2%; p<0.0001], 88.6% [95% CI 81.4%–96.5%; p=0.0054], and 90.7% [95% CI 84.9%–96.8%; p=0.0034], respectively). Index OOP cost was not associated with 365-day persistence (87.7%; 95% CI 87.0%–88.5%).

Conclusions: Out-of-pocket costs for GLP-1 receptor agonists varied significantly across patient and treatment characteristics; however, this variation was not associated with differences in 365-day persistence. Persistence remained high overall.

POS12

Uncovering Gaps In HIV Prevention Pharmacotherapy And Care Delivery In The United States

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Introduction: Despite prevention efforts, HIV transmission in the United States persists due to gaps from risk perception to sustained PrEP use. Addressing these gaps is critical to inform targeted, equitable, and scalable strategies to reduce new infections and accelerate progress toward ending the epidemic.

Objectives: To quantify missed opportunities across the HIV prevention cascade in the United States and characterize multilevel determinants contributing to prevention gaps.

Methods: We conducted a systematic review and meta-analysis of U.S.-based studies published between January 1, 2012, and June 30, 2025 (PROSPERO: CRD420251164025), in accordance with PRISMA 2020 guidelines. PubMed, Embase, and Scopus were searched using a PRESS-validated strategy, yielding 3,454 records. Studies reporting missed opportunities for HIV prevention were included. A mixed-methods synthesis was conducted, with qualitative findings organized by cascade stage and level of influence (patient, provider, clinic, structural). Quantitative data were pooled using random-effects generalized linear mixed models with logit transformation. Heterogeneity was assessed using I^2 (variability due to heterogeneity) and τ^2 (between-study variance). Subgroup analyses were conducted by clinical setting. Sensitivity analyses included leave-one-out diagnostics and cross-validation using metafor GLMM models.

Results: Forty-two studies were included, of which twenty contributed to meta-analysis. Missed opportunities were observed across cascade stages. An estimated 83% of indicated HIV testing opportunities were missed (95% CI 50-96; I^2=95.8%). Missed opportunities for PrEP discussion were 70% (95% CI 39-89; I^2=98.0%), initiation 84% (95% CI 56-96; I^2=97.6%), and linkage 76% (95% CI 33-95; I^2=98.2%). Among those initiating PrEP, 86% were non-adherent (95% CI 32-99; I^2=98.7%). Qualitative evidence identified provider knowledge gaps, stigma, workflow fragmentation, and structural access barriers. Sensitivity analyses confirmed the robustness and stability of the pooled estimates, despite substantial heterogeneity.

Conclusions: Missed opportunities occurred across all HIV prevention cascades, especially before PrEP initiation. Addressing multilevel barriers is critical to improve preventive pharmacotherapy delivery and reduce gaps in HIV care.

POS13

Disparities In Medication Safety Among Older Adults: Implications For Health Equity And Policy

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Introduction: Medication safety remains a critical concern among older adults (≥65 years), particularly in the context of multimorbidity and polypharmacy. In the United States, nearly 90% of older adults take at least one prescription medication, increasing their risk of adverse drug events (ADEs). Evidence suggests that racial and socioeconomic disparities significantly influence medication safety outcomes, with disproportionate burdens among minority and low-income populations. Together, these factors underscore the urgent need for focused investigation to better understand and address inequities in medication safety among aging populations.

Objectives: This study examines racial and socioeconomic disparities in medication safety among older adults and identifies key drivers and policy implications for advancing health equity.

Methods: A narrative review of literature published between 2010 and 2025 was conducted using PubMed, Web of Science, and Google Scholar. Included studies focused on U.S. adults aged ≥65 years and reported medication safety outcomes, including ADEs, polypharmacy, potentially inappropriate medications (PIMs), and adherence, stratified by race or socioeconomic status. Findings were synthesized across clinical, behavioral, and structural domains.

Results: Marked disparities in medication safety emerged across studies. Black older adults had 20–30% higher odds of medication nonadherence compared to White counterparts, despite often using fewer medications. Individuals with lower socioeconomic status were 21% more likely to experience polypharmacy (≥5 medications), increasing their risk of ADEs. Approximately 10% of older adults receive at least one PIM annually, with higher exposure among disadvantaged groups. Furthermore, 25% of Medicare beneficiaries report cost-related nonadherence, disproportionately affecting racial and ethnic minorities. Geographic patterns show higher polypharmacy prevalence in Southern regions, which compounds risk for already vulnerable populations.

Conclusions: Addressing disparities in medication safety requires coordinated, equity-focused strategies that improve affordability, strengthen culturally responsive care, and expand pharmacist-led interventions to ensure safer medication use among aging populations.

POS14

GLP-1 Use and Frailty: Interaction With Diabetes Complication Severity in Older Adults With Dementia

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Introduction: Weight reduction is essential for improving outcomes in people with obesity and type II diabetes (T2D). While accomplishing its primary goal of improving glycemic control, GLP-1 therapies indirectly impact mechanisms associated with frailty including inflammation, weight loss, and muscle mass. Among frail patients using GLP-1s, the impact on diabetes severity remains unclear.

Objectives: Evaluate association between GLP-1 use and frailty. 2) Determine how GLP-1 use modifies the relationship between DCSI and frailty.

Methods : A total of 32,350 outpatient visit records from 11,217 patients aged ≥65 years with both T2D and dementia in the United States between 2015 and 2024 were included from the Stanford American Family Cohort data set. Approximately 2% (n=224) received GLP-1 therapy. Frailty was categorized as an ordinal outcome with four levels: (0) fit, (1) mild frailty, (2) moderate frailty, and (3) severe frailty, based on ICD-10. Diabetes severity was calculated using Diabetes Complications Severity Index (DCSI). We used an adjusted longitudinal generalized estimating equations model with a cumulative logit link to examine the association between time-varying GLP-1 use and frailty level, accounting for repeated observations within individuals and including interaction terms. Analyses were conducted using SAS version 9.4.

Results: GLP-1 use was associated with higher frailty odds (cumulative odds ratio [cOR] = 1.81). The interaction analysis indicated that the association between DCSI score and frailty differed by GLP-1 use: the odds of frailty increased with higher DCSI scores among both GLP-1 users (cOR = 1.54) and non-users (cOR = 1.80).

Conclusion: Physicians may preferentially prescribe GLP-1 therapy to more frail patients, which may explain the higher overall odds of frailty among GLP-1 users. However, the association between DCSI and frailty was weaker among GLP-1 users than non-users, suggesting that GLP-1 use may attenuate the adverse impact of comorbidity burden on frailty.

POS15

Geriatric Pain Management and Medication Safety: Gabapentin-Induced Urinary Retention in the Setting of Polypharmacy

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Introduction: Analgesic selection in older adults is increasingly driven by opioid-sparing strategies, leading to expanded use of gabapentinoids. However, in the setting of polypharmacy and age-related physiologic changes, even "safer" alternatives may produce clinically significant and underrecognized adverse drug events (ADEs).

Objectives: To highlight gabapentin-associated urinary retention as a clinically relevant but underrecognized adverse drug event in geriatric patients and to examine its implications for medication safety.

Methods: We report an 86-year-old female who developed acute urinary retention within one week of gabapentin initiation, requiring medical intervention, followed by a focused literature review of post-2015 studies addressing analgesic-related ADEs in adults ≥65 years.

Results: Geriatric patients demonstrate heightened vulnerability to ADEs due to reduced renal clearance and polypharmacy. While opioids are associated with increased mortality, falls, and hospital utilizations, gabapentinoids are not benign alternatives. Beyond well-described effects such as sedation and dizziness, pharmacovigilance data increasingly identify gabapentin as a signal for acute urinary retention, with rapid onset after initiation. This complication may precipitate downstream morbidity including urinary tract infection, urosepsis, delirium, and hospitalization. Risk appears amplified in patients with baseline urologic disease, diabetes, or concomitant central nervous system depressants. Current evidence supports multimodal, opioid-sparing strategies that prioritize non-pharmacologic interventions and cautious, individualized pharmacotherapy.

Conclusions: Gabapenin-induced urinary retention represents a clinically meaningful and likely underdiagnosed ADE in older adults. As prescribing shifts away from opioids, clinicians must remain vigilant for emerging complications of alternative agents. Early recognition and prompt medication review are critical to preventing avoidable morbidity and improving geriatric medication safety.

POS16

Association Between Cardiometabolic Obesity Phenotypes and Prostate Cancer among US Older Adults

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Objectives: Prostate cancer is one of the most common malignancies among men in the United States and imposes annual healthcare expenditures exceeding $20 billion. Concurrently, obesity affects over 40% of U.S. adults and is recognized as a key risk factor for several cancers; however, its association with prostate cancer remains inconsistent. Emerging evidence suggests that cardiometabolic dysfunction, rather than body mass alone, may better explain prostate cancer risk. This study examined the association between cardiometabolic obesity phenotypes and prostate cancer diagnosis.

Methods: This retrospective cohort study used 2021–2023 National Health Interview Survey (NHIS) data. The cohort included older adult males (≥65 years) with complete data on prostate cancer diagnosis (outcome) and covariates, including age, race, region, income, insurance, employment, smoking, marital status, education, obesity phenotypes (non-obese cardiometabolic healthy [NOCH], non-obese cardiometabolic unhealthy [NOCU], cardiometabolic unhealthy obese [CMUO], cardiometabolic healthy obese [CMHO]), and comorbidities. Descriptive, unadjusted, and adjusted logistic regression analyses were conducted using survey weights in SAS v9.4.

Results: The cohort included 11,188 participants (weighted: 74,124,433), with 61.6% aged 65–74 years. Compared with those aged 65–74 years, individuals aged 75–84 years (OR: 1.37, 95% CI: 1.10–1.69) and ≥85 years (OR: 1.35, 95% CI: 1.01–1.81) had higher odds of prostate cancer diagnosis. Compared with NOCH individuals, those who were CMHO had higher odds (OR: 1.80, 95% CI: 1.07–3.00). Black individuals (OR: 4.66, 95% CI: 3.04–7.14) and individuals without angina (OR: 1.53, 95% CI: 1.04–2.26), also had higher odds.

Conclusions: Cardiometabolic healthy obesity, along with age, race, and angina status, were significantly associated with positive prostate cancer diagnosis in the United States. These findings suggest that obesity, even in the absence of cardiometabolic dysfunction, may play an important role in prostate cancer risk and should be considered in targeted prevention and screening strategies.

POS17

Assessing Anticholinergic Burden in Geriatric Trauma Patients: A Retrospective Review at Memorial Hermann – Texas Medical Center

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Introduction: Geriatric trauma patients are particularly vulnerable to the adverse drug effects, particularly from potentially inappropriate medications, including those with anticholinergic effects. Anticholinergic medications can cause dry mouth, constipation, urinary retention, and cognitive impairment which complicates hospitalization. While certain medications have a high anticholinergic effect, a combination of certain medications can have similar or even greater anticholinergic effects.

This is a retrospective review that assesses the anticholinergic burden among older adults hospitalized with traumatic injuries in a level 1 trauma academic center, using the Anticholinergic Burden Calculator. Our aim is to identify prescribing patterns that may contribute to negative outcomes.

Methods and Materials: Our study utilizes the ACB (Anticholinergic Burden) Calculator to assess prescriptions for potentially inappropriate medications among patients in the geriatric trauma units (Sarofim 5, Jones 6) in 3-month intervals from October 2024 to September 2025. 431 patients were included in the study. We conducted a comprehensive search of the EMR and identified medications with anticholinergic properties, calculated their relative ACB, and cumulative ACB. Some of the medications identified and (ACB) were Diphenhydramine (3), Tramadol (2), Oxybutynin (3), Hydroxyzine (1), Olanzapine (3), etc. Using our EMR-generated database, we compared frequency of orders for these medications during those 3-month intervals.

Results: During a specific hospitalization, total ACB per patient, average ACB, instances of administration per 4 intervals were calculated, using the time periods: Oct-Dec, Jan–Mar, Apr–Jun, and Jul–Sep. The average ACB per patient visit from October - December 2024 (12.4), Jan–Mar (11.44), Apr–Jun (8.2) and Jul–Sep (8.8). The overall mean ACB across all four periods was 10.2 A t-score was calculated between the first six months of the study and the last six months of the study and found a 29% ($p=0.07$) decrease in the ACB and a 26% ($p=0.06$_ decrease in the administration counts. Across all four time periods, tramadol remains the most prescribed with 69% in Oct-Dec, 53% from Jan-March and 63.7% from July-September. Hydroxyzine administration increased from 4.13% (Oct 24-March 25) to 8.6% (April 25-September 25), which is a 108% increase.

Conclusion: These results underscore the importance of regular review of medication regimens, careful prescribing of anticholinergic medications, and implementation of strategies to minimize cumulative anticholinergic exposure in the geriatric trauma population. Being aware of prescription patterns especially geriatric trauma units, will be instrumental in developing future interventions.

POS18

Initial Antidepressant Adherence and Risk of Relapse in Major Depressive Disorder: A Time-to-Event Analysis of Real-World Data

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Introduction: Medication adherence is critical for effective management of major depressive disorder (MDD), as poor adherence may increase the risk of relapse and adverse clinical outcomes. However, the impact of initial medication adherence (IMA) on subsequent relapses during the continuation phase remains insufficiently characterized.

Objectives: To evaluate the association between initial antidepressant adherence and risk of relapse in patients with MDD.

Methods: A retrospective cohort study was conducted using the 2023-2024 Merative MarketScan commercial claims. Adults initiating selective serotonin reuptake inhibitors (SSRIs) or serotonin–norepinephrine reuptake inhibitors (SNRIs) were identified and required to have continuous enrollment (12 months pre- and post-index) and no prior antidepressant use during a 12-month washout period. IMA (0–3 months) was categorized as low (0–39%), moderate (40–79%), or high (80–100%). Relapse during the continuation phase (months 4–12) was defined as a composite of psychiatric hospitalization, mental health-related emergency department visits, electroconvulsive therapy, suicide attempt, or reinitiation of therapy following a ≥6-month gap. Cox proportional hazards models involving inverse probability of treatment weighting via generalized boosted modelling were used to evaluate the relapse risk.

Results: The study cohort comprised 296,032 MDD patients. Of these, 27.42% had low IMA, 15.22% moderate IMA, and 57.35% high IMA. Overall, 2.77% experienced a relapse during the continuation phase. Relapse rates were highest among patients with low IMA (7.25%), followed by moderate (2.15%) and high (0.80%). The Cox model found that, compared to patients with high adherence, those with moderate and low adherence had significantly higher hazards of relapse (adjusted HR=2.47,95%CI:2.28–2.68; HR=9.17,95%CI: 8.66–9.72, respectively). Mean time to relapse was 224 days (SD: 80).

Conclusions: Higher IMA among antidepressants is strongly associated with reduced risk of relapse. Early adherence represents a critical target for interventions to improve long-term treatment management and associated treatment outcomes in M

POS19

Angiotensin II Receptor Blockers and Incident Dementia: Effects With and Without Statin Use

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Background: Alzheimer's disease and related dementia (ADRD) involve multiple biological pathways, suggesting combination therapies may offer synergistic benefits. RWE suggests potential benefit of Angiotensin II Receptor Blockers (ARB) and statins for ADRD prevention. However, their combined effect remains unknown.

Objective: To assess the effect of ARB vs. Angiotensin-converting enzyme inhibitors (ACEI), with and without concomitant statins, on incident ADRD among older adults, and heterogeneous treatment effects (HTE).

Methods: Using a 20% random sample of fee-for-service Medicare beneficiaries aged 70+ with parts A, B, and D coverage (2007-2019), we conducted active-comparator, new-user studies comparing ARB with ACEI initiators among 1) overall population; 2) patients with baseline statins use (>=2 prescriptions within 180 days before GLP1RA or comparator initiation;); and 3) patients without baseline statins use. Initiation required a 2nd prescription and no ADRD during a 3-year baseline (relaxed to 1-year for combination therapy due to small sample size). Incident ADRD was defined by 2 diagnosis codes or a diagnosis code with a new ADRD medication within 90 days of the code. Propensity scores computed from ~80 baseline covariates (demographics, comorbidities, comedications, and healthcare utilization) measured in the 1-year baseline period were used to estimated inverse probability treatment–weighted 3-year adjusted risk difference (aRD). Intention-to-treat analyses follow-up began at the 2nd prescription until disenrollment of any Medicare parts, death (competing event), ADRD, 3-year follow-up, or 12/31/2019, whichever came first.

Results: Covariates were well balanced after weighting. ARB was associated with lower ADRD risk vs ACEI (N 235575 vs 306049; crude risk 9.3% vs 10.8%, aRD% -1.1 (-1.3, -0.9)). Results were similar when excluding baseline statins users (N 143663 vs 181703; crude risk 7.7% vs 9.4%, aRD% -0.9 (-1.1, -0.7)). Statin combination users were sicker than the overall cohort, and within this subgroup ACEI initiators are sicker, e.g., ischemic heart disease prevalence is (42.3% vs 51.9%) vs (35.8% vs 35.6%) overall. In combination with statins, ADRD risk was markedly lower in ACEI initiators and ARB benefit disappeared (N 7184 v 26829; crude risk 9.4% v 9.4%, aRD% -0.2 (-1.0, 0.6)).

Conclusions: ARB use was associated with reduced ADRD risk overall. Attenuation of the ARB–ACEI difference among statin users may reflect diminished incremental benefit in patients already receiving intensive cardiovascular risk management, as well as residual confounding. Our results highlight promise and methodological challenges (limited sample size, confounding) when evaluating combination therapies for ADRD prevention.

POS20

Initiation of Anticholinergic Deprescribing and Risk of Dementia among Older Adults

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Objective: High anticholinergic medication exposure has been associated with a higher risk of dementia among older adults, which suggests that anticholinergic deprescribing may help reduce dementia risk. However, the effectiveness of anticholinergic deprescribing in reducing the risk of dementia has not been estimated. We aim to estimate the effectiveness of anticholinergic deprescribing in reducing the risk of dementia among older adults using the approach of target trial emulation.

Methods: A total of 1,252 participants ≥65 years in the cohort of the National Alzheimer's Coordinating Center (NACC) who were taking anticholinergic medications were included. The anticholinergic burden (ACB) score was calculated based on anticholinergic medications taken, and initiators of anticholinergic deprescribing were defined as those with an ACB score at least 50% lower than at the previous visit. Dementia was ascertained with clinician diagnosis at each visit. We estimated the analogue of the intention-to-treat effect. Logistic regression models with stabilized inverse probability of treatment and censoring weights were used to estimate cumulative incidence of dementia and risk ratios (RRs) in each year for up to 8 years, and 95% confidence intervals (CIs) were calculated using 200 sets of bootstrapping.

Results: Among the 1,252 included participants, 417 (33.3%) initiated anticholinergic deprescribing. Over an average of 3.1 years of follow-up, 62 dementia cases occurred, including 20 among initiators and 42 among non-initiators. By the end of 8 years, initiators of anticholinergic deprescribing had a 23% lower risk of dementia (RR=0.77, 95% CI: 0.59, 0.97).

Conclusion: Anticholinergic deprescribing was associated with a lower risk of dementia, suggesting that reducing anticholinergic burden may be a promising strategy for dementia risk reduction in older adults.